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December 10, 2007

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: *Alcoa Power Generating, Inc.*, FERC Project No. 2197-073

Dear Ms. Bose:

Stanly County provides in electronic form a copy of the RCRA Facility Investigation ("RFI") report prepared by MFG, Inc., for the Alcoa Badin Works facility located in Badin, Stanly County, North Carolina, in connection with the above-captioned docket, for informational purposes. Stanly County obtained the document in the course of its discussions with APGI, the licensee for Project No. 2197 in connection with APGI's relicensing of its Yadkin Project. The document is quite large, but its filing in this form in the above-captioned proceeding should facilitate the availability of the document for Staff's and other parties' information and use.

Thank you.

Sincerely,

/s/ Frances E. Francis

Frances E. Francis
Attorney for Stanly County

Enclosure (in PDF)

cc: Transmittal Letter sent to All Parties on Official Service List in Project No. 2197-073 (without Enclosure, which will be available in electronic form on eLibrary <http://www.ferc.gov/docs-filing/elibrary.asp>).

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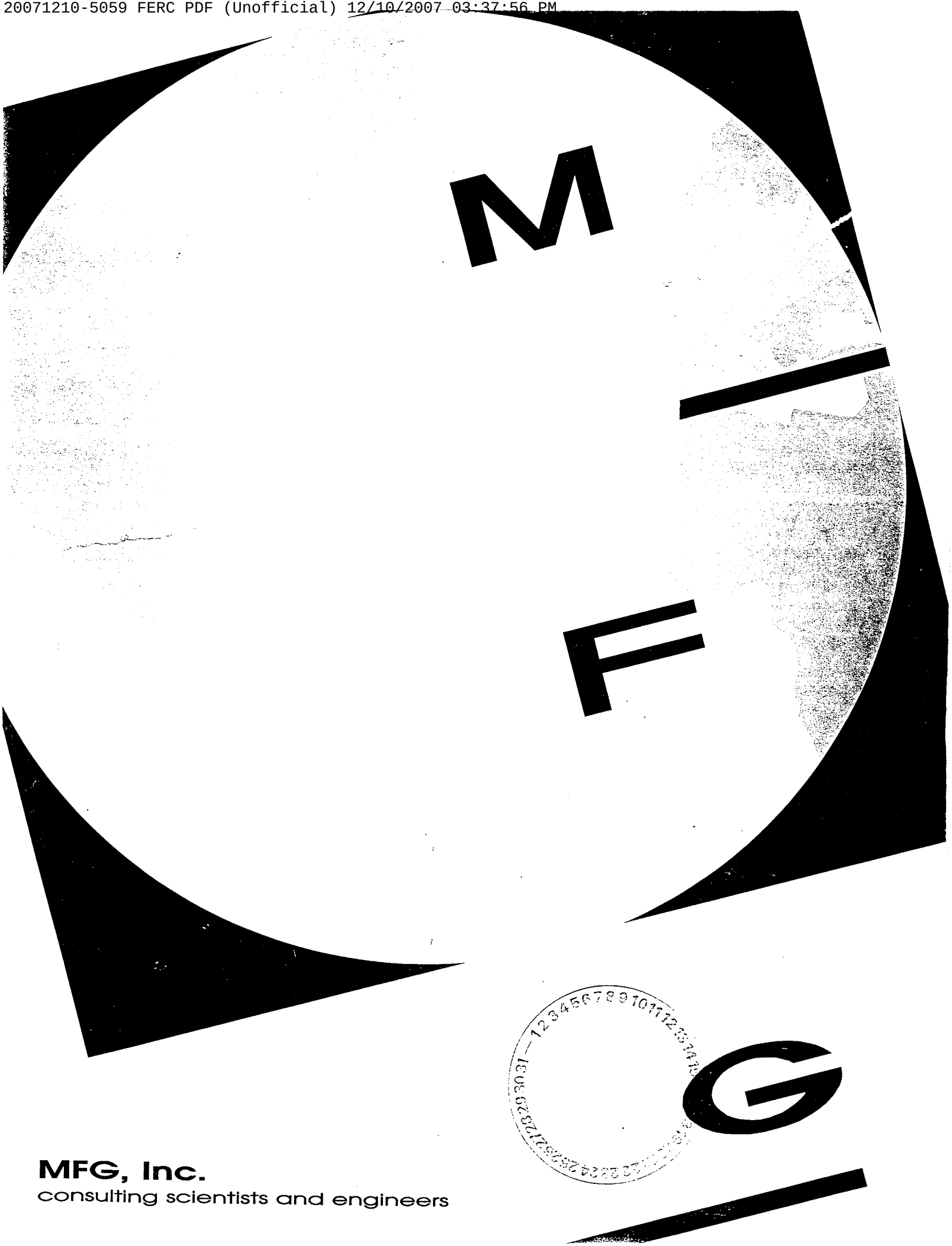

MFG, Inc.
consulting scientists and engineers

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RCRA FACILITY INVESTIGATION REPORT

VOLUME I OF II

ALCOA BADIN WORKS
BADIN, NORTH CAROLINA

MARCH, 2001

Prepared for:

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1.0 INTRODUCTION

This report presents the findings of work conducted at the Alcoa Inc. (Alcoa) Badin, North Carolina Works in accordance with the requirements set forth in the facility's Part-B Resource Conservation and Recovery Act (RCRA) Permit (No. NCD003162542). Specifically, this report fulfills the requirements for conducting a RCRA Facility Investigation (RFI) of the Alcoa Badin Works as required in Part VII.F of the Part-B Permit.

In addition to providing the findings of the RFI, environmental investigation findings and voluntary interim measures work conducted at the Badin Works prior to the RFI are incorporated to provide a comprehensive report of site conditions. This report also provides conclusions and recommendations regarding the need for a Corrective Measures Study (CMS) based on the site conditions.

1.1 Facility Overview

1.1.1 Site Location and Description

Alcoa's Badin Works is located on Highway 740 in Badin, Stanly County, North Carolina (Figure 1-1). The Badin Works occupies 123 acres of land and the fenced, active part of the site is about 90 acres (Figure 1-2). In addition to the main plant area, Alcoa owns two inactive, capped, and closed off-site landfills, the Alcoa/Badin Landfill and the Old Brick Landfill (Figure 1-2). The Alcoa/Badin Landfill is approximately 14 acres in size and is located 500 feet southwest of the fenced part of the plant. The Old Brick Landfill occupies approximately 3 acres and is approximately 0.75 miles to the northeast of the Badin Works main plant site, near Badin Lake.

Alcoa began operations at the site in 1915 as a primary aluminum smelter. Principal products manufactured at the plant site include carbon cathodes and anodes, and continuous cast sheets and specialty metals. In the smelting process, alumina, an aluminum oxide is reduced to aluminum metal in carbon-lined, steel electrolytic cells known as "pots". A conducting, electrolytic bath solution used in the process contains sodium fluoride and aluminum fluoride. After continued use, the carbon potlining ("potliner") fails and must be removed and replaced. The resulting spent potlining (SPL) is regulated as waste (K088) by the United States Environmental Protection Agency (USEPA) under 40 Code of Federal

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Regulations (CFR) 261.32. The hazardous constituent of concern in SPL is cyanide (40 CFR 261, App. VII). Fluoride, which is also associated with SPL, is not a RCRA listed hazardous waste or a hazardous constituent. At full operation, Alcoa generates and disposes off-site approximately 2,700 tons per year of SPL from the production of aluminum.

1.1.2 Environmental Setting

1.1.2.1 Regional Geology

The Badin Works is located in the Carolina Slate Belt of the Piedmont Physiographic Province of North Carolina. The Piedmont typically is subdivided into a series of northeast-trending belts on the basis of lithologic, structural, or metamorphic characteristics. The Carolina Slate Belt is characteristically composed of Cambrian Age metamorphic volcanic and sedimentary rocks, often identified as "argillite" (NC Geologic Survey, 1985). The metavolcanic and metasedimentary rocks of the slate belt have been locally intruded by igneous rocks. The series of rocks comprising the Carolina Slate Belt constitute a stratigraphic succession, which is probably over 30,000 feet thick and extends east below the sediments of the coastal plain (Conley, 1962). The belt varies in width from 25 to 70 miles and extends through the central portion of the state. The belt originates in South Carolina and extends into New England. The Carolina Slate Belt is flanked to the northwest by medium to high-grade metamorphic rocks of the Charlotte Belt. To the southeast, the slate belt is overlain by unconsolidated Cretaceous and Tertiary-age sediments of the Atlantic Coastal Plain.

Weathering of the Carolina Slate Belt rocks often results in a veneer of residual soil overlying bedrock. Residual soils that retain the relic structure of the parent bedrock are referred to as "saprolite". The boundary between soil and rock is often not sharply defined; a transition zone termed "partially weathered bedrock" is normally found. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of partially weathered bedrock and hard rock is quite irregular and erratic, even over short horizontal distances. Lenses and boulders of hard rock and zones of partially weathered rock often are found within the soil mantle, well above the general bedrock level.

Alluvial soils, eroded by surface water from hillsides, often blanket the residual soils and weathered rock in valleys and floodplains. Colluvial soils, sloughed from the hillsides, often collect on the lower hillsides and at the base of slopes.

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1.1.2.2 Regional Hydrogeology

Groundwater occurs in intergranular pore spaces of the residual soils and saprolite, and in fractures present in the bedrock. Residual soils and saprolite, which normally contain clay and silt, are capable of storing fairly large volumes of water because of their high porosity. The ability of residual soils and saprolite to transmit water is fairly low, however, because of the small size of the pores and the complexity of their interconnections.

Unweathered bedrock essentially has no primary (intergranular) porosity. Stresses through geologic time have fractured the rocks, however, and groundwater is transmitted through these fractures. In general, storage capacity of bedrock is lower than that of an equal volume of residual soils or saprolite, but its hydraulic conductivity (ability to transmit water) locally may be greater due to the presence of fractures. Fractures in the rock become smaller and less numerous with depth, and are normally insignificant for water supply at depths greater than about 300 feet (Law Environmental, August 6, 1992).

1.1.2.3 Surface Water

The Alcoa Badin Works is situated near Badin Lake (Figure 1-2). The lake is one of four reservoirs managed by the Yadkin Division of Alcoa Power Generating Inc., a wholly-owned subsidiary of Alcoa, for hydroelectric power generation. SWMU No. 3 (Old Brick Landfill) is situated above and near a cove of the lake (Figure 1-2).

As shown on Figure 1-2, Little Mountain Creek bounds the Alcoa property, immediately south of SWMU No. 2 (Alcoa/Badin Landfill). Alcoa's property line approximates midstream of the creek. The creek has no known significant public use. The creek flows southeastward from the site and eventually enters Mountain Creek (a flow distance of approximately one and one-half miles from the toe of the Alcoa/Badin Landfill). From its juncture with Little Mountain Creek, Mountain Creek flows approximately one and one-half miles to Lake Tillery. Lake Tillery is a reservoir managed by Carolina Power and Light for hydroelectric power generation.

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1.2 Regulatory Framework

Figure 1-3 provides a regulatory summary of the Badin Works RCRA compliance process, beginning with Alcoa's submittal of a Part-B Permit application to USEPA and ending with a list of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) subject to the RFI requirement. Table 1-1 provides a description and Figure 1-4 the location of the plant area SWMUs and AOCs included in the RFI. Figure 1-2 shows the location of the two off-plant SWMUs; the Alcoa/Badin Landfill (SWMU No. 2); and the Old Brick Landfill (SWMU No. 3) relative to the plant.

In March 1990, Alcoa filed a RCRA Part B permit application with USEPA to store SPL waste (K088) on-site in an enclosed storage building for greater than 90 days. In response to the permit application, USEPA Region IV contracted A.T. Kearney Inc. and DPRA, Inc. to perform a RCRA Facility Assessment (RFA) of the Alcoa Badin Works and associated off-site locations. The RFA conducted by the USEPA contractors included a "Preliminary Review" and "Visual Site Inspection", but did not include a "Sampling Visit".

The contractors submitted to USEPA the March 1990 document entitled Interim *RCRA Facility Assessment Report; Alcoa Badin Works; Badin North Carolina; USEPA I.D. No. NCD003162542.* The RFA report included recommendations from the contractors that several of the SWMUs/AOCs be subjected to an RFI (SWMU Nos. 1, 2, 3, and 7), Confirmatory (RFA Phase II) Sampling (SWMU Nos. 4, 7[(a)],[b] 11, 22, and AOCs-A and -B), or Further Assessment (SWMU Nos. 25, and 33).

In response to the RFA and ensuing additional information provided by Alcoa, the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) Division of Solid Waste Management (now the NCDENR Division of Waste Management [Department]), in cooperation with USEPA Region IV, issued the final RCRA Part-B Permit to Alcoa on March 30, 1992. The permit (No. NCD003162542) became effective on May 4, 1992 and authorizes Alcoa to operate an on-site, hazardous waste storage facility.

In addition to authorizing the storage of hazardous waste, the permit requires Alcoa to conduct the following investigation of the facility SWMUs and AOCs:

[(a)] The RFA recommended Confirmatory Sampling of the air compressor portion of SWMU No. 7, the Aerated Lagoon.

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- Part VII.E requires Confirmatory Sampling of eight SWMUs (Nos. 4, 7, 11, 20, 22, 36, 38, and 39) and AOC-A; and
- Part VII.F requires a RCRA Facility Investigation of six SWMUs (Nos. 1, 2, 3, 25, 33, and 35) and AOC-B.

On June 18, 1992, Alcoa submitted the Confirmatory Sampling Work Plan as required by Part II.E of the permit. The Confirmatory Sampling Work Plan provided for sampling to evaluate potential releases of hazardous wastes or constituents from the eight SWMUs and one AOC listed in Part VII.E of the Permit. USEPA sent comments on the Work Plan to Alcoa on January 26, 1993. Alcoa incorporated USEPA's comments and on March 12, 1993 submitted a revised Confirmatory Sampling Work Plan. USEPA approved the Work Plan in a letter to Alcoa dated April 29, 1993.

Alcoa initiated Confirmatory Sampling activities in accordance with the approved Work Plan to address potential releases from the SWMUs and AOCs subjected to this requirement except for SWMU No. 7, the Aerated Lagoon. In approving the final Confirmatory Sampling Work Plan, USEPA agreed to permit Alcoa to defer Confirmatory Sampling at this SWMU pending drainage of the lagoon to enable soil sampling beneath the lagoon.

Alcoa submitted to USEPA the Confirmatory Sampling Report (Law Environmental, June 28, 1993), and an addendum to the report (Law Environmental, November 1, 1993) regarding Confirmatory Sampling of SWMU No. 7, the Aerated Lagoon. USEPA reviewed these reports, and in a letter dated January 11, 1994 directed Alcoa to include, in addition to the SWMUs and AOC listed in Part VII.F of the Part-B Permit, RFI activities for SWMU Nos. 4, 11, 22, 38, AOC-A, and two newly identified SWMUs (Nos. 42 and 43). SWMU Nos. 42 and 43 were added based on information provided by Alcoa to USEPA in a letter dated October 7, 1993. SWMU Nos. 7, 20, and 39 were eliminated from the RFI based on the Confirmatory Sampling findings.

Alcoa submitted the RFI Work Plan to the USEPA in April 1994. After the Work Plan submittal, the Department assumed responsibility from USEPA as the authorizing agency for the Badin Works RFI. The Work Plan subsequently was revised to address Department comments (Revision 1 October 1995; Revision 2 November 1998; and Revision 3 February 1999). The Department approved the RFI Work Plan in a letter to Alcoa dated February 10, 1999. Alcoa implemented the approved Work Plan in September through October 1999 and January 2000.

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In addition to the SWMUs in the approved RFI Work Plan, Alcoa identified two new SWMUs (Nos. 44 and 46) and subjected them to RFI activities. SWMU No. 44 was added by Alcoa in a letter to the Department dated October 10, 1996 following voluntary investigation of this area by a geophysical survey and test borings. SWMU No. 46 was identified as an area of suspected SPL based on an aerial photo review by Alcoa and was investigated during RFI activities in September 1999. Following verification of SPL by laboratory analysis of subsurface soil samples, Alcoa reported SWMU No. 46 to the Department in a letter dated November 22, 1999.

In April 2000, Alcoa submitted a Phase II RFI Work Plan to NCDENR. The purpose of Phase II was to fill data gaps identified after evaluating the data from the initial RFI work. The Department approved the Phase II Work Plan in a letter to Alcoa dated June 27, 2000. Alcoa implemented the Phase II Work Plan in August and September 2000.

As indicated on Figure 1-3 and Table 1-1, Alcoa implemented the RFI activities for several SWMUs prior to final approval of the RFI Work Plan by the Department. The investigation work at these SWMUs was done to enable Alcoa to implement voluntary Interim Measures (IMs). The accelerated investigation work and IMs are further discussed in Section 2.11 and throughout Section 4 of this report.

1.3 RFI Objectives

The objectives of the RFI are as follows:

- Assess whether there have been releases of site constituents of interest (COIs) from the facility SWMUs and AOCs at concentrations posing potential risks to human health and the environment.
- Define nature, extent, and rate of migration of any release of COIs from SWMUs or AOCs at concentrations posing potential risk to human health and the environment.
- Characterize the site physical conditions (e.g., geology and hydrogeology) to understand potential COI transport mechanisms.
- Characterize the potential risks to human health and the environment posed by exposure to media containing COIs.

The basis of these objectives is Appendix B.II of the Badin Works Part-B Permit and USEPA's *RCRA Facility Investigation (RFI) Guidance* (1989a).

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This RFI Report focuses on evaluating potential risks to human health related to the SWMUs and AOCs. This is appropriate because the Alcoa Badin Works land use is industrial and the site is occupied by active plant operations and/or areas that undergo routine operation and maintenance activities (e.g., mowing of capped landfill areas).

1.4 Land Use and Risk Assessment Considerations

In recent years, USEPA has published proposed rulemaking and guidance that emphasizes the importance of considering current and reasonably anticipated future land use and reasonable risk exposure assumptions throughout the RCRA Corrective Action process. The *Advanced Notice of Proposed Rulemaking (ANPR)* for Corrective Action (Federal Register, Volume 61, Number 85, 19432-19464, May 1, 1996) is considered to reflect USEPA's most recent thinking on land use considerations in the RCRA Corrective Action program. Furthermore, USEPA has emphasized its expectation that the ANPR will be used as guidance for the RCRA Corrective Action process [Memorandum from Elliot Laws and Steven Herman, USEPA Headquarters to RCRA/CERCLA Senior Policy Managers entitled *Use of the Corrective Action Advance Notice of Proposed Rulemaking as Guidance* (January 17, 1997)].

The ANPR discusses how site investigation, site remediation, land use, and risk assessment are all linked together. As discussed in the ANPR, the objective of site investigation and remediation activities is to ultimately achieve conditions such that the site may be used for its "reasonably anticipated future land use." This means that all site investigation activities, including the risk assessment, as well as all evaluations of potential corrective measures, should focus on the development of "practicable and cost-effective remedies" that are consistent with "reasonable anticipated future land use." As a result, site investigation activities, risk assessment exposure evaluations, and remediation activities for an industrial site (assuming reasonably anticipated future land use is industrial) may differ from a site where future residential land use is likely.

In addition to USEPA rules and guidance, North Carolina Senate Bill 1159 Law 1999-198 recognizes the importance of allowing the NCDENR to consider current and future land use in site remedial action programs. Bill 1159 allows restrictions to be placed on current and future land use to control public exposure to site media (e.g., soil, fill material and groundwater). If a risk-based approach is used for a site, the land owner can deed-record the land use restrictions.

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The Badin Works property has been used for industrial purposes since 1915, and it is Alcoa's position that the reasonably anticipated future land use for the property is industrial. As a result, the RFI for the Badin Works was completed on the basis of current and future industrial land use. However, to be conservative in protecting human health now and in the future, the risk assessment portion of this RFI also evaluates on-site media concentrations against highly conservative residential values. The comparison to residential screening values ensures the protection of current off-site residential areas and also documents for Alcoa and the Department where future work may be required in the unlikely event land use would change from industrial to residential.

1.5 Primary Constituent of Interest (COI)

The primary COI in the Badin Works soil and groundwater is cyanide associated with SPL that was disposed on site and in the two off-site landfills. Most of the cyanide in fresh SPL is in the form of free cyanide. However, once released to the environment, such as that found in the subsurface at the Badin Works, this free cyanide will quickly convert to iron-cyanide complexes (hexacyanoferrate compounds or ferro-ferric-cyanides – $Fe(CN)_6$).

Free cyanide (CN^-) and hydrogen cyanide (HCN) are considered the more toxic forms, whereas the iron cyanides and other complexed cyanides are considerably less bioavailable and therefore less toxic (ATSDR, 1997). The North Carolina 2L Groundwater Protection Standard (NC 2L Standard) for cyanide is based on the toxicity assessment of the USEPA reference dose (RfD) for free cyanide. In the critical study upon which the RfD is based, hydrogen cyanide (HCN) was the chemical form administered in the 2-year rat feeding study (USEPA, 2000a). In the gastric environment, HCN is readily dissociates to free cyanide, and the exposure dose reflects free cyanide (USEPA, 2000a). However, the NCDENR conservatively applies the NC 2L Standard for (free) cyanide to measurements of total cyanide. The complexed cyanide found in groundwater at this site is expected to be less bioavailable than free cyanide.

USEPA recognizes that the toxicity of cyanide is highly dependent on the species present (USEPA, 1992b) and references free cyanide as the applicable form to which the Maximum Contaminant Level (MCL) applies (40CFR, Chapter 1, §141.62). As a result, it is Alcoa's position that for cyanide, the decision to further investigate or remediate a SWMU or AOC should be based on free cyanide, not total cyanide concentrations. However, to ensure conservatism in the risk assessment, total cyanide concentrations in site media are screened against values that are based on the toxicity of free cyanide.

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The screening values include the Region III Risk Based Concentrations (RBCs), USEPA default Soil Screening Levels (SSLs), NC SSLs, Federal MCLs, and NC 2L Standard for cyanide, which are all based on the toxicity of free cyanide. This step ensures total cyanide is not prematurely dropped as a COI in the risk assessment.

1.6 SWMU-Area Concept

RFI SWMUs/AOCs in the plant area include SWMU Nos. 1, 4, 11, 22, 25, 33, 35, 38, 42, 44 and 46 and AOCs –A and –B (Figure 1-4, Table 1-1). SWMUs in the north end of the plant (North End) include SWMU Nos. 1, 4, 22, 25, 33, 35, and 44. In accordance with NCDENR's letter to Alcoa dated September 9, 1999 and the approved RFI Work Plan, SWMUs in the North End are addressed in the RFI using the "SWMU-Area Concept", whereby SWMUs are grouped together based on commonalities.

Groundwater for all the SWMUs in the North End (SWMU Nos. 1, 4, 22, 25, 33, 35, and 44) is addressed using the SWMU-Area concept because the SWMUs are all located within a contiguous infilled valley, have the same COIs, and the COIs in groundwater are not traceable to any individual SWMU. Groundwater beneath the SWMUs and AOCs in the central and southern portion of the plant (SWMU Nos. 11, 38, 42, and 46, and AOCs-A and -B), and off-site landfills (SWMU Nos. 2 and 3) is addressed on an individual SWMU and AOC basis.

SWMU Nos. 1, 4, and 33 are grouped into "SWMU Group 1" for the purposes of evaluating soils based on the results of the RFI and interim measures work. These SWMUs are grouped together based on similar COIs, proximity to one another, and common interim measure (capped). The soil evaluation is performed individually for each of the remaining SWMUs/AOCs.

1.7 Report Organization

Section 2 of this report provides the RFI scope of work and details of the RFI implementation. Section 3 presents the approach followed in conducting the screening level and quantitative human health risk assessment. Section 4 presents the RFI findings and risk assessment results. Section 5 presents the RFI summary, conclusions, and recommendations. Section 6 provides a list of the references cited within this report.

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2.0 RFI SCOPE OF WORK

This section describes the activities performed for the Badin Works RFI. Included in this section are the scope of work for the RFI soil, groundwater, surface water, and sediment investigation; fracture trace analysis; and residential well survey. In addition, this section describes the RFI data validation activities and provides an overview of the human health risk assessment. These activities were completed in accordance with the approved RFI Work Plan (Alcoa, April 11, 1994; Revision 1-October 26, 1995; Revision 2-November 2, 1998; and Revision 3-February 5, 1999) and Phase II Work Plan (Alcoa, April 11, 2000).

MFG Inc. (MFG) was responsible for overall management of the RFI, which was comprised of two phases. The initial phase of RFI field data collection (Phase I) was performed by IT Corporation (IT) in September and October 1999, and January 2000. IT subcontracted the drilling and test pit work to Parratt-Wolff Inc. of Hillsborough, NC and surveying work to T.W. Harris of Albemarle, NC. Phase I laboratory analytical work was performed by Quanterra, Inc. (now Severn Trent Laboratories [STL]) under contract to IT. Quanterra's NC-certified Tampa, Florida and Austin, Texas Laboratories were responsible for receipt of RFI samples and coordination of sample analysis.

Phase II RFI field data collection was performed by MFG in August and September 2000. MFG subcontracted the drilling and test pit work to Parratt-Wolff and surveying to T.W. Harris. Phase II laboratory analytical work was performed by STL. STL's NC-certified Canton, Ohio laboratory was responsible for receipt of the Phase II samples and coordination of sample analysis.

In addition to the activities described above, this section discusses the integration of pre-existing site environmental information into this RFI report. Pre-existing information includes RFI data collected on an accelerated schedule by Alcoa prior to implementation of voluntary interim measures, as well as previous environmental site investigations. Section 2.11 provides a summary of the pre-existing environmental information that is incorporated into the RFI report.

2.1 Soil Investigation

A summary of the RFI soil sampling and analysis program implemented during Phase I is provided in Table 2-1 and Phase II in Table 2-2. Table 2-3 provides the analytical methods used to analyze the RFI

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samples. More than 100 soil samples were collected during the investigation. Some of the Phase I samples were recollected due to missed holding times. The recollected samples are distinguished on Table 2-1 by the "R" at the end of the sample designation. The RFI soil sample locations are shown on Figures 2-1, 2-2, and 2-3. Section 2.11 and Section 4 provide details on the utilization of soil data that pre-dates the 1999 RFI work. Following is a description of the RFI soil investigation, which followed the protocol in the approved RFI Work Plan.

2.1.1 Soil Sample Collection Procedures

Equipment used to collect RFI soil samples included a hollow stem auger (HSA) drill rig and split-spoon samplers, a backhoe, and hand bucket augers. Tables 2-1 and 2-2 identify the sampling method used to collect each RFI soil sample.

The HSA drill rig and split-spoon samplers were generally used to retrieve soil at test boring locations where samples deeper than 2 feet were planned. The HSA test borings were advanced using 3 ¼-inch inside diameter (ID) HSAs, and a 1 ½ ID and 2-inch outside diameter (OD), 2-foot long split-spoon sampler. Split-spoon soil samples were collected ahead of the lead auger by pushing the sampler into undisturbed soil with a hydraulic hammer. Upon completion, the borings were backfilled and sealed with a cement/bentonite grout.

The backhoe was used to excavate test pits to allow for visual investigation of suspected SPL. Samples were retrieved from the test pits at selected locations using the backhoe bucket. The soil samples for laboratory analysis were taken from the center of the backhoe bucket. Upon completion, excavated soil was placed back into the test pit.

Stainless steel hand-operated bucket augers were used to retrieve soil at locations where surface samples (0-to 6-inches) were collected and where test borings of approximately 2 feet or less were advanced. The small volume of excess soil generated by boring activities was placed back into the bore hole.

Immediately upon retrieval by the sampling equipment, each sample designated for laboratory analysis was properly prepared and placed into the appropriate sample containers. If a sample was

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designated for VOC analysis, a discrete VOC sample was collected first using an EnCore™ sampler and containers.

Following collection of soil for VOC analysis, the remainder of the sample was placed into a stainless steel bowl and thoroughly homogenized with a stainless steel spoon prior to filling sample bottles for the remaining parameters (e.g., SVOCs, PCBs/pesticides, and inorganics). At SWMU No. 46 (West SPL Area), it was necessary in a few cases to screen the homogenized soil through a No. 10 sieve to remove coarse particles or rock fragments in order to obtain a sample that could be analyzed by the laboratory. In one case at SWMU No. 46 (waste sample WA-TP-01-3.5-4.5), the sample was too coarse to be placed in the sample jars. An attempt to break the sample into smaller pieces with a hammer was not successful. As a result, the sample was placed in a plastic bag and sent to the laboratory with instructions to crush the sample and analyze.

Phase II soil samples from SWMU No. 35 were screened in the field for PCBs using a Strategic Diagnostics Ensys™ PCB test kit. The kit is a system that performs relatively rapid, semi-quantitative testing for PCBs in soil at a specific action level. MFG personnel utilized a kit that was standardized for 2 parts per million (ppm) using Aroclor 1248, and 1260, which were the only two PCBs detected in Phase I soil samples from this SWMU.

The test kit operation is based on an enzyme-linked immunosorbant assay to determine the concentration of PCBs. The kit uses an enzyme that has been chemically linked to a PCB molecule to create a PCB reagent (conjugate). The test procedure entails collecting a 5 gram soil sample and extracting PCBs from it using methanol. To initiate the PCB test, a PCB-enzyme conjugate is added to antibody-coated test tubes. The soil extract is then added to the test tube. The PCBs from the soil extract (if present) and the PCB-enzyme conjugate compete for a limited number of antibody sites in the test tube. After an incubation period, the test tube is rinsed and a color developing solution is added. A photometer is used to measure the absorbance of each test tube and compared to a standard. Color development is inversely related to the PCB concentration (darker color indicates less PCB than calibrated standard material). Selected soil screening results were confirmed by laboratory analysis.

After filling, the soil sample containers designated for shipment to the laboratory were sealed, labeled, and placed in ice-filled shipping containers. If held overnight before shipping, samples were placed inside a sample refrigerator within a secure room in plant Building No. 134. Samples were logged

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onto a chain of custody (COC) form and shipped by overnight courier (Federal Express, Airborne or United Parcel Service) to the laboratory. COC forms are included in Appendix A-1.

Geologic descriptions of the soil samples were recorded in the field book. Test boring logs and test pit logs are included in Appendix B.

2.1.2 Decontamination Procedure

All soil samples were collected with clean soil sampling equipment. Soil sampling equipment was decontaminated after use in accordance with the following procedure, as included in the approved RFI Work plan:

- If heavily soiled, wash with tap water and use a brush to remove soil particles;
- Wash with tap water/non-phosphate soap;
- Rinse with tap water;
- Rinse with 10 % nitric acid/90% tap water solution;
- Rinse with organic free/analyte free water;
- Rinse with solvent (pesticide grade isopropanol);
- Rinse with organic free/analyte free water;
- Air dry; and
- Cover with plastic.

2.2 Groundwater Investigation

The Phase I RFI groundwater investigation included installation and development of two monitoring wells, measurement of groundwater elevations in 44 monitoring wells/piezometers, and collection of groundwater samples from 43 wells and a free product sample from one well. A summary of the Phase I RFI groundwater sampling and analysis program is provided in Table 2-4. Several of the wells were resampled in January 2000 due to the missed holding times for cyanide analysis. The recollected samples are distinguished on Table 2-4 by the "R" at the end of the sample designation. The Phase II investigation included the installation and development of three monitoring wells and collection

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and analysis of groundwater samples from eight wells. A summary of the Phase II groundwater investigation is provided on Table 2-5. The RFI groundwater sample locations are shown on Figures 2-2, 2-3, and 2-4.

Section 2.11 and Section 4 provide discuss utilization of groundwater data that pre-date the RFI work. The following is a description of the RFI groundwater investigation, which followed protocols presented in the approved RFI Work Plan.

2.2.1 Monitoring Well Installation and Development

Two monitoring wells (B016-MW-3 and MW-27) were installed during Phase I RFI activities and three (OBL-MW-6, MW-28 and MW-29) during Phase II using a HSA drilling rig. Initially, test borings were advanced into the subsurface using 3 ¼ –inch ID HSAs. Split-spoon sampling was conducted ahead of the lead auger to identify soil types and the top of the saturated zone. This information was used to select the appropriate interval for well screen placement.

At locations OBL-MW-6, MW-27, MW-28, and MW-29, 3 ¼ -inch ID HSAs and split-spoon samples were used to obtain subsurface lithology and identify the saturated zone for well screen placement. The borings were subsequently overdrilled using 6 ¼-inch ID and 10-inch OD HSAs prior to constructing each well. Boring S42-TB-02 was used to determine well screen placement at B016-MW-3. S42-TB-02 was abandoned by grouting after reaching the total depth. The borehole for B016-MW-3 was drilled using 6 ¼ -inch ID/10-inch OD HSAs within a few feet of boring S42-TB-02.

At MW-27, MW-28, MW-29 and OBL-MW-6, a 2-inch Schedule 40 PVC monitoring well, consisting of a 10-foot length of 0.010-inch well screen with riser pipe extending a few feet above the land surface was placed inside the HSA's in the borehole. Placement of remaining well materials inside the HSAs proceeded in a manner that allowed the well construction material to fill the annular space between the casing and borehole as the augers were slowly withdrawn. A sand filter pack was installed around the well screen and riser pipe to a minimum height of two feet above the well screen. A minimum of one-foot of bentonite pellets were placed above the sand filter pack and hydrated with potable water. A cement/bentonite grout mixture was placed above the bentonite seal to the land surface. MW-27, MW-28, MW-29 and OBL-MW-6 were completed at surface by installing a 4-inch diameter outer steel protective casing. A two-foot round or square concrete pad was installed at the surface at each well. The

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concrete pad was sloped to promote drainage of precipitation runoff away from the well. B016-MW-3 was constructed in a similar manner, except construction was done inside an open borehole. The soils (partially weathered rock) encountered in B016-MW-3 allowed the borehole to remain open during construction. B016-MW-3 was completed at surface with a steel flush mount well cover and a two-foot diameter, round, sloped concrete pad. Monitoring well construction diagrams are included in Appendix B. The monitoring wells were developed no sooner than 24 hours after installation. Wells were developed by surging and pumping with a 1 ½ -inch centrifugal purge pump.

2.2.2 Groundwater Sample Collection Procedure

Table 2-4 and 2-5 identify the sampling method used to collect each RFI groundwater sample. All except two of the monitoring wells used for the RFI were purged and sampled using Teflon-lined stainless steel bladder pumps with Teflon-lined discharge tubing. Groundwater in MW-FO-2 was purged and sampled using a disposable Teflon bailer. In addition, a disposable Teflon bailer was used to collect free-floating product (lubricating oil) from B016-MW-2.

Prior to initiating well purging for groundwater sample collection, groundwater levels were measured in each well and the volume of standing water in the well casing calculated. A minimum of three well volumes were removed from the well and periodic field measurements of pH, specific conductivity, turbidity, and temperature were recorded. Groundwater samples were collected from the well when pH was ± 0.1 standard units (SU), temperature was stable, specific conductivity was ± 10% for three consecutive volumes, and turbidity was less than or equal to 10 NTU. At the discretion of the field manager, wells that did not stabilize were sampled after removing five well volumes. Table 2-6 provides a summary of the final readings of pH, specific conductivity, turbidity, and temperature taken after the well was purged and prior to sample collection.

When the bladder pump was used for well purging, samples were collected from the Teflon-lined discharge hose directly into the appropriate sample containers. The samples for dissolved metals analysis were collected into the sample containers through a 0.45 micron in-line filter attached to the Teflon-lined discharge hose.

When a Teflon bailer was used for purging and sampling MW-FO-2, it was gently lowered into and removed from the water column to minimize turbulence. When purging was complete, the sample

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was poured from the bailer directly into the appropriate sample containers. The free-product sample was collected from B016-MW-2 without purging to allow for collection of sufficient sample volume.

The vials for VOC samples were the only pre-preserved sample containers used for groundwater sampling. Preservatives were added in the field to the remaining samples as required by method protocol. Although chlorine is not a chemical associated with the aluminum smelting process, groundwater samples from three North End monitoring wells (MW-6, MW-7, and MW-16) were field screened during Phase II for residual chlorine prior to preservation (with NaOH) and analysis for cyanide, as indicated by the state of North Carolina [15A NCAC 2H.0805(a)]. The chlorine test consisted of moistening a small piece of potassium iodide-starch test paper with an acetate buffer solution and adding a few drops of the groundwater sample. If the test paper changes color to blue, chlorine is present, and a reductant should be added before preservation and analysis. None of the groundwater samples tested from the North End monitoring wells had an indication of residual chlorine and therefore it was not necessary to add the reductant.

Each sample container was sealed, labeled, and placed in ice-filled shipping containers. If held overnight before shipping, samples were placed inside a sample refrigerator within a secured room in plant Building No. 134. Samples were logged onto a COC form and shipped by overnight courier to the laboratory.

2.2.3 Decontamination Procedure

Bladder pumps were field decontaminated after use in a well. Teflon tubing used with the bladder pumps was dedicated to each well and as a result was not subjected to field decontamination. Teflon bailers were disposed after use and therefore did not require decontamination.

Field decontamination of bladder pumps was in accordance with the following procedure, as specified in the approved RFI Work Plan.

- Wash with tap water/non-phosphate detergent;
- Rinse with Tap water;
- Rinse with 10% nitric acid/90% tap water solution;

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- Rinse with organic free/analyte free water;
- Rinse with pesticide grade isopropanol;
- Rinse with organic free/analyte free water;
- Air dry; and
- Cover with plastic.

The pumps were decontaminated by fully submerging them inside 4-inch PVC tubes filled with each of the decontamination solutions listed above. The pumps were then flushed with a minimum of 7 cycles of each solution. The outsides of the pumps were washed concurrently with the inside of the pumps.

2.3 Surface Water and Sediment Investigation

A summary of the Phases I and II RFI surface water/sediment sampling and analysis program is provided in Table 2-7. RFI surface water and sediment samples were collected from Little Mountain Creek at the two locations shown on Figure 2-2. A surface water sample (NE-SW) was collected from Badin Lake at the location illustrated on Figure 2-4.

The following is a description of the RFI surface water and sediment investigation, which followed the protocols in the approved RFI Work Plan.

2.3.1 Sample Collection Procedures

During Phase I, surface water and sediment samples were collected from Little Mountain Creek. Sampling personnel were positioned downstream of the sample location to avoid having the samples affected by disturbed bottom sediments. With the exception of VOC samples, surface water samples were collected directly into the appropriate sample containers by dipping the mouth of the container into the stream and filling. The surface water sample for VOC analysis was first collected from the stream into a 500 ml amber glass sample container and then poured into the pre-preserved VOC vials. This was done so the preservative would not be flushed from the vial during sampling and to prevent air bubbles in the VOC sample container. When collecting the surface water sample from the stream, the mouth of the containers were positioned upstream.

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An attempt was made to directly collect sediment sample for VOC analysis directly from the stream bed using the EnCore™ sampler. However, the presence of rocks on the stream bed prevented direct collection. A sediment sample was collected from the stream bed using a stainless steel spoon and was screened through a No. 10 sieve into a stainless steel bowl to remove coarse rocks. The Encore sampler was then used to collect the VOC sample from the stainless steel bowl. The remaining sediment was thoroughly homogenized and the other parameters (e.g., SVOCs, PCBs and inorganics) were collected into the appropriate sample containers.

The Phase II surface water sample for trichloroethene (NE-SW) was collected along the west shore of Badin Lake, east of monitoring well MW-16. The sample was collected by dipping the mouth of a clean 8-ounce sample jar into the lake water, then carefully transferring the sample into the pre-preserved 40-ml VOC vials. This procedure was used to keep the preservative from being flushed from the VOC vials and to remain consistent with procedures used in surface water sample collection during Phase I.

After filling, the surface water and sediment sample containers were sealed, labeled, and placed in ice-filled shipping containers. Samples were logged onto a COC form and shipped by overnight courier to the laboratory.

2.3.2 Decontamination Procedures

Decontamination procedures for the sediment sampling equipment followed that described for soils in Section 2.1.2. There was no equipment decontamination associated with surface water sampling because of direct collection into the sample bottle. For the VOCs, which were transferred from an amber glass container to the 40 ml vials, a clean, dedicated amber container supplied by the analytical laboratory was used each time to collect a surface water sample.

2.4 Field QA/QC Samples

Field quality assurance/quality control (QA/QC) samples collected during the RFI include duplicate samples, trip blanks, and equipment/field blanks. In addition to the field QA/QC samples described below, the field team collected a triple sample volume for every 20 samples of similar matrix to

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accommodate laboratory matrix spike/matrix spike duplicate analysis. Following is a description of the field QA/QC samples and frequency of collection.

Duplicate Samples: Duplicate samples are useful in documenting the precision of sampling. Duplicate samples are independent samples collected from the same source and as close as possible in time during a sampling event. One duplicate sample was collected per analytical parameter for each group of samples of similar matrix (i.e., solid or aqueous) at a minimum frequency of one duplicate for every 20 samples collected.

Trip Blanks: Trip blanks are used to assess the potential for cross-contamination by VOCs during field sampling, handling, and shipping of samples. Trip blanks are sealed samples prepared by the laboratory that accompany the sample jars from the lab to the field and the samples from field back to the laboratory. The trip blanks were prepared by the RFI analytical laboratory and were comprised of analyte-free water in VOC vials. One trip blank was submitted per shipment of VOCs.

Equipment/Field Blanks: Equipment blanks are used to assess the adequacy of the equipment decontamination in the field and field blanks are used to assess potential for sample cross-contamination by air-borne contaminants from sources not associated with the sample. Equipment blanks are prepared by pouring analyte-free water over or through cleaned sample equipment and into the appropriate sample containers. Field blanks are prepared by pouring analyte-free water directly into the sample containers.

Because the collection of both equipment and field blanks is somewhat redundant (i.e., an equipment blank would account for contaminants of both air-borne contaminants and equipment decontamination), Alcoa requested that the Department allow collection of equipment blanks where non-dedicated sampling equipment is used and field blanks where dedicated sampling equipment is used. The Department approved this modification in a letter to Alcoa dated September 9, 1999.

A minimum of one equipment blank was collected per parameter for each group of 20 samples submitted to the laboratory. Equipment blanks for soil and sediment were collected by pouring analyte free water over cleaned equipment (e.g., stainless steel bowls, split-spoons, or hand augers). Equipment blanks for groundwater samples were collected through cleaned pumps and Teflon tubing. For dissolved metals equipment blanks, a new in-line 0.45 micron filter was added to the Teflon-lined discharge hose prior to collecting the sample. An equipment blank was collected for trichloroethene for the Phase II

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surface water sample from Badin Lake, by first decontaminating an 8-ounce sampling jar, then adding analyte free water to the 8-ounce jar. The analyte-free water was then transferred to the 40-ml VOC vials as outlined above to be used as the blank.

Field blanks were not collected as dedicated equipment (Teflon bailers) were used on only two wells and two Little Mountain Creek surface water samples (amber bottle for VOCs), and the 1 per 20 QA/QC requirement was accounted for by the equipment blanks.

2.5 Waste Handling and Disposal

All monitoring well development and purge waters, decontamination fluids, and drill cuttings were properly managed and disposed. Purged groundwater from the plant area and Alcoa/Badin Landfill monitoring wells was collected into 5-gallon polyethylene containers with sealing screw-top lids. With the exception of the purged water from SWMU No. 42 (Building 016) and AOC-A (Fuel Oil Release Tank), the purge water in the polyethylene containers was transferred to a 120-gallon polyethylene tank, transported to Alcoa's 90-day hazardous waste storage area, and transferred to 55-gallon drums. The purged water from SWMU No. 42 and AOC-A was transferred directly from the 5-gallon polyethylene containers to 55-gallon drums. All the drums were securely sealed and labeled.

Purged groundwater at SWMU No. 3 (Old Brick Landfill) was collected into the 5-gallon polyethylene containers and transferred to a 55-gallon drum staged inside the secured, fenced area. The drum in the Old Brick Landfill was not transported to Alcoa's 90-day hazardous waste storage because this would have required transport over public roadways. Instead, Alcoa shipped the drum directly to a permitted disposal facility using a licensed hazardous waste transporter.

Purged groundwater and development water from Building 016 wells (B016-MW-1 and B016-MW-3) were disposed of as non-hazardous following receipt and review of the analytical results. There was no water generated from B016-MW-2. Purged groundwater from all other sampled wells, development water from newly installed monitoring wells MW-27, MW-28, MW-29 and OBL-MW-6, and all decontamination fluids were disposed of by Alcoa as hazardous waste.

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Soil cuttings from SWMU No. 42 (Building 016) and SWMU No. 3 (Old Brick Landfill) were managed as non-hazardous. Soil cuttings from SWMU No. 35 ("Old" Waste Oil Storage Area) and SWMU No. 46 (West SPL Area) were managed as hazardous waste by Alcoa.

2.6 Sample Location Survey

T.W. Harris and Associates, Inc., a North Carolina Registered Land Surveyor, surveyed all RFI soil and sediment sample locations to an accuracy of 0.1 foot horizontally and vertically. Monitoring wells installed during the RFI were surveyed to an accuracy of 0.01 foot vertically and 0.1 foot horizontally. Existing monitoring wells were surveyed previously by T.W. Harris and Associates. Horizontal coordinates were surveyed to both the state plane and plant coordinate systems.

2.7 Fracture Orientation Evaluation

Fracture orientation was evaluated to assess the potential for preferential groundwater flow paths within bedrock and saprolite. This evaluation consisted of two tasks: 1) lineament analysis of topographic maps of the site area, and 2) measurement of fracture orientation on outcrops within a two-mile radius of the site using a Brunton® compass.

2.7.1 Topographic Lineament (Fracture Trace) Analysis

Lineament analysis of topographic maps is a remote sensing technique used to identify potential bedrock fracture orientation based on differential weathering of bedrock. Due to the increased surface area, weathering along fractures typically occurs more rapidly than surrounding unfractured rock. Straight line segments of streams and/or valleys, termed lineaments, can be used to identify potential fracture orientations remotely. This method can provide regional information regarding fracture orientation that can be used to assess the potential for preferential flow of groundwater within bedrock and saprolite. Lineament analysis, when used in combination with field measurements and local geologic information provides reliable regional information regarding fracture orientation. Section 4.1.1 provides the results of the lineament analysis.

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2.7.2 Outcrop Fracture Measurements

Fracture orientation was measured to assess the direction of potential preferential groundwater flow paths within bedrock and saprolite in the vicinity of the Badin Works. Due to the expected low primary porosity (such as interstices between grains of sand) in the bedrock and saprolite, secondary porosity resulting from fractures is expected to control groundwater flow. Therefore, understanding the orientation of the fractures as well as the hydraulic gradient is important in understanding groundwater flow and contaminant transport.

Fracture orientation was measured using a Brunton® compass from 15 separate rock outcrops within a two-mile radius of the Alcoa Badin facility. A total of 131 fractures were measured at these outcrops. Section 4.1.2 provides the results of the outcrop fracture orientation evaluation.

2.8 Residential Well Survey

A residential well survey was performed to identify areas within a two-mile radius of the Alcoa Badin facility that rely on groundwater as their potable water source. This survey was performed by first obtaining a listing of residences served by the Stanly County Utility Department and by reviewing the water supply area identified in the Stanly County, North Carolina geographic information system. The location of these residences were confirmed during a drive-by survey. Areas served by public water were confirmed by the presence of fire hydrants and water supply meters, both of which were generally visible from the road. Section 4.2 provides the results of the residential well survey.

2.9 Data Validation

As agreed with the Department in a conference call held on November 19, 1999 and documented in a follow-up letter by MFG to the Department dated November 23, 1999, a minimum of 10 percent validation of the Alcoa Badin RFI analytical data was performed. The organic data were reviewed according to USEPA's National Functional Guidelines for Organic Data Review (USEPA, 1994a). The inorganic data were reviewed according to USEPA's National Functional Guidelines for Inorganic Data Review (USEPA, 1994b) and with respect to method requirements.

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The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, LCSs, MS/MSDs, laboratory and field duplicates, inductively coupled plasma (ICP) serial dilution, ICP interference check samples, analytical sequence, and transcription. All results, with the exceptions of those that were rejected and flagged with an "R" are deemed acceptable and valid for the intended use. Areas of concern with respect to data quality and usability are discussed in the respective data validation reports. Validation reports are provided in Appendix A-2. The entire laboratory data packages are provided in portable document format (PDF) on a compact disk in Appendix A-3.

As described above, a minimum of ten percent of the analytical data underwent formal validation. Only the analyses for asbestos were not subjected to the validation process as the method utilized (polarized light microscopy) relies strictly on visual counts of the fibers and, as such, does not lend itself to meaningful review. The numbers of samples validated relative to the total number of samples collected are presented in the Tables 2-8 (soil/sediment samples) and 2-9 (groundwater/surface water samples).

Note that samples MW-6-2639, MW-6-2639D, and ABL-MW-5-2699 were analyzed for Appendix IX metals, while the other aqueous samples were only analyzed for arsenic, barium, cadmium, chromium, lead, and selenium (and, in certain instances, mercury). As all metals (except mercury) were analyzed by the same method (i.e., by trace ICP), it was considered, for validation purposes, that the review of samples analyzed for the six constituents would also be representative of those analyzed for the additional Appendix IX metals.

2.10 Background Concentration Evaluation

In order to determine if soil concentrations were within background levels, a statistical evaluation of the background soil concentrations for selected compounds was performed. Background samples were collected from representative site areas that are unaffected by potential releases from the RFI

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SWMUs/AOCs. The analytes that were evaluated included the following organic and inorganic compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, cadmium, chromium, total and weak acid dissociable cyanide, and fluoride. These were selected following a preliminary screening of site RFI data against risk-based screening values. The statistical evaluation results are presented in Section 4.3.

Few COIs were detected in upgradient monitoring wells and as a result, a statistical determination of background groundwater concentrations was not performed.

2.11 Integration of Pre-Existing Data

Numerous environmental investigations and voluntary interim measures of the Plant Area, Alcoa/Badin Landfill, and Old Brick Landfill were conducted prior to 1999/2000 RFI work. The scopes of these past environmental investigations encompass soil borings and soil sampling, monitoring well installation and sampling, aquifer characterization testing, and surface water and sediment sampling. Voluntary interim measures have included soil removal, regrading, capping and run-on control. The interim measures at the On-Site Landfill and Alcoa/Badin Landfill were voluntary and done in accordance with Interim Measures Work Plans that were approved by NCDENR. The channel and landslide repair work at the Old Brick Landfill, while not interim measures, were also done with NCDENR approval of the specifications for that work.

The site knowledge gained from the past investigations, voluntary measures, and interim measures work are incorporated into this RFI report to arrive at a comprehensive understanding of site conditions. Section 4 (RFI Findings) provides an overview of the past work and incorporates the past findings in making conclusions and recommendations regarding the course of action for SWMUs and AOCs. Table 2-10 lists the past investigation, voluntary, and interim measures reports previously submitted to the Department that were completed for the plant area SWMUs/AOCs, SWMU No. 2 (Alcoa/Badin Landfill), and SWMU No. 3 (Old Brick Landfill). The reader is referred to the individual reports if additional details are desired.

In addition to the reports previously submitted to the Department, Alcoa has conducted extensive voluntary groundwater sampling at the Badin Works. Since May 1990, Alcoa has performed periodic voluntary groundwater monitoring for the plant area wells. Since June 1991, Alcoa has performed

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periodic groundwater monitoring of SWMU No. 2 (Alcoa/ Badin Landfill) and SWMU No. 3 (Old Brick Landfill). The primary constituents analyzed include total cyanide, free cyanide (by various methods), and fluoride. Groundwater samples from selected areas of the plant (i.e., SWMU No. 42 and AOC-B) have been analyzed for VOCs and SVOCs. Since 1992, periodic sampling of the Alcoa/Badin Landfill has included total and dissolved chromium, nickel, and lead in addition to the free and total cyanide and fluoride. The historic groundwater elevation data and groundwater quality results are provided in Appendix D.

In order to accommodate voluntary Interim Measures work completed by Alcoa, some of the RFI soil sampling was implemented on an accelerated schedule prior to the Department's final approval of the RFI Work Plan. The soil analytical data from many of these accelerated investigations were collected and analyzed following the RFI protocols and, as a result, are deemed to be suitable for inclusion in the risk assessment. Table 2-11 provides a summary of the soil samples collected prior to 1999/2000 RFI activities that are included in the risk assessment. Figure 2-1 shows the location of these soil samples.

In addition to the soil samples, surface water and sediment data (Woodward Clyde, 1997) collected from Badin Lake are incorporated into the risk assessment. Table 2-12 provides a summary of the Woodward Clyde surface water samples and Table 2-13 the sediment samples. The surface water and sediment sample locations are shown on Figure 2-5. The sediment and surface water data were previously provided to representatives of NCDENR during a meeting in Raleigh, North Carolina on May 15, 1997.

2.12 Human Health Risk Assessment Overview

The RFI incorporated a risk assessment to evaluate potential risks to human health associated with releases of hazardous constituents from SWMUs or AOCs. The objective of the risk assessment was to determine whether releases pose unacceptable risks that warrant further evaluation in the corrective measures study (CMS).

The role of a SSRA has been clearly defined by USEPA for the RCRA corrective action program in the *Advanced Notice for Proposed Rulemaking (ANPR)* for RCRA Corrective Action (Federal Register, Volume 61, Number 85, 19432-19464, May 1, 1996). Within the ANPR, USEPA emphasizes that site-specific risk assessments should be based on the extensive guidance developed under CERCLA

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[(e.g., *Risk Assessment Guidance for Superfund* (USEPA, 1989b)]. Risk-based concentrations or screening values were used to evaluate the RFI data, identify additional data needs, and identify COIs to include in site-specific risk assessments for individual SWMUs/AOCs. Section 3 provides the details of the Risk Assessment approach followed for the RFI.

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3.0 HUMAN HEALTH RISK ASSESSMENT

This section presents the methodology used to conduct the human health screening risk assessments and gives a general overview of site-specific risk assessments for SWMUs/AOCs that exceed screening risk levels. This risk assessment was conducted as part of the Badin Works RFI to evaluate the potential for adverse human health effects associated with the release of chemical constituents from SWMUs/AOCs to environmental media at the site. The risk assessment is a baseline evaluation. The purpose of the risk assessment is to determine whether unacceptable risks associated with constituent release(s) from SWMUs/AOCs may exist, and to provide a tool for managing risks in the future, if needed.

3.1 General Approach

The risk assessment portions of the RFI are presented on a SWMU/AOC by SWMU/AOC basis, with two exceptions. North End groundwater is presented using the SWMU-Area concept because the commingling of plumes in the contiguous infilled valley makes COIs untraceable to any individual SWMU. The SWMUs included in the North End groundwater SWMU-Area concept are SWMU Nos. 1, 4, 22, 25, 33, 35, and 44.

Also, soils at SWMU No. 1 (On-Site Landfill), SWMU No. 4 (Former K088 Storage Pad), and SWMU No. 33 (Wet-Weather Run-on Diversion) are addressed together using the SWMU-Area concept as SWMU Group 1 due to their proximity to one another, common COIs, and common interim measure (capped).

The risk assessment follows the general approach to conducting risk assessments as specified in USEPA's *Risk Assessment Guidance for Superfund* [RAGS (USEPA, 1989b)] and consists of the following parts:

- Data evaluation;
- Identification of COIs;
- Exposure assessment;
- Toxicity assessment; and

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- Risk characterization and uncertainty analysis.

The steps of data evaluation, identification of COIs, and a preliminary exposure analysis make up a screening-level risk assessment. Each SWMU/AOC is subjected, at a minimum, to a screening-level risk assessment. If concentrations of constituents in SWMU/AOC media are lower than screening-level risk-based concentrations, then risks are shown to be acceptable without further quantitative risk assessment. Conversely, if screening-level risk-based concentrations are exceeded in SWMU/AOC media, then a quantitative risk assessment is carried out to determine whether site-specific risks are acceptable. In a quantitative risk assessment, the COIs are carried through the steps of exposure assessment, toxicity assessment, and risk characterization.

The following sections discuss in detail the Screening-Level Risk Assessment methods (i.e., data evaluation, identification of COIs, and the preliminary exposure analysis) and briefly discuss the remaining steps of quantitative risk assessment. More details of the site-specific risk assessment methods are found in Appendix E-1 and are referenced in the SWMU/AOC-specific discussion in Section 4 for those areas requiring a quantitative risk assessment.

3.2 Data Evaluation

Data evaluation was performed to determine if the data are appropriate and of sufficient quality for use in performing the risk assessment. The evaluation consisted of a review of the quality and quantity of the analytical data. Specifically, data collected during the RFI were evaluated according to six data usability criteria, as specified in *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA, 1992a). These six criteria include:

- Evaluation of data sources;
- Review of documentation;
- Assessment of analytical methods and detection limits;
- Evaluation of data quality indicators (completeness, comparability, representativeness, precision, and accuracy);
- Data review; and
- Data reports and assessment.

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The analytical data used in the RFI risk assessment were generated in accordance with the analytical methods specified in the approved RFI Work Plan (Alcoa, 1999) and Phase II Work Plan (Alcoa, 2000). The detection limits were assessed and found to be in agreement with those routinely and reliably achieved by the approved analytical methods. The remainder of the data quality evaluation was performed on the data set as a whole through validation of a representative portion of the data (minimum of 10 % of the entire dataset). The data validation information was presented in Section 2.9.

The validation results indicate that the data are of sufficient quality for use in this risk assessment. The data validation process necessarily qualifies some of the analytical data. A small amount of data were qualified with an "R," rejected as unreliable, and therefore not used in this risk assessment. These include non-detect sample values for soil samples from SWMU No. 44 for specific compounds that are unrelated to site activities: acrolein; acetonitrile; propionitrile; isobutyl alcohol; 1,4-dioxane; 2,4-dinitrophenol; 4,6-dinitro-2-methylphenol; 1,3,5-trinitrobenzene; and 4-nitroquinoline-1-oxide. Likewise, sample concentrations that were found to be less than five times (ten times in the instances of common laboratory contaminants) the levels detected in associated field or laboratory blanks were not used in the risk assessment as these values may not be representative of actual site conditions. Constituents qualified "U" were not detected; and the value presented is the analytical detection limit. Non-detected constituent concentrations were incorporated into exposure point concentrations, where calculated, at one-half of the reported detection limit. All other qualified data as well as unqualified data were used in the risk assessment at the reported concentrations.

The data quantity evaluation was performed separately for each SWMU/AOC (or SWMU-Area) and included the evaluation of observed laboratory concentrations relative to screening values, spatial distribution of detections, and whether or not the sample locations adequately bounded apparent releases. Where it was determined that sufficient data had been collected, the risk assessment evaluation proceeded. In areas where the data evaluation indicated that more data collection was necessary, additional samples were proposed and collected during Phase II. Following Phase II, sufficient data were available to complete all risk evaluations.

3.3 Identification of COIs

A screening level risk assessment of site analytical data was performed for each SWMU/AOC to identify the COIs in site media that warrant evaluation in the quantitative risk assessment. The

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identification of COIs was conducted by comparing the maximum concentrations of detected constituents to conservative screening values. The screening procedure for soils included comparison with background concentrations, the USEPA Region III Risk Based Concentrations (RBCs) for both industrial and residential exposures, a calculated default soil screening level (SSL) based on the North Carolina (NC) groundwater protection (2L) standards, and the default USEPA SSL for groundwater protection. For the purpose of illustrating the general screening rationale, the screening process for evaluation of the soil data are presented graphically in Figure 3-1. The screening process considers the soil direct contact pathway and the soil to groundwater pathway separately because the exposure endpoints are different. The screening procedure for groundwater included screening against NC 2L Standards and Federal Maximum Contaminant Levels (MCLs). The following sections describe the screening process and the screening values used.

3.3.1 Background Screening for Soil

Representative background values were calculated for a number of analytes that may be attributable to natural or anthropogenic background. Samples collected for background determination were analyzed for total metals and PAHs. Background statistical evaluations were focused on specific inorganic compounds and PAHs that tend to be relatively more toxic. These are cyanide, fluoride, arsenic, cadmium, and chromium for inorganics and benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene for organic constituents. Section 4.3 describes the methodology used to calculate representative background values for these constituents. For each SWMU/AOC or SWMU Group, the maximum concentration of each of these constituents was compared to the respective calculated background concentration. If the concentration of a particular constituent was less than the background concentration, the constituent was identified as being within background levels and eliminated as a COI.

3.3.2 Soil Direct Contact Screening

The soil direct contact screening was conducted by comparing the maximum constituent concentration to the respective screening value. The screening values used for direct contact exposure pathways included the USEPA Region III RBCs (USEPA, 2000b) for both residential and industrial exposure scenarios.

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Maximum detected concentrations were first compared to the USEPA Region III residential RBC. If the maximum detected concentration was less than the residential RBC, the constituent was eliminated from further evaluation in the direct contact risk assessment both on- and off-site because the residential screening values are lower than the respective industrial values. If the constituent maximum concentration exceeded the residential RBC in surface soil, the constituent was retained as a COI in an evaluation of potential off-site residential risks. It is assumed that constituents in subsurface soil (i.e., greater than 0.5 ft-bgs) do not have the potential to migrate via wind erosion to off-site areas. Therefore, constituents that exceeded residential RBCs in subsurface soil only were not included as COIs for the off-site residential scenario.

Constituents exceeding the residential RBC were further evaluated with respect to on-site exposures by comparing the maximum concentration to the USEPA Region III industrial RBC. If the maximum detected concentration was less than the industrial RBC, the constituent was eliminated from further evaluation in the direct contact risk assessment for on-site exposures. If the constituent maximum concentration exceeded the industrial RBC, it was retained as a COI in the site-specific risk assessment.

3.3.3 Soil to Groundwater Screening

The detected constituents in soil samples were evaluated with respect to the potential for leaching to groundwater. The purpose of this evaluation was to determine if constituents detected in soil can migrate to groundwater in concentrations exceeding the NC 2L Standards or Federal MCLs. It should be noted however, that exceeding the soil to groundwater screening value does not necessarily indicate that leaching will occur, rather it indicates that constituent concentrations warrant further evaluation with respect to the potential for leaching. The following paragraphs describe the process used for evaluating the potential for migration from soil to groundwater.

The soil to groundwater leaching evaluation used the methodologies presented in the USEPA Soil Screening Guidance (USEPA, 1996a) to calculate SSLs. This guidance uses a linear equilibrium soil/water partitioning equation to estimate constituent migration in soil leachate. These equations back-calculate an acceptable target soil concentration based on an acceptable target groundwater concentration. The default assumptions in the model result in conservative soil target concentrations that tend to overestimate the degree of leaching to groundwater. The SSLs were calculated using the default input values and a dilution attenuation factor (DAF) of 20. The Department has adopted this approach with the

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substitution of NC 2L groundwater standard as the target groundwater concentration. In cases where a NC 2L Standard did not exist, the default USEPA SSL was used in place of an SSL derived from the NC 2L Standards. The equation for the calculation of the SSLs and the default input values are as follows:

$$C_{soil} = C_{gw}\left[k_s + \frac{(\theta_w + \theta_a H')}{P_b}\right]df$$

Where:

C_{soil}	= Calculated concentration in soil
C_{gw}	= Target concentration in groundwater; constituent specific
df	= Dilution factor; 20
k_s	= Soil-water partitioning coefficient; constituent specific for organic constituents $k_s = k_{oc} * f_{oc}$ for inorganic constituents $k_s = k_d$
k_{oc}	= Soil organic carbon-water partitioning coefficient; constituent specific
f_{oc}	= Fraction of organic carbon; 0.001 kg/kg
k_d	= Soil-water partitioning coefficient for metals; constituent specific
θ_w	= Water filled soil porosity; 0.3 l/l
θ_a	= Air filled soil porosity; 0.13 l/l
P_b	= Dry bulk density; 1.5 kg/l
H'	= Dimensionless Henry's Law Constant; constituent specific.

The constituent specific values for the input variables are presented in Table 3-1.

The maximum concentrations of detected constituents were compared to the calculated default SSLs. Constituents with maximum concentrations less than the SSLs were eliminated from further consideration in the leaching portion of the risk assessment. Constituents found to exceed the calculated SSL were evaluated and where appropriate carried forward into the site-specific risk assessment for groundwater.

3.3.4 Groundwater

A SWMU-Area approach was applied to groundwater in the North End because SWMUs in this area have the same COIs and are located within the same contiguous infilled valley. As a result, the COIs in North End groundwater have commingled, making releases not traceable to any individual SWMU. Therefore, data from the wells in this area were combined in the screening-level risk assessment. SWMUs included in the North End SWMU-Area approach are SWMU Nos. 1, 4, 22, 25, 33, 35, and 44.

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Groundwater evaluations for all other SWMUs/AOCs were conducted on an individual SWMU/AOC basis.

Detected constituents in groundwater samples were compared with the NC 2L Standards (15A NCAC, Subchapter 2L.0202(g), Groundwater Quality Standards, amended November 1994), Interim Standards (see Appendix E Table 1E) and Federal MCLs (USEPA, 1996c). If the maximum detected concentration of a constituent was greater than the screening value, then the constituent was identified as a COI for groundwater. There are no complete exposure pathways with groundwater as the plant does not use groundwater for production or drinking purposes. In addition, potential residential wells are either hydraulically isolated or upgradient of the Badin Works on-site and off-site SWMUs/AOCs. The results of the residential well survey are further discussed in Section 4.2. Because there is no complete exposure pathway, a quantitative risk assessment of exposure to COIs was not conducted for groundwater. However, COIs in groundwater may migrate to surface water in three areas: from the plant area to Badin Lake in the Alcoa embayment, from SWMU No. 2 (Alcoa/Badin Landfill) to Little Mountain Creek, and from SWMU No. 3 (Old Brick Landfill) to Badin Lake. Therefore, COIs in groundwater were the focus of risk screening of surface water and sediments.

3.3.5 Surface Water

Surface water samples collected during the RFI from Little Mountain Creek and Badin Lake and prior to the RFI from Badin Lake (Woodward Clyde, 1997) were evaluated to determine if site-related constituents were present at concentrations that warrant evaluation in the quantitative risk assessment. The Woodward Clyde (1997) data include 17 surface water samples collected in the embayment to the east of the plant and one surface water sample collected near the Old Brick Landfill.

In the screening process for surface water, the maximum concentration of detected constituents was compared to the North Carolina 2B (2B) surface water standards (NC 2B Standards) for the protection of human health [Class WS-IV Waters, 15A NCAC02B.0216(3)(g)(i,ii)] and to the USEPA Water Quality Criteria (WQC) (USEPA, 1999b). If the maximum concentration of the detected constituent was less than the published value, it was eliminated as a COI in the quantitative risk assessment. If the concentration of a constituent exceeded the screening value, it was carried forward for evaluation in the quantitative risk assessment. Constituents for which there is no 2B Standard or WQC were not identified as COIs.

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3.3.6 Sediment

The concentrations of detected constituents in sediments in Little Mountain Creek (RFI data) and Badin Lake (Woodward Clyde, 1997) were evaluated to determine if quantitative evaluation in the risk assessment was warranted for this medium. Sediment data were collected in the Little Mountain Creek area to evaluate whether, prior to capping SWMU No. 2, constituents may have been released to Little Mountain Creek via runoff of surface soils, discharge of seeps, or discharge of groundwater containing landfill COIs. Badin Lake sediment data were collected from the embayment east of the plant and from the cove near SWMU No. 3 to evaluate the presence of COIs in sediment at these locations. The maximum concentrations of detected constituents were compared to USEPA Region III RBCs for industrial soil because there are no standardized human health risk-based screening criteria for sediments. However, the use of industrial soil RBCs for screening sediment concentrations for human health is conservative because potential contact with sediments would be significantly lower than the frequency of contact assumed for industrial soil (e.g., 250 days per year).

If the maximum detected concentration of a constituent exceeded the human health screening values, the constituent was retained as a COI in the site-specific (quantitative) risk assessment. If the maximum detected concentration of the detected constituent was less than the screening value, the constituent was eliminated from further evaluation in the site-specific risk assessment. If there were no constituents with concentrations exceeding the screening criteria, then risks were regarded to be acceptable and a site-specific risk assessment was not required.

3.4 Exposure Assessment

Exposure assessment is the process of qualitatively characterizing the exposure setting and potential receptors as well as quantitatively measuring or estimating the intensity, frequency and duration of human exposure to an agent in the environment. The exposure assessment generally follows the recommendations for conducting an exposure assessment provided by USEPA in RAGS (USEPA, 1989b), and the more recent guidance in USEPA's Guidance for Exposure Assessment (USEPA, 1992c, 1997b). This exposure assessment considered current and reasonably expected future land use at the site. This is consistent with the *Advanced Notice of Proposed Rulemaking (ANPR)* for Corrective Action (Federal Register, Volume 61, Number 85, 19432-19464, May 1, 1996), which references the criteria from USEPA's *Land Use in the CERCLA Remedy Selection Process* (USEPA, 1995). Current land use associated with SWMUs and AOCs is industrial and has been since 1915. Surrounding land uses are commercial, residential and

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recreational. For the landfill areas, development for alternative future land uses is restricted since the objective is to manage the landfill cover to assure its integrity against future releases.

A qualitative exposure assessment (preliminary exposure analysis) was performed in the screening-level risk evaluation for each SWMU, and is described below in Section 3.4.1. Section 3.4.2 gives a brief summary of quantitative exposure assessment methods used in the site-specific risk assessments that were needed to evaluate some of the SWMUs/AOCs.

3.4.1 Preliminary Exposure Analysis

This section discusses the environmental setting of the SWMUs/AOCs and the potential receptors for site-specific conditions. The salient features of the site and the surrounding area that might influence human exposure are described and potentially exposed populations identified. The specific exposure pathways by which receptors may potentially come in contact with COIs in environmental media are presented in Section 4 for those SWMUs/AOCs that require a site-specific risk assessment. Methods for quantifying these exposures are presented in Appendix E-1 and referenced in the respective SWMU/AOC sections of Section 4.

Table 3-2 presents a preliminary exposure analysis of the SWMUs/AOCs of the Alcoa Badin RFI. The exposure analysis includes potentially affected environmental media, the environmental setting, and potential receptors for each SWMU/AOC. Currently with the exception of SWMU No. 44 (Pine Tree Grove Area), the plant is fenced and contains the buildings, equipment and infrastructure to support the plant operations. As a result of limited access to the site, the potential on-site receptors include industrial workers who, depending on the location or conditions of a specific SWMU/AOC, may have varying potential for exposure to COIs in soil. Most SWMUs/AOCs are located in areas where plant workers are not routinely present. Contact with the SWMUs/AOCs is infrequent and would primarily be related to some non-routine activity such as digging for repair or construction. Although it is possible that someone could trespass on the Badin Works property, this is unlikely to occur on the main plant area because it is fenced and monitored by security personnel. A trespasser scenario is potentially relevant for SWMU No. 44 (Pine Tree Grove) because this area lies outside of the plant fence. SWMU Nos. 2 and 3 are fenced, but differ somewhat from many of the plant area SWMUs/AOCs because they are more isolated (especially SWMU No. 3) and have no structures on them. SWMU Nos. 2 and 3 are likely to have less frequent contact by industrial workers but may be more vulnerable to a trespassing scenario.

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Potential off-site receptors were identified and evaluated in the risk assessment where a release from a SWMU or AOC may result in the potential for transport of on-site COIs to an off-site receptor. The areas adjacent to the plant boundary include residential, recreational and commercial areas. The ground cover on the site is predominantly grass, gravel or pavement, and the cover likely reduces the potential for windborne particle migration to off-site areas. Air pathways to off-site areas are not likely to be significant given the surface cover of the site areas. However, to maintain conservatism in the risk assessment, it was assumed possible that COIs in soil may be released to air and migrate off-site.

In order to evaluate the receptors in the off-site residential, recreational, and commercial areas, the on-site surface soil data were first screened against the residential RBCs. If the SWMU/AOC constituent concentrations were less than the residential values, an off-site evaluation was not conducted. If the concentrations in surface soil exceeded the residential criteria, the off-site receptors were evaluated in the site-specific risk assessment.

As explained previously, there are no current nor likely future complete exposure pathways by direct contact with COIs in groundwater. Alcoa owns the property adjacent to the surface water body and as a result residential wells cannot be installed. Furthermore, a residential well survey confirms that all residences in the vicinity of the site are supplied by the Stanly County Utilities Department. The nearest drinking water well is approximately 0.3 miles hydrogeologically upgradient of the plant. However, groundwater migrates to surface water and sediment in Little Mountain Creek downgradient of SWMU No. 2 (Alcoa/Badin Landfill) and to surface water and sediment in Badin Lake downgradient of the plant and SWMU No. 3 (Old Brick Landfill). If the risk screening indicates that there are site-related COIs in surface water and/or sediment, then further evaluation of potential receptors is warranted. The most relevant current and future receptors for Little Mountain Creek are an industrial worker that is very infrequently present and a trespassing youth receptor. East of the plant, a different set of potential receptors is relevant for Badin Lake because it is used by the public for recreational purposes. Therefore, potential receptors in the lake include an adult swimmer, a child swimmer, and persons who put boats into the lake from the boat launch area.

The site has been industrial since 1915 and is reasonably anticipated to remain industrial in the future. Therefore, potential future on-site exposure scenarios are expected to be industrial only. Some SWMU/AOC areas that are currently undeveloped on the site (e.g., SWMU No. 11), could be developed as active process areas in the future. Therefore, while under current conditions an infrequent industrial

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worker may be relevant, a full-time industrial worker may be more appropriate to consider under future conditions. With potential redevelopment, construction may occur in non-landfill SWMU/AOC areas in the future. Construction activities are assumed to be one time exposure events for the workers involved and provide an opportunity for exposure to subsurface soil COIs.

3.4.2 Methods for Quantitative Exposure Assessment (Applied in Site-Specific Risk Assessments of SWMUs/AOCs)

This section gives a general overview of methods followed to quantitatively estimate exposure in a risk assessment. These steps include identifying complete exposure pathways for receptors, and calculating exposure dose through estimates of exposure point concentrations and exposure parameters based on assumptions of potential contact with site environmental media. SWMU/AOC-specific exposure assessment information is presented in Section 4 and in Appendix E-1 for those SWMU/AOCs that require site-specific risk evaluation.

3.4.2.1 Identification of Exposure Pathways

This section describes the potential pathways by which the receptors could be exposed to constituents located at or released from the SWMUs/AOCs. An exposure pathway is a description of the mechanism by which an individual may come into contact with constituents in the environment. In accordance with USEPA Risk Assessment Guidance (1989b), the significant potential exposure pathways applicable to the site have been identified and incorporated into the risk assessment.

An exposure pathway is defined by four elements (USEPA, 1989b):

- A source and mechanism of constituent release to the environment (e.g., historic landfill with migrating leachate);
- An environmental receiving or transport medium (e.g., soil, groundwater) for the released constituent;
- A point of potential contact with the medium of interest (e.g., exposed surface soil or air); and
- An exposure route (e.g., ingestion, dermal contact, or inhalation) at the contact point.

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An exposure pathway is considered "complete" if all elements are present. The characterization of the potential exposure pathways at the site, and whether each pathway is complete, is presented in the risk assessment sections of the SWMU/AOC discussions in Section 4 and in Appendix E.

3.4.2.2 Quantification of Exposures

Potential exposure to constituents in the environment is directly proportional to concentrations of the constituents in environmental media (e.g., soil and air) and characteristics of exposure (e.g., frequency and duration). The site-specific risk assessments present the reasonable maximum exposure (RME) exposure estimate, as recommended in USEPA guidance RAGS (USEPA, 1989b). The RME is the "maximum exposure that is reasonably expected to occur at a site," and USEPA has indicated that factors included in estimating exposure are a combination of both average and 95th percentile values (USEPA, 1989b).

An exposure dose is an estimated amount of exposure that is calculated from COI exposure point concentrations and assumptions of the degree of contact a receptor has with site environmental media. Doses are presented in this risk assessment as a dose rate per unit body weight (mg/kg/day). The "Average Daily Dose" (ADD) or "Lifetime Average Daily Dose" (LADD) is the general parameter used to quantify exposure doses in site risk assessments. The ADD is used as a standard measure for characterizing long-term non-carcinogenic effects. The LADD addresses exposures that may occur over varying durations, which are averaged over a 70-year human lifetime; these are used in estimating potential carcinogenic risks. Algorithms for calculating ADD and LADD for complete exposure pathways that are evaluated in the SWMU/AOC site-specific risk assessments of Section 4 are provided in Appendix E-1.

Exposure Point Concentrations (EPCs)

The levels of constituents at exposure points are generally referred to as EPCs, and the analytical results for samples from a given area are combined to derive a single EPC for each constituent. An EPC represents the level of an individual COI to which potential receptors may be exposed. In the RFI risk assessment with the exception of ambient air concentrations, EPCs were statistically calculated from sampling data.

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The concentrations of constituents at specific exposure points will vary over space and time. However, a single estimate of an EPC is needed for deterministic risk assessment calculations according to agency guidance (USEPA, 1989b, 1992b). This single value is used to represent the average concentration to which a person would be exposed over the area and duration of the chronic exposure that is assumed in the risk assessment. Depending on a number of factors, including the distribution of the data (normal versus lognormal), the proportion of the samples reported as non-detect (ND), and the total number of samples, there are several statistical parameters that may be used to estimate EPCs.

The most appropriate estimate of the representative concentration to which a receptor will be exposed over an extended period of time is the mean concentration (USEPA, 1992b). Because the true mean concentration of a constituent can never be known, an estimate of the mean based on the collection of samples is made using the 95% upper confidence limit (95% UCL). If the 95% UCL exceeds the maximum detected concentration, then the maximum detected concentration was applied as the RME EPC.

The following describes the statistical approaches used to calculate the mean and 95% UCL of the mean for COIs in specific environmental media. The data for each COI in a specific exposure medium were tested for fit to a normal distribution with the Shapiro-Wilk test (Gilbert, 1987). If the data fit a normal distribution, the 95% UCL of the arithmetic mean of the normal distribution (USEPA, 1992b) was then calculated as the representative concentration for exposure of receptors. If the data do not fit a normal distribution, the data were transformed using the natural logarithm and tested for fit to a lognormal distribution with the Shapiro-Wilk test. If the data fit a lognormal distribution or were nonparametric, then USEPA (1999a) guidance was followed to calculate the 95% UCL using a nonparametric means (i.e., a bootstrap or Jackknife method). Air concentrations of constituents released from soil are calculated with simple emissions and dispersion models provided in USEPA Soil Screening Guidance (1996a). Specific methods are presented in Appendix E-1.3.

Exposure Parameters

The quantitative estimation of constituent intake involves the incorporation of numerical assumptions for a variety of exposure parameters. Exposure parameters were based on factors outlined in the "Exposure Factors Handbook" (USEPA, 1997b), the primary scientific literature, and on best professional judgment of the site-specific characteristics. Exposure parameters used in the site-specific risk assessments are presented in Appendix E-1 following reference in Section 4.

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3.5 Toxicity Assessment

The toxicity assessment provides a description of the relationship between a dose of a chemical and the anticipated incidence of an adverse health effect (USEPA, 1989b). The purpose of toxicity assessment is to provide a quantitative estimate of the inherent toxicity of constituents of interest to incorporate into the risk characterization. The risk-based screening values that are used in the screening-level risk evaluation have chemical-specific toxicity criteria incorporated into them. In the site-specific risk assessments performed for some of the SWMUs/AOCs, toxicity assessment of the COIs is a separate step.

For risk assessment purposes, toxic constituent effects are separated into two categories of toxicity: carcinogenic effects and non-carcinogenic effects. The USEPA has required that potentially carcinogenic chemicals be treated as if minimum threshold doses do not exist (USEPA, 1986), whereas non-carcinogenic effects are recognized as threshold phenomena.

Constituents that are believed to be carcinogenic may also have non-cancer effects. Potential health risks for these constituents are evaluated for both cancer and other types of effects as described below.

Potential carcinogenic effects resulting from human exposure to constituents are estimated quantitatively using CSFs, which represent the theoretical increased risk per milligram of constituent intake per kilogram body weight per day $(mg/kg\text{-}day)^{-1}$ or unit risks, which are the theoretical increased risk per exposure concentration. CSFs or unit risks are used to estimate a theoretical upper-bound lifetime probability of an individual developing cancer as a result of exposure to a potential carcinogen.

Potential non-carcinogenic effects resulting from human exposure to constituents are generally estimated quantitatively using RfDs. Oral RfD values are developed by the USEPA RfD Work Group on the basis of a wide array of non-carcinogenic health effects. The RfD is an estimate of the daily maximum level of exposure to human populations (including sensitive subpopulations) that is likely to be without an appreciable risk of deleterious effects during a lifetime (USEPA, 1989b). RfDs are expressed in units of daily dose (mg/kg-day) and incorporate uncertainty factors to account for limitations in the quality or quantity of available data. Appendix E-2.3 and Tables E-3 and E-4 provide chemical-specific toxicity information on COIs that are carried through the site-specific risk assessments.

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3.6 Risk Characterization and Uncertainty Analysis

3.6.1 Risk Characterization

Risk characterization is the final step of the site-specific human health risk assessment process. In this step, the site-specific exposure assessment and the toxicity assessment are integrated into quantitative and qualitative estimates of potential health risks.

Potential non-carcinogenic effects are estimated by comparing estimated average daily doses (ADDs) with an RfD. The ratio of the dose to the RfD is the Hazard Quotient. An HQ value equal to or less than one indicates that an adverse effect would not be anticipated. Conversely, an HQ greater than one indicates that there is a ***potential*** for a non-carcinogenic health effect to occur as a result of exposure to site COIs. USEPA (1989b, 1996a) considers a HQ of less than one to be acceptable.

Theoretical excess lifetime cancer risks are calculated for constituents that are considered carcinogens by the USEPA. The theoretical excess lifetime carcinogenic risk is the product of the CSF and the LADD. Various demarcations of acceptable risk have been established by regulatory agencies. USEPA (1991a, 1996c) has recommended that sites posing a cumulative cancer risk of less than or within the range of 1×10^{-6} to 1×10^{-4} may not pose an unacceptable risk and may not be candidates for remedial activities. The ANPR (1996) also indicates that a 1×10^{-6} to 1×10^{-4} risk range or below is acceptable. Appendix E-3.1 discusses risk characterization in more detail.

3.6.2 Uncertainty Analysis

Uncertainties are inherent in every aspect of a quantitative risk assessment. The inclusion of site-specific factors can decrease uncertainty, although significant uncertainty persists in even the most site-specific and accurate risk assessments. A careful and comprehensive analysis of the critical areas of uncertainty in a risk assessment is an important part of the risk assessment process. The uncertainty analysis provides a context for better understanding the assessment conclusions by identifying the uncertainties that have most significantly affected the assessment results.

USEPA (1989b) guidance stresses the importance of providing a complete analysis of uncertainties so that risk management decisions take these uncertainties into account when evaluating risk

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assessment conclusions. Appendix E-3 presents general sources of uncertainty that were identified for the site-specific risk assessments of individual SWMUs.

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4.0 RFI FINDINGS

This section presents the results of all tasks completed during the RFI. In addition, this section incorporates knowledge gained from past site investigations and interim measures work to provide a comprehensive conceptual model of site conditions. The results of non-SWMU/AOC specific RFI tasks are presented first. The non-SWMU/AOC specific tasks include the fracture orientation evaluation (Section 4.1), residential well survey (Section 4.2), and background soil evaluation (Section 4.3). Beginning with Section 4.4, the RFI findings for the SWMUs/AOCs are presented. Section 4.4 provides the findings for the 10 SWMUs and two AOCs in the plant area. Section 4.5 provides the RFI findings for SWMU No. 2 (Alcoa/Badin Landfill), and Section 4.6 the findings for SWMU No. 3 (Old Brick Landfill).

4.1 RFI Fracture Trace Results

4.1.1 Topographic Lineament (Fracture Trace) Results

A total of 224 lineaments (fracture traces) were identified within a two-mile radius of the Alcoa Badin facility (Figures C-1 and C-2, and Table C-1 in Appendix C). The orientation of the measured lineaments were summarized (Table 4-1) and plotted on a rose diagram (Figure 4-1). Rose diagrams are named for the resemblance to a flower and indicate predominant lineaments directions by displaying the percentage of orientation in 10 degree intervals.

The lineament analysis of the topographic maps suggest a primary fracture orientation of north 20 to 50 degrees east. This orientation accounted for approximately 34 percent of the lineaments identified.

4.1.2 Outcrop Fracture Measurements

The location of bedrock/saprolite outcrops are shown on Figure C-3 and the strike and dip measurements in Table C-2 in Appendix C. The strikes of the fractures are summarized on Table 4-2 and plotted on a rose diagram (Figure 4-2). Dip measurements are not plotted because they are less relevant in relating fracture orientation to horizontal groundwater flow.

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The bedrock outcrop measurements indicate the predominant fracture strike direction is north 40 to 50 degrees east, accounting for approximately 19 percent of the measurements. This orientation accounted for two separate sets of fractures that consist of near horizontal (dips of generally 4 to 8 degrees north) bedding plane partings and a near vertical fracture set (dips of generally 80 to 90 degrees north). Both of these fracture sets exhibit well developed iron and manganese staining, which indicates that the fractures had been exposed to percolating water (i.e., precipitation infiltration).

4.1.3 Summary and Conclusions

The fracture trace and the field measurements concur and indicate that the predominant strike of fractures within a two-mile radius of the site is to the northeast. Based on the results of the fracture trace and field measurements, the dominant fracture direction may result in preferential groundwater flow in bedrock/saprolite to the northeast or southwest depending upon the hydraulic gradient in the local area being evaluated. The effects of fracture orientation on local groundwater flow at the Badin Works is further discussed in Section 4.4.3. It should be noted, however, the measured strikes of fractures vary greatly and should, on a regional scale, provide an interconnected network of fractures that allow groundwater to flow in accordance with the hydraulic gradient.

4.2 Residential Well Survey Results

The residential well survey conducted in October 1999 confirmed that potable water for all residences within the limits of the Town of Badin is supplied by the Stanly County Utility Department. Figure 4-3 identifies areas served by the Stanly County Utility Department. The areas north, northeast, and northwest of Badin is also served by the Stanly County Utility Department. However the areas south and west of Badin generally rely upon home wells for potable water. Although public water is available, there are also two isolated houses north of Badin, which are apparently not connected to the public water supply because water meters are not evident at these residences (Figure 4-3). The closest residence believed not to be served by public water is a single residence located approximately 0.3 miles north of SWMU No. 1 (On-Site Landfill). SWMU No. 1 is located within the North End of the plant. The next closest residence believed not to be served by public water is north of the facility approximately 0.7 miles northwest of SWMU No. 1. The closest residence to SWMU No. 2 (Alcoa/Badin Landfill) that utilizes a home well is located approximately 0.3 miles to the south, on the opposite side of Little Mountain Creek. The closest residence to SWMU No. 3 (Old Brick Landfill) that utilizes a home well is located

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approximately 0.8 miles to the northwest on the other side of Badin Lake. This is also the closest residence to SWMU No. 1.

The three residences identified as utilizing home wells are all located in areas that are either hydraulically isolated or upgradient of groundwater beneath the plant area SWMUs/AOCs, SWMU No. 2 (Alcoa/Badin Landfill), and SWMU No. 3 (Old Brick Landfill). As a result the residential wells identified in the area are unaffected by groundwater originating beneath the Alcoa Badin Works on-site and off-site SWMUs and AOCs.

4.3 Background Samples

4.3.1 Soil

Soil samples were collected near SWMU No. 2 (Alcoa/Badin Landfill), near SWMU No. 3 (Old Brick Landfill), and in the North End of the plant (North End) at non-SWMU/AOC areas to provide soil background chemical data. Figures 2-1, 2-2, and 2-3 provide the locations of RFI background soil samples. Table 4-3 provides the analytical results for background soil samples.

Table 4-4 provides a summary of the analytes included in the background evaluation. The analytes that are presented on Table 4-4 include the following organic and inorganic compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, cadmium, chromium, total and weak acid dissociable cyanide, and fluoride. These were selected following a preliminary screening of site RFI data against risk-based screening values.

The background evaluation was done by first performing a statistical analysis on the background data for these analytes to determine an appropriate upper value for the background concentration. Due to the difference between the lithology and soils found in the area of SWMU No. 3 (Old Brick Landfill) and those from the remainder of the site [i.e., SWMU No. 2 (Alcoa/Badin Landfill) and the plant area], background sample results from SWMU No. 3 were evaluated independently of those for the rest of the site. Differences between background concentrations at SWMU No. 3 and SWMU No. 2 and the plant area are explained by the underlying geology. Natural soils in the plant area and SWMU No. 2 area differ

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from those at SWMU No. 3. Plant area and SWMU No. 2 natural soils are derived from the weathering of argillite (green slate), whereas the parent rock at SWMU No. 3 is a basaltic tuff (Conley, 1962).

Weak acid dissociable cyanide and cadmium were not detected in any background sample and no PAHs were detected in any of the SWMU No. 3 (Old Brick Landfill) background samples. As a result, a statistical evaluation was not possible or necessary for these constituents with respect to their associated areas. For cases where all samples were below detection, the soil background concentration is represented by the detection limit.

When at least one value for the background populations was detected, the Shapiro-Wilks test was conducted on both the raw and log transformed data to determine if the data were normally or lognormally distributed. When determining the data distribution and calculating the background concentration term (as discussed below) for the data set, one-half of the detection limit was used as a surrogate value for the calculation if the analyte was not detected in the sample. Results of distribution testing for the specific constituents are included in Tables 4-5 and 4-6 for the organic and inorganic parameters, respectively.

The statistical method that the Department (1999) specifies for calculating a representative background value is the mean plus two standard deviations. However, in the cases where the data were not normally or lognormally distributed (specifically, the data sets for organic parameters related to background areas excluding SWMU No. 3, and also for fluoride and total cyanide related to both the background areas), a non-parametric approach to calculating the background term appeared to be more applicable. The approach discussed in the USEPA's *Technology Support Center Issue: The Lognormal Distribution in Environmental Applications, December 1997* for determining a 95 percent UCL for non-parametrically distributed data were used to develop the upper bound background concentration terms for these data sets. The upper bound background concentrations were determined according the following methodology:

- If no detects were associated with a given data set, the highest non-detect value is presented as an upper bound of the background concentration;
- If the data were normally distributed, the upper bound background concentration was determined as the normal mean of the data set plus two times the normal standard deviation;

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- If the data were lognormally distributed, the upper bound background concentration was determined as the inverse logarithm of the mean of the log transformed data plus two times the standard deviation of the log transformed data;

- If the data were neither normally nor lognormally distributed, the 95 percent UCL calculated using the jackknife method (USEPA, 1997c) was utilized as an upper bound for the background concentration.

The resulting upper bound background concentrations or 95% UCLs for organic and inorganic parameters are provided in Tables 4-5 and 4-6, respectively.

4.3.2 Groundwater

A quantitative background evaluation of groundwater was not possible as few COIs were detected in upgradient wells. The one exception was the detection of arsenic in ABL-MW-6, which is upgradient of SWMU No. 2 (Alcoa/Badin Landfill). This result is discussed qualitatively in Section 4.5.10, the RFI screening-level risk assessment section for SWMU No. 2 (Alcoa/Badin Landfill) groundwater. It should be noted that arsenic is known to occur naturally in groundwater in Stanly County and other areas within the Carolina Slate Belt.

4.4 Plant Area Findings

RFI SWMUs/AOCs in the plant area include SWMU Nos. 1, 4, 11, 22, 25, 33, 35, 38, 42, 44 and 46 and AOCs -A and -B (Figure 1-4, Table 1-1). SWMUs in the north end of the plant (North End) include SWMU Nos. 1, 4, 22, 25, 33, 35, and 44.

Consistent with the RFI Work Plan, the SWMUs in the North End are addressed using the "SWMU-Area Concept", whereby SWMUs are grouped together based on commonalities. SWMU Nos. 1, 4, and 33 are grouped into "SWMU Group 1" for the purposes of evaluating soils based on the results of the RFI and interim measures work. These SWMUs were grouped together based on similar COIs, proximity to one another, and common interim measure (capped). The soil evaluation for each of the remaining North End SWMUs is presented individually.

Groundwater for all the SWMUs in the North End (SWMU Nos. 1, 4, 22, 25, 33, 35, and 44) is addressed using the SWMU-Area concept because the SWMUs are all located within a contiguous infilled valley, have the same COIs, and the COIs in groundwater are not traceable to any individual

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SWMU. Section 4.4.9 provides the North End groundwater evaluation. Groundwater beneath the SWMUs and AOCs in the central and southern portion of the plant (SWMU Nos. 11, 38, 42, and 46, and AOCs-A and –B) is addressed on an individual SWMU and AOC basis.

4.4.1 Plant Area Topography

Topography within the plant site is generally rolling to relatively flat (Figure 1-2). Elevations range from approximately 620 feet above mean sea level (ft-msl) near the western side of the site to 510 ft-msl near Badin Lake.

4.4.2 Plant Area Geology

The RFI and numerous past investigations referenced in Section 2.11 provide data on the plant area geology. Based on data obtained from borings drilled for various purposes in the plant area, the general soil profile consists of fill material (in some areas), residual soils (including saprolite), partially weathered bedrock, and bedrock. Figures 4-4 and 4-5 provide cross-sections through the plant area.

The fill material, where present, is comprised of clayey-silt, sandy silt, and/or silty sand with varying content of gravel, metal, brick, and other debris. SPL is also present with fill materials at some of the SWMUs. Fill, where present at the main plant area, ranges in thickness from less than 1 to approximately 20 feet. Fill materials are most prevalent in the north end of the plant, where they were used to infill an eastward trending natural ravine as indicated by a review of historical aerial photographs. Figure 4-6 shows the fill area identified in the north end of the plant area based on comparison of historic (1915 pre-construction) and 1989 topographic maps of the site.

Residual soils in the plant area are present beneath fill materials, and at the ground surface where fill is not present. Residual soils that retain the general structure of the parent rock from which they formed are referred to as saprolite. The residual soils are mainly clayey-silt with subordinate sandy silt/silty sand. These soils typically contain some rock fragments and clayey lenses.

Partially weathered rock, defined as residual materials with penetration resistances equivalent to or greater than 100 blows per foot, is present at depths of 2 to 20 ft from ground surface in the main plant area. Refusal to soil drilling equipment has been recorded at depths varying from approximately 20 to

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45 feet. Where refusal material was sampled by rock coring, the rock consisted of fractured and variable weathered volcanic metamudstone.

4.4.3 Plant Area Hydrogeology

Table 4-7 provides a summary of plant area monitoring well construction and the lithology of screened interval. Groundwater in the plant area occurs in fill materials, residual soils (including saprolite), partially weathered bedrock, and bedrock. The water table generally occurs within the fill material where it is present at a sufficient thickness and depth. Where fill material is thin or absent, the water table resides within the residual soils or partially weathered bedrock. Saturated bedrock lies beneath the residual soils or partially weathered bedrock intervals.

4.4.3.1 Water Table Units (Fill Materials, Residual Soils, Partially Weathered Bedrock)

Depth to the water table varies from approximately 30 ft-bgs on the western side of the plant area (e.g., MW-1 and MW-7) to about 10 ft-bgs in the center of the plant (e.g., MW-6, MW-11, and MW-22) to less than 5 feet near Badin Lake to the east (e.g., MW-26). The saturated thickness of the water table units varies from less than five feet on the western side of the site to approximately 20 feet in the infilled ravine near Badin Lake. Figures 4-4 and 4-5 show a typical water table relative to the land surface.

Based on historic water elevation measurements and those collected during the RFI, the general groundwater flow direction in the water table units is to the east toward Badin Lake (Figure 4-7). Groundwater elevations range from about 536 ft-msl on the western side of the plant area (MW-7) to approximately 504 ft-msl near Badin Lake (e.g., MW-16, MW-25, and MW-26).

The groundwater flow pattern in the water table units generally reflects the change from areas of higher topography on the western side of the facility to areas of lower elevations near Badin Lake. The water table contour map also indicates that groundwater converges somewhat toward the center of the ancestral ravine and flows into Badin Lake. This groundwater flow pattern occurs as a result of a zone of preferential flow located along the ravine axis where the thickness of the fill and the hydraulic conductivities are greatest.

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In addition to the preferential flow along the ravine, RFI groundwater chemical analytical data indicate preferential flow occurs in a northeast direction, parallel to the line formed by MW-6, MW-4, MW-9, and MW-16. An elongation of the cyanide and fluoride plumes along an axis formed by these wells (Figures 4-8 through 4-11) suggests groundwater flow is preferential to the northeast in the vicinity of these wells. MW-6 is screened within fill material and residual soil. MW-4 is screened within residual soils and partially weathered bedrock, and MW-9 and MW-16 are fully screened within partially weathered bedrock. As discussed in Section 4.1, fracture orientation in bedrock/saprolite was determined to be preferential to the northeast. In addition, geologic maps of the area show bedrock strikes to the northeast (Conley, 1962). The fractures and/or bedding planes in the saprolite and partially weathered bedrock zone appear to influence groundwater flow direction as the water table drops into saprolite and partially weathered bedrock in the vicinity of MW-4, MW-9, and MW-16. Further support of the preferential flow is the detection of trichloroethene in these same three monitoring wells while trichloroethene is not detected in any other plant area wells

Hydraulic conductivity and transmissivity of the water table units have been defined based on past hydrogeologic investigations of the plant area. Table 4-8 summarizes hydraulic conductivity values calculated from slug tests of the water table units and Table 4-9 transmissivity calculated from a pumping test.

The overall average hydraulic conductivity for the water table units determined by averaging all the slug test data is 2.9×10^{-3} cm/sec (8.2 ft/day). The hydraulic conductivity for wells screening only fill materials is about 3 times higher than the average for all the water table units (8.2×10^{-3} cm/sec or 23.2 ft/day). The average for wells screening residual soils (including saprolite) and partially weathered bedrock is 2.05×10^{-3} cm/sec (5.8 ft/day).

Transmissivities derived from the pumping test for fill and residual soils is reported as ranging from 400 to 1,400 gallons per day per foot (gpd/ft) or 5.75×10^{-1} to 2.0 cm^2/sec (53 ft^2/day to 187 ft^2/day). Storativities calculated from the pumping test data ranged from 0.05 to 0.2 with an average of 0.12 (Law, Environmental, 1992). Dividing by the average saturated thickness of approximately 10 feet (305 cm) for the water table units, the transmissivity translates to a hydraulic conductivity of 1.89×10^{-3} to 6.5×10^{-3} cm/sec (5.3 to 18.7 ft/day), which is consistent with the slug test data.

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Based on an average hydraulic gradient across the plant area of 0.023 ft/ft (determined between MW-11 and MW-26), the slug test average hydraulic conductivity of 8.2 ft/day, and an effective porosity of 0.12, the average groundwater flow velocity in the water table units is 1.6 ft/day. The groundwater velocity in the fill material is approximately 2.9 ft/day based on the hydraulic conductivity for the fill material from the slug test data (23.2 ft/day) and the gradient between MW-6 and MW-26 (0.015 ft/ft). Based on the average hydraulic conductivity for residual soils/partially weathered bedrock (5.8 ft/day), the gradient between MW-7 and MW-10 of 0.023, and an effective porosity of 0.12, the velocity in these materials is approximately 1.1 ft/day.

Evaluation of historic groundwater elevations (Appendix D) shows water elevations vary through time. In general, variations in most wells in the plant area are less than five feet. Wells on the western portion of the site (e.g., MW-1 and MW-7) show the greatest groundwater elevation variation, with maximum variations of more than 15 feet. Variations in elevations in the wells on the western portion of the plant area are due to differences in precipitation recharge. Water elevations are higher in response to recharge. Groundwater elevation variations in the wells closest to Badin Lake (e.g., MW-25, MW-26, and MW-16) are due to a combination of lake level and precipitation recharge, with the lake level having the most dramatic effect.

4.4.3.2 Bedrock Groundwater Zone

The uppermost portion of the bedrock surface is known to be fractured in places as evidenced by loss of fluid circulation in the 26 to 40 ft-bgs interval during installation of MW-20A (G&M, October 1995). A contour map of groundwater elevation data collected during the Phase I RFI in September, 1999 from four monitoring wells completed in the bedrock indicate the horizontal groundwater flow potential in this zone is generally to the east toward Badin Lake (Figure 4-12). Flow within the fractured bedrock can be more complex due to preferential flow along fracture zones of relatively greater hydraulic conductivity. As a result, flow is not necessarily perpendicular to the groundwater elevation equipotential lines. Flow in fractured bedrock beneath the site may be primarily to the northeast, in the predominant orientation of the fractures, as previously discussed in Section 4.1.

Hydraulic conductivity data for bedrock in the plant area is summarized on Table 4-10. As with flow direction, groundwater flow velocity in the bedrock groundwater zone is related to the degree and geometry of fractures and joints in the rock and the hydraulic gradient. However, applying Darcy's

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Law as the best available approximation, a groundwater flow velocity of 0.1 ft/day, is calculated for bedrock based on the average hydraulic conductivity from slug test data of 4.6×10^{-4} cm/sec (1.3 ft/day), a hydraulic gradient of 0.02 (measured between MW-20A and MW-25A), and an assumed effective porosity of 0.25. The velocity in bedrock may be somewhat greater if preferential flow occurs along fractures. Deeper, more competent bedrock (i.e., less fractured rock) velocity values are likely lower than those for shallow bedrock.

4.4.3.3 Vertical Groundwater Flow

Water-level data from paired wells completed in the bedrock aquifer and upper water-bearing unit (MW-2/2A, MW-6/6A, MW-20/20A, and MW-25/25A) provide the hydraulic head relationship between the bedrock groundwater zone and the overlying materials where the water table is present. Based on the RFI data, the water-level data in the observed pair MW-2/2A show a downward head difference of 0.09 foot. The calculated downward vertical gradient is 0.004 ft/ft (Table 4-11). MW-20 was dry during the RFI sampling, but the gradient between this well and MW-20A historically has been downward on the order of approximately 0.06 ft/ft (G&M, October 1995). In the MW-2/2A and MW-20/20A area the downward gradient indicates groundwater is leaking from the shallower zones into bedrock.

At MW-6/6A and MW-25/25A, the vertical gradient is upward. The RFI data show an upward head difference of 1.57 feet between MW-6 and MW-6A and 0.1 foot between MW-25 and MW-25A. The calculated upward gradient at MW-6/6A is 0.4 ft/ft and at MW-25/25A is 0.003 ft/ft. MW-6/6A and MW-25/25A are both located at lower elevations than clusters MW-2/2A and MW-20/20A and closer to Badin Lake. The vertical gradients at MW-6/6A and MW-25/25A indicates groundwater moves upward from the bedrock into the unconsolidated water table units in areas closer to the lake.

4.4.3.4 Groundwater Quality

Appendix D contains tables of historic groundwater elevations and fluoride, cyanide, and free cyanide (amenable, weak acid dissociable, and microdiffusion) analytical data. The historic data are consistent with the RFI data set. Like the RFI data, free cyanide and fluoride are present at concentrations exceeding the NC 2L Standards for these constituents. In addition, total cyanide is at concentrations

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exceeding the NC 2L Standard for cyanide. However, it should be noted that the NC 2L Standard for cyanide is based on the RfD for free cyanide (see Section 1.5).

4.4.4 SWMU Group 1: (SWMU No. 1: On-site Landfill; SWMU No. 4: Former K088 Storage Pad; SWMU No. 33: Wet Weather Run-On Diversion)

The On-Site Landfill (also referred to as the Northwest Valley) is located in the northwestern portion of the facility and occupies approximately two acres (Figure 4-13). From the 1930's to 1970's, Alcoa periodically placed fill materials, including SPL, in a natural easterly trending ravine that traversed the area. After ceasing this practice, Alcoa graded the area and installed the Wet Weather Run-On Diversion (SWMU No. 33).

SWMU No. 33 (Wet-Weather Run-On Diversion) consisted of an underground, concrete pipe, which traversed the On-Site Landfill (SWMU No. 1). The pipe was installed to divert off-site seepage (spring) water, and on-site and off-site stormwater runoff to Badin Lake (Figure 4-13).

SWMU No. 4, (Former K088 Storage Pad) was located just north of Building 058 near SWMU No. 1 (Figure 4-13). Alcoa used the pad from 1915 to 1981 to store SPL prior to constructing Building 058. The pad was constructed of concrete and measured approximately 280 by 60 feet. The pad was reportedly weathered, and soils that underlie the pad were exposed in some places beneath the weathered concrete.

4.4.4.1 Summary of Pre-RFI Investigation Work

Several previous investigations by Law Engineering (October, 1989) and Law Environmental (June 1990, November 1990, April 1991, August 1992, June 1993, December 1993, and March 1994) provide data for SWMU Group 1. These reports were summarized in Section 3 of the RFI Work Plan and provided to the Department in full as an appendix to the Work Plan.

Additional pre-RFI investigation was conducted by Geraghty & Miller and Geophex following submittal of the RFI Work Plan. The limits of SPL in the SWMU Group 1 area were initially delineated by soil borings installed by Geraghty &Miller (December 1995). A geophysical study performed by Geophex (April 1996) delineated areas of high conductivity anomalies believed to coincide with areas of buried SPL. Figure 4-14 shows the geophysical survey results and the inferred SWMU boundaries. The

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investigations resulted in the delineation of SPL and re-defining of the boundary for SWMU No. 1 (On-Site Landfill) further east and across the former back plant road. Figure 4-13 shows the revised SWMU No. 1 boundary determined by these investigations.

4.4.4.2 Summary of Interim Measures Work

In 1996, Alcoa implemented voluntary interim measures concurrently at SWMU No. 1, SWMU No. 4, and SWMU No. 33 [Alcoa Environmental, December 1996 "Interim Measures Report On-Site Landfill (SWMU No. 1) and Wet Weather Run-on Diversion (SWMU No. 33)]. All work was conducted in accordance with an Interim Measures Work Plan (Alcoa, January 1996) that was approved by the Department. Interim measures completed by Alcoa consisted of surface water control improvements to bring the discharge of permitted NPDES Outfall 013 into compliance with the total cyanide limit of 46 ug/l established by the NCDEHNR Division of Water Quality. These activities were designed to be supportive of long-term corrective action objectives for all three SWMUs, primarily by stabilizing the On-Site Landfill through cover improvements and removal of the Wet-Weather Run-On Diversion from the landfill.

Interim measures consisted of raising and relocating SWMU No. 33 (Wet Weather Run-on Diversion) wet-storm water pipes and ditches outside the areas of SPL and at elevations above the groundwater table. Open ditches were replaced with sealed-joint concrete pipe. The Wet-Weather Run-On Diversion was relocated outside of SWMU No. 1 (On-Site Landfill). A minimum two feet thick, low permeability soil cover was placed over SWMU No. 1 (On-Site Landfill) and SWMU No. 4 (Former K088 Storage Pad).

The Interim Measures successfully brought Outfall 013 into compliance with its NPDES effluent limit. Twice per month sampling of Outfall 013 effluent since completion of the interim measures has shown seven detectable concentrations of total cyanide since the completion of the surface water improvements in September 1996 through February 2000. All detections have been below the 46 ug/l limit, and most are near the detection limit of 5 ug/l.

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4.4.4.3 Accelerated RFI Activities Data Summary

During March 1996, Geraghty & Miller executed parts of the scope of work proposed in the RFI Work Plan prior to final approval of the plan by the Department. The execution of these activities was needed prior to commencing the voluntary interim measures work. As a result of earlier investigations (Geraghty & Miller, December 1995 and Geophex, April 1996), the proposed test pit locations were adjusted in the field from those originally shown in the RFI Work Plan. Geraghty & Miller excavated 15 test pits, primarily around SWMU Nos. 1 and 4, and soil samples were collected from each test pit (Geraghty & Miller, February 1997). The locations of test pits excavated in the SWMU Group 1 area are shown on Figure 4-13. Because some of the test pits advanced during the Geraghty & Miller investigation are located within or closer to other North End SWMUs, the data have been reassigned for reporting and risk assessment purposes as follows:

- SWMU Group 1 - SWMU #1 TP-1, TP-2, TP-3, TP-4, TP-5, TP-6, TP-7, TP-8, TP-9, TP-12, and TP-13;
- SWMU No. 35 ("Old" Waste Oil Storage Area) – SWMU #1 TP-10, TP-11, and TP-15; and
- SWMU No. 22 (Scrap Yard) – SWMU #1 TP-14.

In addition to the test pits, six surface soil samples were collected from SWMU No. 1 and four surface soil samples were collected from SWMU No. 4 by Geraghty & Miller during the same investigation. The soil samples were submitted to the Alcoa Technical Center (ATC) for analysis. Soil samples collected from test pits were analyzed for fluoride, amenable cyanide, and total cyanide. Surface soil samples were analyzed for VOCs, SVOCs, barium, chromium, lead, fluoride, amenable cyanide, and total cyanide. All field work and laboratory analysis was performed following the protocols outlined in the draft RFI Work Plan (April 11, 1994 and Revision 1 October 26, 1995). The analytical results for the samples are provided in Tables 4-12 and 4-13. Note that the sample depths on these tables reflect depths prior to implementation of the interim measures at this SWMU. As a result, the surface samples currently reflect conditions beneath two feet of clean low permeability clay that was placed in 1996 on top of the SWMU No. 1 and SWMU No. 4 areas.

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4.4.4.4 Surface and Subsurface Conditions

The surface of the entire SWMU Group 1 area is vegetated with grasses that are regularly mown as part of landfill operation and maintenance (O&M) activities. A 2-foot thick low permeability cap comprised of clean clay material is present on top of the SWMU No. 1 (On-Site Landfill) and SWMU No. 4 (Former K088 Storage Pad).

Borings by Geraghty & Miller (December, 1995) inside of SWMU No. 1 (prior to cap installation) show discontinuous layers of SPL present at depths ranging between 0.5 and 23 ft-bgs. The layers of SPL are generally 3-feet thick or less.

Geraghty & Miller (February, 1997) reported the presence of black carbonaceous material encountered in all test pits except SWMU #1 TP-7, -8, -9, and -13. Based on the levels of total and amenable cyanide and fluoride in soil samples, the geophysical anomalies, and the visual observation of carbonaceous material, SPL is interpreted to be present at test pit locations SWMU #1 TP-1, -2, -3, and -4. Some carbonaceous material is not SPL. Test pits show SPL at depths ranging between 0.5 and 3.5 ft-bgs (depth before cap installation). Test pits SWMU #1 TP-1, -2, and -4 were trenched across the SWMU boundary and define the eastern limits of SPL in SWMU Group 1.

Depth to groundwater at SWMU Group 1 ranges from about 15 ft-bgs at MW-3 to 26 ft-bgs at MW-24. A portion of MW-23 and MW-24 are screened across SPL (Figures 4-15 and 4-16). At MW-23, SPL is reported in the 10 to 13 ft-bgs interval (pre-cap depth) and at MW-24 in the 20 to 23 ft-bgs interval (pre-cap depth). MW-23 has become dry since installation of the cap, which suggests the cap is effectively inhibiting infiltration recharge.

Based on the extensive test boring data, some SPL is present beneath the water table at SWMU Group 1 (Figures 4-15 and 4-16). As the cap continues to inhibit infiltration, the fill material (and waste material) is expected to become dewatered beneath the cap area, thereby reducing leaching of SPL and improving groundwater quality.

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4.4.4.5 Screening Level Risk Assessment Results for Soil

Table 4-14 summarizes the constituents detected in SWMU Group 1 soil and identifies the constituents with maximum detected concentrations greater than the conservative risk-based screening values. Figure 4-13 shows the analytical results for constituents in SWMU Group 1 soil that were detected at concentrations exceeding the risk-based screening values in one or more samples.

Following is a summary of the frequency at which constituents were detected at concentrations exceeding the screening values.

	# Samples	# Samples > Industrial RBC	# Samples >Residential RBC	# Samples >USEPA SSL	# Samples >NC SSL
Cyanide (amenable)	23	0	0	4	4
Cyanide (total)	23	0	0	7	7
Fluoride	23	0	3	-	-
Benzo(a) anthracene	11	1	6	6	8
Benzo(a)pyrene	11	7	7	1	7
Benzo(b)fluoranthene	11	3	7	3	6
Benzo(k)fluoranthene	11	0	2	0	1
Chrysene	11	0	0	0	1
Indeno(1,2,3-cd)pyrene	11	1	1	1	3
Trichloromethane	11	0	0	0	2

Samples from locations SWMU #1 SS-3, SS-4, and SS-5, SWMU #4 SS-1, SS-2, SS-3, and SS-4, and SWMU #1 TP-1, TP-2, TP-3, and TP-4 contain one or more constituents at concentrations exceeding screening values. All of these sample locations are beneath the current clay cap that was installed under the approved Interim Measures Plan.

Four PAHs [benzo (a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene] are the only constituents detected at concentrations exceeding the Region III RBCs for residential and industrial soil. The maximum concentration of benzo(b)fluoranthene exceeds the Region III RBC for residential soil. The only inorganic constituent that exceeds the Region III RBCs for residential soil is fluoride.

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There are four PAHs [benzo (a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene] with maximum concentrations that exceed the default USEPA SSL. These four plus benzo(k)fluoranthene and chrysene also exceed the SSL based on North Carolina's soil to groundwater leaching equation. Only a single VOC (trichloromethane) is present at concentrations greater than the NC SSL. Cyanide and amenable cyanide concentrations exceed the default USEPA SSL and NC SSL.

4.4.4.6 Conclusions and Recommendations

The RFI sampling detected PAHs in soil at this SWMU Group with maximum concentrations of some PAHs exceeding the Region III RBCs for industrial and residential soil. In addition, maximum fluoride concentrations in soil exceed the Region III residential RBC. The interim measures conducted at this SWMU Group, which included emplacement of a low permeability cap, have eliminated the potential for direct worker contact with the constituents detected in SWMU Group 1 soil. Residents can not gain access to the site because it is located completely within the fenced portion of Alcoa's property. In addition, the placement of the cap eliminates any potential concerns for off-site contact with SWMU Group 1 soil because the cap eliminates the potential for soil at this SWMU Group to be eroded and transported off-site by wind or water. As a result, soils at this SWMU Group do not present a concern with respect to direct contact by workers or residents. Alcoa has a program in place to inspect and maintain the cap on a semi-annual basis.

PAHs are found in soils at concentration exceeding the USEPA and North Carolina screening values for the soil to groundwater leaching pathway. Although the PAH concentrations exceed the SSLs, the RFI sampling shows PAHs are not detected in site groundwater (see Section 4.4.9 for RFI groundwater results). It is not surprising that the PAHs are not detected in site groundwater because their mobility is low, particularly in the unsaturated zone, as they tend to adsorb to available organic carbon in soils. The VOC, trichloromethane, was detected at very low concentrations. The concentration of trichloromethane does not exceed the USEPA SSL and is not detected in site groundwater downgradient from this SWMU. In addition, the low permeability cap installed at this SWMU Group further reduces the potential for leaching. Based on the interim measures work and groundwater sampling results, PAHs and trichloromethane were eliminated as COIs for leaching to groundwater.

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Cyanide is also present in soil at concentrations that exceed the USEPA and NC SSLs, and is present in groundwater downgradient of the SWMU Group. However, the low permeability cap installed at this SWMU Group is believed to be effectively inhibiting leaching as evidenced by MW-23 becoming dry after cap installation (Figure 4-15). As a result, this SWMU Group is not believed to be an active source of leaching of COIs from unsaturated soil to groundwater. Therefore, no further evaluation of leaching from soil to groundwater is warranted. The concentrations of cyanide (and other constituents) in groundwater, believed to be, in part, the result of historic releases from SWMU Group 1, are further evaluated under the SWMU-Area concept with the entire North End (see Section 4.4.9). Based on the RFI findings, interim measures work, and the assessment of past releases with the North End groundwater, no further action is recommended for this SWMU Group.

4.4.5 SWMU No. 22: Scrap Yard

Between 1915 and 1994, Alcoa used this approximately 400 x 90-foot (largest dimensions) wedge-shaped area at the north end of the facility to store miscellaneous scrap (Figure 4-17). Prior to soil removal work in 1994, the area exhibited stained surface soils. Scrap placed in this area included primarily various metal and wooden items. Materials or contaminant sources in SWMU No. 22 (Scrap Yard) potentially included SPL, metal scrap, carbon dust, equipment with PCB-containing oils, miscellaneous oils and solvents, asbestos, refractory materials, alumina, electrolytic bath and anode butts.

4.4.5.1 Summary of Pre-RFI Investigation Work

As part of Confirmatory Sampling, three surface (0 to 6-inches) soil samples and one groundwater sample were collected (Law Environmental, June 1993). A groundwater sample was collected from MW-4, which is located immediately next to the scrap yard. The soil samples and groundwater samples were analyzed for PCBs, VOCs, SVOCs, RCRA total metals, total and free cyanide, and total fluoride. The soil samples were also analyzed for volatile and semi-volatile TPH and the groundwater samples for dissolved RCRA metals. Organic and inorganic compounds were detected in the soil and groundwater. Based on the Confirmatory Sampling findings, USEPA required inclusion of SWMU No. 22 in the RFI.

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4.4.5.2 Summary of Voluntary Measures Work

In August 1994, Alcoa implemented voluntary measures at SWMU No. 22. The voluntary measures included removing surface and subsurface debris, and soil from the SWMU. Materials were excavated to depths ranging from a 6-inches to 4.5 feet. The removed and excavated materials and soil, totaling 725 tons, were manifested to the RCRA Subtitle C permitted Landfill in Emelle, Alabama. Verification samples were obtained after the soil removal. Clean soil was imported to backfill deeper parts of the excavation. A 30-mil HDPE liner was placed over the backfill, and the area was covered with #57 washed stone. The soil removal documentation was provided to the Department in the Four Seasons Environmental, Inc. "Final Report; Soil and Debris Removal Project: Solid Waste Management Unit-22" dated November 3, 1994.

4.4.5.3 Accelerated and Phase I RFI Data Summary

Test pit SWMU #1 TP-14 was advanced into the subsurface in 1996 by Geraghty & Miller near the southern edge of SWMU No. 22 as part of accelerated RFI activities to assess for SPL in the North End. Additional verification sampling to confirm the effectiveness of the debris and soil removal activities was performed as part of the Phase I RFI activities. Soil samples were collected at three test boring locations (S22-TB-01, S22-TB-02, and S22-TB-03) illustrated on Figure 4-17. The test boring logs are provided in Appendix B-1. The surface cover of washed stone was removed at each of the three proposed sampling locations, and the 30-mil high density polyethylene (HDPE) liner was cut to provide access for sampling. Samples were obtained using a HSA drill rig and split-spoon sampler from the 0 to 6-inch interval below excavated soil under the base of the backfill. The soil samples were analyzed for VOCs, SVOCs, metals (arsenic, barium, cadmium, chromium, lead, and selenium), total cyanide, weak acid dissociable cyanide, total fluoride, and PCBs. Table 4-15 provides the RFI analytical data for SWMU No. 22.

4.4.5.4 Surface and Subsurface Conditions

The surface of this SWMU is covered with approximately 1 foot of washed stone over a 30-mil HDPE liner. Beneath the liner are clean soils comprised primarily of silty clay backfill material to depths ranging between 1.5 and 2 feet. Partially weathered bedrock is present beneath the backfill material. Borings S22-TB-01, S22-TB0-02, and S22-TB-03 and test pit SWMU #1 TP-14 did not encounter any

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waste materials or debris, confirming the effectiveness of the removal action in 1994. Depth to groundwater beneath this SWMU is approximately 5 ft-bgs based on MW-4 water levels.

4.4.5.5 Screening Level Risk Assessment Results For Soil

Table 4-16 summarizes the constituents detected in SWMU No. 22 soil samples and provides a comparison of detected concentrations to risk-based screening values. Figure 4-17 shows the soil sample locations and depths.

Arsenic is the only constituent detected at concentrations exceeding the Region III RBCs for residential and industrial soil. The maximum detected concentration of arsenic is 11.9 mg/kg at location S22-TB-02. However, the maximum detected concentration is well below the statistically derived background arsenic concentration for the plant area of 33 mg/kg (see Section 4.3). Therefore, following the decision tree presented in Figure 3-1, arsenic is dismissed as a COI.

There are no constituents detected at concentrations exceeding the USEPA and NC SSL values.

4.4.5.6 Conclusions and Recommendations

There are no constituents detected at concentrations exceeding both the risk-based screening values and background concentrations. As a result, this SWMU does not present a concern for direct contact pathways. In addition, there are no constituents in soil at this SWMU detected at concentrations exceeding the conservative USEPA and NC SSLs. As a result, this SWMU is not an active source of leaching of constituents to groundwater. Therefore, this SWMU does not present a concern for the soil to groundwater leaching pathway.

The RFI data verify the removal of soil and debris from this area in 1994 and all detected soil concentrations are below conservative risk-based levels. As a result of the soil removal action and RFI findings, no further action is recommended for this SWMU. Groundwater in the vicinity of this SWMU is being addressed in the SWMU-Area concept with the entire North End of the plant (see Section 4.4.9)

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4.4.6 SWMU No. 25: Underground Conveyance Line to NPDES Outfall 009

As illustrated on Figure 4-18, SWMU No. 25 underground piping extends from Badin Lake westward into the northern end of the Alcoa Badin Works. The Underground Conveyance Line to (formerly named) NPDES Outfall 009 (North Storm Drain) discharges non-contact cooling water and, in some cases, stormwater runoff from the North End of the Alcoa site into Badin Lake. The outfall has been renamed Outfall 012, which discharges non-contact cooling water during dry weather, and Outfall 011 which, in addition to discharging non-contact cooling water, discharges stormwater during wet weather when it exceeds the capacity of a diffuser associated with Outfall 012.

The underground conveyance line was never used to store or manage wastes. However, prior to repair and replacement work done to it in 1991, it may have acted as a conduit for migration of contaminated groundwater beneath SWMUs in the North End (i.e., SWMU Nos. 1, 4, 22, 33, and 35). Groundwater was able to infiltrate the North Storm Drain because it was buried beneath the groundwater table in the area, and the concrete pipe was damaged in several places, as determined from a video survey. This infiltration resulted in fluoride and total cyanide concentrations at (formerly named) Outfall 009, which exceeded Alcoa's NPDES permit limits.

On April 16, 1990, Alcoa entered into a Special Order by Consent (SOC) agreement with the North Carolina Division of Environmental Management (NCDEM). The SOC included a series of activities and timetables to bring the effluent at (formerly named) Outfall 009 into compliance with the effluent limitations of Alcoa's NPDES permit. One of the activities was repair and replacement of the North Storm Drain piping. The pipe repair consisted of relocating and raising sections of the conveyance line above the groundwater table, replacing the sections with sealed joint pipe, and removing or sealing abandoned sections of pipe. The new layout of the storms sewer system is shown in Figure 4-18.

Since completion of the pipe replacement project in September 1991, the effluent concentrations of total fluoride and total cyanide have been reduced to levels well below the effluent limitations for these constituents as listed in Alcoa's NPDES Permit. The NCDEM was notified of compliance with the requirements of the SOC in a letter from Alcoa dated December 6, 1991. In addition, slip lining of a section of the conveyance system was performed by Alcoa in 1997 to further mitigate the potential for this SWMU to act as a conduit for groundwater migration to Badin Lake.

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The RFI Work Plan did not include activities for this SWMU because (1) discharges from formerly named Outfall 009 are regulated under NPDES permit, (2) releases of contaminants from the outfall at levels which exceeded NPDES permit limits were successfully remediated under the SOC, and (3) slip lining of the portion of the underground piping beneath the railroad tracks in 1997 further mitigated the potential for this SWMU to act as a conduit for groundwater migration. As a result of these activities, Alcoa recommended no further action for this SWMU in the RFI Work Plan, which was approved by the Department.

4.4.7 SWMU No. 35: "Old" Waste Oil Storage Area

Alcoa used the area from the 1920's to the early 1970's to store containers of various solvents, waste motor oils, lubricating oils, and transformer oils that possibly contained PCBs (Figure 4-19). The area is triangular in shape and measures approximately 110 feet by 50 feet (largest dimensions).

4.4.7.1 Summary of Pre-RFI Investigation Work

Geophysical work in the SWMU No. 35 area (Geophex Ltd., 1996) identified electromagnetic anomalies similar to those observed in SWMU No. 1 where SPL was known to have been placed. Figure 4-14 shows the geophysical anomaly identified at SWMU No. 35.

4.4.7.2 Accelerated and Phase I RFI Data Summary

During March 1996, Geraghty & Miller installed three test pits (SWMU#1 TP10, SWMU#1 TP-11, and SWMU #1 TP-15) in and around SWMU No. 35 to evaluate for SPL. Samples were collected from the test pits for laboratory analysis of total cyanide, amenable cyanide, and fluoride.

In September 1999, three additional soil borings (S35-TB-01, S35-TB-02, and S35-TB-03) were installed at the locations illustrated on Figure 4-19 during Phase I of the RFI. The boring logs are provided in Appendix B-1. Two soil samples were collected from each boring. At S35-TB-01, samples were collected at the surface (0 to 0.5 ft-bgs) and the 4 to 6 ft-bgs interval. At S35-TB-02 and S35-TB-03, samples were collected from each boring at surface (0 to 0.5 ft-bgs) and the 4 to 8 ft-bgs interval. With the exception of the 4 to 8 ft-bgs sample from S35-TB-03 the samples were analyzed for VOCs, SVOCs, total cyanide, weak acid dissociable cyanide, total fluoride, metals (arsenic, barium, cadmium, chromium, lead, and selenium), and PCBs. The 4 to 8 ft-bgs sample at S35-TB-03 was

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analyzed for all parameters except PCBs, which were inadvertently excluded from analysis on the COC form. One soil sample was collected from beneath the water table at a depth of 14 to 18 ft-bgs from S35-TB-02. This sample was collected to evaluate the observation of "oily water" in this interval and was analyzed for PCBs and PAHs. The Phase I RFI soil analytical results and the data collected on an accelerated basis in 1996 by Geraghty & Miller are summarized on Table 4-17.

In addition to the three test borings described above, a fourth boring (S35-TB-04A) was advanced 100 feet to the northeast of SWMU No. 35 to further assess the observation of oily water observed in S35-TB-02. A monitoring well (MW-27) was installed 130 feet downgradient of the SWMU (as near as possible to the SWMU due to the presence of a roadway and railroad tracks) to provide additional data for the North End SWMU-Area and also some SWMU-specific information for organics potentially associated with the oil.

4.4.7.3 RFI Phase II Data Summary

In August 2000, eight test borings (S35-TB04 through S35-TB11) were advanced at the locations illustrated on Figure 4-19. The boring logs are provided in Appendix B-1. Soil samples were collected from each 2-foot interval at each boring and field screened for PCBs using an Ensys™ Immunoassay Test Kit. The PCB field screening results are provided on Table 4-18. A soil sample was collected for confirmatory laboratory analysis from the 0 to 2 ft-bgs interval from borings S35-TB-04, S35-TB-06, S35-TB-07, S35-TB-10, and S35-TB-11 while an additional sample from the 4 to 6 ft-bgs interval was collected at the S35-TB-10 location. One field duplicate sample was collected at the S35-TB-11 location. All the samples submitted to the analytical laboratory were analyzed for PAHs, PCBs, total and weak acid dissociable cyanide, and fluoride. The Phase II analytical results are summarized on Table 4-19.

4.4.7.4 Surface and Subsurface Conditions

The logs for borings drilled at this SWMU show fill material is present from the ground surface to approximately 12 to 13 ft-bgs. The fill is comprised of a mixture of silt, sand, clay, gravel, black ash, fine black coal-like material, and slag. The water table occurs within the fill material at a depth of approximately 8 ft-bgs. Weathered bedrock is beneath the fill material. "Oily water" was observed at the 14 to 16 ft-bgs interval in S35-TB-02. PCB Aroclor 1260 was detected in the soil sample associated with oily water at a concentration of 0.086 mg/kg. In addition to the PCB, some low levels of PAHs were

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detected in this sample (Table 4-17). There was no evidence of oily water or organic constituents in downgradient monitoring well MW-27 or boring S35-TB-04A.

4.4.7.5 Screening Level Risk Assessment Results for Soil

Table 4-20 summarizes the constituents detected in soil samples collected at this SWMU No. 35 and identifies those with maximum concentrations exceeding the risk-based screening values. Figure 4-19 provides a summary of constituents detected at concentrations exceeding both the risk-based screening values and background concentrations.

Arsenic is the only inorganic constituent detected in soil at this SWMU at concentrations exceeding the Region III RBCs for industrial and residential soil. However, the maximum detected concentration of arsenic (16.2 mg/kg) in soil at this SWMU is well below the background soil concentration (33 mg/kg). Fluoride was detected in two soil samples at a concentration exceeding the residential Region III RBC, but none of the fluoride detections exceed the Region III industrial RBC. Fluoride is not identified as a COI for direct contact because the samples exceeding the residential RBC are in the subsurface and therefore eliminated as a COI to off-site residential areas.

Organic constituents that exceed the Region III RBCs for industrial and residential soil include PCB Aroclors 1248, 1254, and 1260 and three PAHs [benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene]. Additional chemicals exceeding only the residential RBC include fluoride, benzo(a)anthracene, and indeno(1,2,3-cd)pyrene.

Total and weak acid dissociable cyanide concentrations in soil exceed both the USEPA and NC SSLs. The detection of these constituents will be addressed under the SWMU-Area concept for groundwater in the entire North End of the facility (see Section 4.4.9). The maximum detected concentration of lead is equivalent to the NC SSL value; however this is in a surface sample S35-TB-01-0.0-0.5 (270 mg/kg). The 4 to 6 ft-bgs sample at the same boring shows lead (84.5 mg/kg) at a concentration well below the NC SSL value. Because the SSL equation conservatively assumes a source directly on top of the water table and the detection at 4 to 6 ft-bgs is less than the SSL value, the detection of lead equivalent to the SSL value at the ground surface is not a concern with respect to the soil to groundwater leaching pathway. As a result, lead is eliminated as a COI for the soil to groundwater leaching pathway.

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The PAHs benzo(a)anthracene, and benzo(b)fluoranthene are the only organics detected at concentrations exceeding both the USEPA and NC SSLs. Other organics detected at concentrations exceeding NC SSLs include the PAHs benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd) pyrene, and VOCs, chloromethane and trichloroethene. Although PAH and chloromethane concentrations exceed the conservative SSLs, they are eliminated as COIs for the soil to groundwater leaching pathway because they are not detected in site groundwater (see Section 4.4.9 for RFI groundwater results). Trichloroethene is also eliminated as a COI at SWMU No. 35 for the leaching to groundwater pathway because 1) it was detected infrequently (only two of seven samples, 2) only one of the two detection exceeds the NC SSL value, 3) the average concentration (using the detection limit for non-detects) based on all seven soil samples is 0.01 mg/kg (well below the SSL) and 4) it was not detected in the closest downgradient monitoring well (MW-27).

Based on the results of the screening level risk assessment, a site-specific risk assessment (Section 4.4.7.6) for soil was conducted for this SWMU to further evaluate the PCBs and PAHs detected at concentrations exceeding the Region III RBCs.

4.4.7.6 Site-Specific Risk Assessment for Soil

The Phase I RFI soil samples were collected inside of the SWMU boundaries where the greatest degree of soil contamination from past activities would be expected (i.e., potential COI concentrations outside the SWMU boundary are expected to be less than those inside the boundary). As a result, the concentrations detected in the samples are believed to be biased high. Phase II data were collected for the purpose of delineating an area of apparently higher PCB concentrations in the vicinity of sample S35-TB-01.

Following the risk assessment screening of Phase I and Phase II site data, the following were identified as COIs in soil for on-site (i.e., industrial) scenarios: benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, Aroclor 1248, Aroclor 1254, and Aroclor 1260. Benzo(a)anthracene and indeno(1,2,3-c,d)pyrene also exceeded residential RBCs in surface soil; therefore, these two additional PAHs were included as COIs for off-site residential receptors with potential exposure to airborne particulates generated from the SWMU.

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SWMU No. 35 is located in the north end of the main plant area, and is an open area to the west of railroad tracks and to the north of the wood storage building and paint storage/carpenter shop building. There are no active plant processes performed in this area, and under current conditions plant workers are not present directly on SWMU No. 35 on a regular basis. However, industrial workers may infrequently pass through this area. This type of worker is unlikely to be exposed to COIs in surface soil because the ground surface at SWMU No. 35 is predominantly covered by gravel. In addition, under current conditions, there are no complete exposure pathways with COIs in subsurface soil as there are no intrusive activities occurring in this area. Future conditions in the SWMU are expected to remain industrial and similar to current conditions. However, to maintain conservatism in the risk assessment, it was assumed this area could be developed as a process area in the future. It was assumed future construction may occur in the SWMU No. 35 area, resulting in the potential for construction workers to contact subsurface soil and that there may be a process area with the opportunity for regular contact by plant workers.

This risk assessment evaluates the following potential receptors and complete exposure pathways for SWMU No. 35:

- **Current Infrequent and Future Full-time Industrial Worker**– Incidental ingestion of COIs in surface soil, dermal contact with COIs in surface soil, inhalation of airborne particles generated by wind erosion. (No evaluation of inhalation of volatiles is necessary because the COIs are not considered to be volatile);
- **Current Off-Site Adult and Child Resident** - Inhalation of airborne particles generated by wind erosion on-site and carried by wind toward off-site residential areas; and
- **Future Construction Worker** - Incidental ingestion of COIs in all soil (i.e., surface and subsurface soil down to 10 ft-bgs), dermal contact with COIs in all soil; and inhalation of airborne particulates released during digging activities.

Appendix E-1 presents the major assumptions and exposure pathways used in evaluating potential risks for each receptor. Exposure point concentrations for surface and surface/subsurface soil are presented in Table 4-21. Toxicity criteria for SWMU No. 35 COIs are provided in Tables E-3 and E-4 of Appendix E.

Table 4-22 presents the theoretical excess lifetime cancer risks and hazard indices for the current and possible future receptors for SWMU No. 35. All of the calculated risks are below or within the range of 10^{-6} to 10^{-4}, and therefore acceptable. The total hazard index for each receptor are less than

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or equal to one, and therefore acceptable, as well. These calculated risks and hazards are likely to overestimate true risks because many conservative assumptions are incorporated into the quantitative risk assessment. For example, much of the surface area of SWMU No. 35 is gravel covered. Therefore, direct contact with COIs in surface soil and wind erosion of surface particles are unlikely to occur. The hazard indices for Aroclor 1248 may be overestimated because these are based on the oral RfD of Aroclor 1254, which is expected to be more toxic than Aroclor 1248 given its higher degree of chlorination. It is also very unlikely that industrial worker receptors would contact the small area of SWMU No. 35 at the exposure frequencies assumed in the risk assessment. Appendix E-3 discusses other general uncertainties that contribute to the conservatism of the risk and hazard estimates.

4.4.7.7 Conclusions and Recommendations

The site-specific risk assessment for SWMU No. 35 shows risks are within USEPA's acceptable range for both on-site and off-site potential receptors. Furthermore, these calculated risks and hazards are likely to overestimate true risks. As a result, there is no concern related to the direct contact pathways at this SWMU.

PAHs and chloromethane concentrations exceed the conservative SSLs for the leaching from soil to groundwater pathway. However, these two constituents are eliminated as COIs for the soil to groundwater leaching pathway because they were not detected in downgradient well MW-27 or any site groundwater samples (see Section 4.4.9 for groundwater results). Trichloroethene is eliminated as a COI for the soil to groundwater leaching pathway because it was infrequently detected. The average trichloroethene concentration throughout the SWMU soils is less than the NC SSL, and this constituent was not detected in the closest downgradient monitoring well (MW-27).

Total and weak acid dissociable cyanide are present at concentrations exceeding the USEPA and NC SSLs, and these constituents are present in groundwater in the vicinity of the SWMU at concentrations exceeding Federal MCLs and NC 2L Standards. Cyanide is also a COI at other SWMUs within the contiguous infilled valley and as a result groundwater at SWMU No. 35 is addressed using the SWMU-Area concept with North End groundwater (Section 4.4.9).

COIs in groundwater may migrate to Badin Lake surface water. The risk evaluation for surface water (Section 4.4.17) concluded all groundwater COIs were either not detected in Badin Lake or at

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concentrations less than applicable human health screening values. Based on the results of the risk assessment which shows risks for direct contact with soil at the SWMU and groundwater at the only exposure point (Badin Lake) are within acceptable ranges, SWMU No. 35 is recommended for no further action.

4.4.8 SWMU No. 44: Pine Tree Grove Area

The Pine Tree Grove Area (PTGA) is located in the North End of the Badin facility adjacent to Badin Lake and outside of the plant's fenced area (Figure 4-20). The North End is characterized by a natural west-east trending valley that was progressively filled during the period between 1916 and 1968. The PTGA, located at the eastern end of the valley, is a former prong of Badin Lake, which was filled beginning between 1938 and 1951. Filling of the PTGA was completed between 1959 and 1961. A comparison of 1916 and 1989 topographic maps has allowed delineation of the former valley and estimation of fill thickness (Figure 4-6). The filling resulted in raising the topographic elevation of the valley by approximately 10 to 15 feet in the PTGA.

4.4.8.1 Summary of Previous Investigations

Geophysical work in SWMU No. 44 (Pine Tree Grove Area) identified electromagnetic anomalies similar to those observed in SWMU No. 1 where SPL was known to have been placed (Geophex Ltd., 1996). The geophysical anomalies suggested that SPL comprises a portion of the fill material in the SWMU. Figure 4-14 shows the geophysical anomaly identified at the Pine Tree Grove Area.

Further investigation of SWMU No. 44 was conducted (Geraghty & Miller Inc., November 1996) to determine if the geophysical anomalies represent the presence of SPL fill material. Soil borings SB-1 through SB-7 were drilled and one grab sample of soil cuttings was collected from each soil boring, either at the occurrence of suspected SPL or at boring termination. Soil samples were submitted to the Alcoa Technical Center (ATC) laboratories for analysis of fluoride and amenable and total cyanide. The soil data from this investigation are presented in Table 4-23.

In addition, three groundwater monitoring wells (MW-25, MW-25A, and MW-26) were installed by Geraghty and Miller to obtain water levels, hydraulic conductivity, and groundwater quality

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data. The groundwater data from this area are discussed along with all the North End data in Section 4.4.9.

4.4.8.2 Phase II RFI Data Summary

In August 2000, five surface soil samples (S44-SS-01, S44-SS-02, S44-SS-03, S44-SS-04, and S44-SS-05) were collected from the 0 to 0.5 ft-bgs interval at the locations illustrated on Figure 4-20. One field duplicate sample was collected at the S44-SS-05 location. All the samples were analyzed for Appendix IX VOCs, Appendix IX SVOCs, arsenic, barium, cadmium, chromium, lead, selenium, total and weak acid dissociable cyanide, and fluoride. The analytical results are summarized on Table 4-24.

4.4.8.3 Surface and Subsurface Conditions

Figure 4-20 provides a plan view of SWMU No. 44. Tall pine trees are present at the surface at SWMU No. 44. Fill materials, including native soils and waste (including SPL) produced from the Badin Works plant operations, were deposited in the former valley (see Figures 4-4 and 4-6). The filling of the valley has resulted in a complex stratigraphic sequence of natural and anthropogenic materials. Where present, the fill ranges in thickness up to about 10 feet in the PTGA. The waste materials appear to have been deposited mainly along the axis of the former valley.

Bedrock beneath SWMU No. 44 is reported by Geraghty &Miller (November 1996) as volcanic argillite (green slate). Geraghty & Miller reports weathering has altered the uppermost portion of the slate into a silty clay saprolite. Based on drilling logs, this silty clay zone is approximately 4 to 5 feet thick. A mixture of fill materials and plant waste overlies the silty clay in some areas. Depth to groundwater at SWMU No. 44 ranges from about 4 to 10 ft-bgs and is shallowest on the eastern side of the SWMU near Badin Lake. Boring logs indicate carbonaceous waste materials are present below the water table in the Pine Tree Grove Area.

4.4.8.4 Screening Level Risk Assessment Results for Soil

Table 4-25 provides a summary of detected constituents in soil samples collected from all depths from SWMU No. 44. Table 4-26 summarizes the analytical data for detected constituents in surface soil (0 to 0.5 ft-bgs). Figure 4-20 shows the soil sample locations, depths, and analytical results

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for constituents whose concentrations exceed the risk-based screening values. In deeper soils, fluoride is present in concentrations greater than the residential RBC for fluorine (soluble fluoride), and concentrations of fluoride in surface soil are lower. For both surface and all soils, arsenic and benzo(a)pyrene were detected at concentrations greater than the industrial and residential RBCs, and benzo(a)anthracene and benzo(b)fluoranthene were detected at concentrations greater than the residential RBC. The maximum detected concentration of arsenic is less than the plant-area background concentration of 33 mg/kg; therefore this constituent is eliminated as a COI for SWMU No. 44. The PAHs detected at concentrations exceeding the RBC screening values are further evaluated in a site-specific risk assessment in Section 4.4.8.5.

The samples collected from PTG-SB-1 through PTG-SB-7 were all from beneath the water table. It is inappropriate to compare the results of samples that were collected from beneath the water table to the SSLs because the SSL equation assumes a constant source directly above the water table. As a result, the constituents detected in soils and material beneath the water table are addressed with North End groundwater in Section 4.4.9. PAHs were identified at concentrations greater than the SSLs in surface soil samples. The PAHs identified as COIs at concentrations greater than the SSLs are also addressed with the North End groundwater in the Section 4.4.9.

4.4.8.5 Site-Specific Risk Assessment Results

Benzo(a)pyrene was detected in surface soil samples in concentrations that exceed both the industrial and residential RBCs for soil. Benzo(a)anthracene and benzo(b)fluoranthene were detected in surface soil samples at concentrations greater than the residential RBC, but not the industrial RBC. Additionally, fluoride was detected in a subsurface soil sample at a concentration that exceeded the residential RBC, but not the industrial RBC. Subsurface soil exposure is only relevant in scenarios such as construction, which include digging activities.

SWMU No. 44 (Pine Tree Grove Area) is located on the northeast boundary of the Alcoa Badin Plant property adjacent to Highway 740, and is approximately 100 feet to the west of the shore of Badin Lake. The PTGA is accessible from the road and has a dense covering of tall pine trees. There are no plant processes carried out in this area, not even maintenance activities such as mowing. Therefore, no current industrial scenarios are relevant to SWMU No. 44. This area of the plant property would not be developed for industrial purposes in the future because it is essentially a landfill area with a tree cover.

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Therefore, under future conditions, industrial scenarios would not be anticipated, nor would there be the opportunity for any receptors to contact subsurface soil. However, it is possible under current and future conditions that a trespasser could enter into this area and contact surface soil. The hypothetical trespasser is assumed to be a youth age 9 to 15 years, and exposure would occur through the potentially complete exposure pathways of incidental ingestion of COIs in surface soil, dermal contact with COIs in surface soil, and inhalation of COIs associated with wind-generated particulates from surface soil. Since a trespasser is not an industrial receptor, the more stringent residential RBCs were used to identify SWMU No. 44 COIs for quantitative risk evaluation of the trespassing scenario. Therefore, benzo(a)pyrene, benzo(a)anthracene, and benzo(b)fluoranthene were identified as COIs, and EPCs were calculated for these constituents from surface soil data.

Dose algorithms for these exposure pathways and specific exposure factors (and references) that are applied to this receptor and scenario are provided in Appendix E-1. EPCs are shown in Table 4-27. Toxicity criteria for SWMU No. 44 COIs are presented in Table E-3 of Appendix E.

Off-site residential exposure to airborne particles from this SWMU is evaluated qualitatively in this report because 1) this SWMU is over 1700 feet from the nearest residences, 2) only a limited number of COIs were identified, and 3) the COIs are present at relatively low concentrations in surface soil.

Table 4-28 presents the summed theoretical excess lifetime cancer risk for the current and possible future youth trespasser for SWMU No. 44. The total calculated risk is 6×10^{-8}, which is well below the range of 10^{-6} to 10^{-4}, and therefore acceptable. Actual risks are likely to be lower than those calculated in the risk assessment because quantitative risk assessment incorporates many conservative assumptions. Section E-3 discusses a number of sources of uncertainty that are applicable to this quantitative risk assessment.

With regard to off-site residential exposure to surface particles from this SWMU, such potential exposure is likely insignificant given the distance of this SWMU from the closest residences, and the relatively low concentrations of COIs in surface soil. Risks for the child and adult off-site resident for SWMU No. 46, a SWMU that is closer to the residential area to the west of the Alcoa Badin Works and has similar COIs and soil concentrations, were calculated to be in the 10^{-10} range (that is, four orders of magnitude lower than the *de minimis* 10^{-6} level). Therefore, it is concluded that potential risks for off-site residents for surface particles transported by air from SWMU No. 44 are acceptable as well.

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4.4.8.6 Conclusions and Recommendations

The site-specific risk assessment for SWMU No. 44 shows risks are well below USEPA's acceptable range for both on-site and off-site potential receptors. As a result, there is no concern with the direct contact pathway at this SWMU.

PAHs were detected in soils at concentration exceeding the USEPA and NC screening values for the soil to groundwater leaching pathway. However, PAHs were not detected in monitoring wells in the PTGA (or in any other site wells), and as a result PAHs are eliminated as COIs for the soil to groundwater leaching pathway.

Cyanide and fluoride have been detected in PTGA area monitoring wells. These detections may be related to SPL within the PTGA and/or to overlapping plumes from potential upgradient sources to the west that are also within the contiguous infilled valley. As a result of the potential for co-mingling with upgradient plumes, groundwater at SWMU No. 44 is addressed using the SWMU-Area concept with North End Groundwater (Section 4.4.9).

Groundwater beneath this SWMU is not used for any purpose and does not present a direct contact risk to site workers. The North End groundwater evaluation (Section 4.4.9) concludes that the only potential exposure pathway to groundwater is after it flows into and mixes with Badin Lake surface water. The risk evaluation for surface water (Section 4.4.17) concludes that all groundwater COIs are either not detected in Badin Lake or at concentrations less than applicable human health screening values. Based on the results of the risk assessment, risks for direct contact with soil and groundwater (after it mixes with Badin Lake surface water) are within acceptable ranges; therefore, no further action is recommended for this SWMU.

4.4.9 North End of Plant Groundwater

This section provides the evaluation of groundwater for those SWMUs included in the North End SWMU-Area approach. The evaluation addresses groundwater at SWMU Nos. 1, 4, 22, 25, 33, 35 and 44. These SWMUs are addressed jointly because they are all located within the same contiguous infilled valley, have the same COIs, and releases to groundwater are not traceable to any individual SWMU.

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4.4.9.1 Summary of Pre-RFI Investigation Work

Periodic groundwater sampling has been conducted by Alcoa on a voluntary basis since 1991. Samples have been routinely analyzed for total and free cyanide, and fluoride. Groundwater elevation data have been collected in conjunction with the sampling. The sampling results and groundwater elevation trends were incorporated with the RFI data and discussed in Section 4.4.3.

4.4.9.2 Phase I RFI Data Summary

Groundwater samples were collected from 27 monitoring wells in the North End of the plant (Figure 4-21) during Phase I of the RFI. Samples from 26 of the 27 monitoring wells were analyzed for VOCs, SVOCs, total cyanide, free cyanide (by the weak acid dissociable and microdiffusion methods), total fluoride, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), and filtered metals (arsenic, barium, cadmium, chromium, lead, and selenium).

An Appendix IX analysis was performed on the sample from MW-6. In accordance with the Work Plan, Appendix IX was to be done on the "most contaminated well". MW-6 was selected as the "most contaminated well" due to past observed cyanide and fluoride concentrations and as a result was analyzed for Appendix IX VOCs, SVOCs, PCBs/pesticides, and inorganics. In addition to the Appendix IX list, groundwater from MW-6 was analyzed for weak acid dissociable cyanide, microdiffusion cyanide, fluoride, filtered metals, and total suspended solids. Table 4-29 provides the North End groundwater analytical results.

4.4.9.3 Phase II RFI Data Summary

The Phase II groundwater sampling for the North End focused on (1) the Phase I detection of trichloroethene at concentrations exceeding the NC 2L Standards at MW-16 and (2) the Phase I detection of antimony and thallium in MW-6 at concentrations greater than Federal MCLs.

The only potentially complete exposure pathway with facility groundwater is after it enters and mixes with Badin Lake surface water. The objective of the Phase II scope of work for trichloroethene was to obtain surface water analytical data needed to evaluate the effect of groundwater discharge on Badin Lake water quality. One surface water sample from Badin Lake was laboratory analyzed for

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trichloroethene. Trichloroethene was not detected in the sample. The results of the surface water sampling are discussed further in Section 4.4.17.

The Phase II investigation of antimony and thallium consisted of collecting groundwater samples from four monitoring wells. The monitoring wells included MW-6 (resampling of the "most contaminated well"), MW-7 (background well), MW-16 (perimeter well near Badin Lake), and MW-25 (perimeter well near Badin Lake). The groundwater samples were analyzed for total and dissolved antimony, total and dissolved thallium, and total suspended solids. The Phase II sampling results are provided on Table 4-30.

4.4.9.4 Screening Level Risk Assessment for North End Groundwater

Table 4-31 provides a summary of constituents detected in North End groundwater and provides a comparison to the NC 2L Standards and Federal MCLs. Note that on Table 4-31, Alcoa has conservatively applied screening values that are based on the toxicity of free cyanide to screen total cyanide (see Section 1.5). Figure 4-21 provides a summary of the constituents detected at concentrations greater than the NC and Federal groundwater standards in one or more samples.

Trichloroethene, dissolved and total arsenic, total cyanide, weak acid dissociable cyanide, microdiffusion cyanide, and fluoride are detected at concentrations that exceed the NC 2L Standards and Federal MCLs in the samples collected during Phase I. In addition, the concentration of dissolved and total antimony, and dissolved thallium slightly exceeded the Federal MCL in Phase I samples. However, the antimony and thallium were not detected in the Phase II samples and therefore eliminated as COIs.

Figures 4-8, 4-9, 4-10, and 4-11 provide isoconcentration maps for the total cyanide, weak acid dissociable cyanide, microdiffusion cyanide, and fluoride. These constituents are the most prevalent in the North End groundwater.

As a result of the constituent concentrations exceeding the NC 2L Standards and Federal MCLs during the screening process, the North End groundwater was subjected to a site-specific risk assessment.

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4.4.9.5 Site-Specific Risk Assessment for North End Groundwater

Groundwater in the North End is not used for any purpose and is at depths that do not present a direct contact risk to site workers. The entire North End is located on property owned by Alcoa on either side of NC Highway 740, so Alcoa controls any activity that could occur in this area. The residential well survey determined that the vast majority of local residences use water supplied by Stanly County. The residential well survey also determined that the three residences believed to utilize home wells are either hydraulically isolated or upgradient from Alcoa's on-site and off-site SWMUs and AOCs. As a result, the groundwater in the North End does not present a risk to on-site workers and residential well users because there are no complete exposure pathways.

Groundwater in the North End flows toward and discharges to Badin Lake surface water. Potential receptors in Badin Lake represent the only possible complete exposure pathway to COIs in North End groundwater. Badin Lake is evaluated in Section 4.4.17.

4.4.9.6 Conclusions and Recommendations

Groundwater in the North End contains constituents at concentrations that exceed NC 2L Standards and Federal MCLs, which were used for risk-screening purposes. Although the concentrations exceed the screening values, there is no direct exposure potential with groundwater to the plant workers or local residents.

The only potential exposure to the North End groundwater COIs would be after it flows into and mixes with Badin Lake surface water. Because Badin Lake surface water represents the only potential complete exposure pathway for groundwater, it was the subject of a risk evaluation in Section 4.4.17. The risk evaluation for Badin Lake surface water and sediment (Section 4.4.17) determined all the North End groundwater COIs were not detected or were detected at concentrations less than applicable human health risk screening values. As a result, no further action other than periodic monitoring is recommended for North End groundwater.

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4.4.10 SWMU No. 11: Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site

SWMU No. 11 contains a grouping of former individual SWMU Nos. 11, 12, 13, 34, 37 and 40. Located east of Building 050 in the northern part of the site, much of the approximately 300 by 250-foot area was used for storage of drummed oils, paints and solvents, transformer carcasses, and miscellaneous scrap metal, including empty petroleum-storage tanks (Figure 4-22). Surface soils are visibly stained in some parts of SWMU No. 11.

Alcoa used a designated part of the area (SWMU No. 37: Pot Pad Burning Area [2]) to cut up aluminum pads removed from failed smelting pots. The aluminum pads were sized for transport using a hot lance. Located north of Building 010 and underlying the surface of SWMU No. 11 are the remains of a former anode bake furnace (SWMU No. 40). The remains are believed to contain refractory furnace brick. The furnace brick contains fluoride and is located within fill materials.

Historic use of this SWMU indicates that operations would most likely have resulted in potential near surface soil contamination (e.g., potential spillage of former drum storage and staged equipment drips, and spillage from cutting up aluminum metal pads removed from failed pots). The SWMU No. 11 area is currently used for storage of miscellaneous, obsolete equipment. Fluids are removed from equipment before staging.

4.4.10.1 Summary of Pre-RFI Investigation Work

As part of Confirmatory Sampling (Law Environmental, June 1993) surface and subsurface soil samples and a groundwater sample (from MW-14) were collected for analysis of VOCs, SVOCs, 8 RCRA total metals, PCBs, total and free cyanide, and fluoride. The groundwater sample was also analyzed for dissolved RCRA metals. Organic and inorganic constituents were detected in soil and only inorganics were found in the groundwater sample. Based on the findings of the Confirmatory Sampling, USEPA required inclusion of SWMU No. 11 in the RFI.

Periodic groundwater sampling has been conducted by Alcoa on a voluntary basis since 1990. Samples from MW-10 and MW-14 have been routinely analyzed for total and free cyanide, and fluoride (Figure 4-23). Groundwater elevation data have been collected in conjunction with the sampling. The historic sampling results and groundwater elevations are provided in Appendix D. Total cyanide has been

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detected in MW-10 and MW-14 only twice in 15 sampling events at low concentrations (less than the NC 2L Standards). Free cyanide (i.e., weak acid dissociable, amenable, and microdiffusion) has never been detected in either well. Fluoride has been detected in both MW-10 and MW-14. In MW-10, fluoride has been detected at concentrations exceeding the NC 2L Standard in less than half of the sampling rounds. Fluoride concentrations exceed the NC 2L Standard in nearly all the sampling rounds for MW-14.

4.4.10.2 Phase I RFI Data Summary

Surface soil samples were collected from five locations during the RFI (S11-SS-01 through S11-SS-05) at the approximate Confirmatory Sampling locations (Figure 4-22). In addition, seven test pits (BF-TP-01 through BF-TP-07) were installed to determine the actual boundaries of the bake furnace and visually inspect for SPL. The test pit logs are provided in Appendix B-2. Soil samples were collected from test pits BF-TP-01, -02, -04, and -05. The surface soil and test pit samples were analyzed for VOCs, SVOCs, metals (arsenic, barium, cadmium, chromium, lead, selenium, and mercury), weak acid dissociable cyanide, total cyanide, and total fluoride. Table 4-32 provides the soil analytical results.

Groundwater samples were collected from two monitoring wells (MW-10 and MW-14) at SWMU No. 11 (Figure 4-23). Groundwater samples were analyzed for VOCs, SVOCs, total cyanide, weak acid dissociable cyanide, free cyanide, total fluoride, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), filtered metals (arsenic, barium, cadmium, chromium, lead, and selenium), and TSS. Table 4-33 provides the groundwater results.

4.4.10.3 Phase II RFI Data Summary

During Phase I, trichloromethane (chloroform) was detected at low concentrations in downgradient monitoring well MW-10. This was believed to be an anomalous detection as this chemical is not a suspected site constituent. The Phase II scope of work included collection of a groundwater sample from MW-10 and analysis for trichloromethane to further assess the detection of this constituent. Table 4-34 provides a summary of the Phase II groundwater sampling results for SWMU No. 11.

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4.4.10.4 Surface and Subsurface Conditions

Most of the SWMU surface is covered with crushed stone. There are intermittent spots where underlying soil is exposed at the surface. The test pit logs (Appendix B-2) show the crushed stone (where present) ranges from about 0.3 to 1 foot thick in the bake furnace area. Beneath the crushed stone is yellowish-brown to reddish-brown clayey-silt fill material with slate fragments. At BF-TP-01, -04, and -06, the clayey-silt fill material extends to a depth ranging between 3 and 4 ft-bgs. Bedrock (olive-colored slate) is present beneath the fill at these locations.

At BF-TP-03, the clayey-silt fill extends from beneath the crushed stone to total depth of the test pit (approximately 4 ft-bgs). At BF-TP-01, -05, and -07, fill material comprised primarily of yellow and red brick is present beneath the clayey-silt material at a depth of about 2.5 ft-bgs. The yellow and red brick fill extends to approximately 6 ft-bgs in BF-TP-01 and BF-TP-07. The former concrete floor of the bake furnace was found immediately beneath brick fill at BF-TP-01 and BF-TP-07. At BF-TP-05, a bake furnace wall was encountered at approximately 1 ft-bgs. SPL was not observed in any of the test pits. Groundwater at this SWMU is at a depth of approximately 10 ft-bgs based on water level information from MW-14. Groundwater flow is generally east toward Badin Lake.

4.4.10.5 Screening Level Risk Assessment Results for Soil

Table 4-35 shows the constituents detected in soil at SWMU No. 11, the frequency of detection, minimum and maximum detected concentrations, and a comparison to risk screening values. Figure 4-22 provides a summary of constituents detected in soil at concentrations exceeding the risk screening values in one or more samples. Following is a summary of the frequency constituents were detected at concentrations exceeding the screening values in the 11 samples analyzed.

	# Samples > Industrial RBC	# Samples >Residential RBC	# Samples >USEPA SSL	# Samples >NC SSL
Arsenic	11	11	0	0
Benzo(a)anthracene	2	9	7	9
Benzo(a)pyrene	8	8	1	8

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	# Samples > Industrial RBC	# Samples >Residential RBC	# Samples >USEPA SSL	# Samples >NC SSL
Benzo(b)fluoranthene	2	9	5	8
Benzo(k) fluoranthene	0	1	0	0
Dibenz(a,h)anthracene	5	7	1	7
Indeno(1,2,3-cd)pyrene	0	8	0	3
Benzene	0	0	1	1

Arsenic is the only inorganic constituent in soil at concentrations that exceed the Region III RBCs for industrial and residential soil. The maximum detected concentration of arsenic in soil is 18.7 mg/kg, which is well below the statistically derived background value of 33 mg/kg.

The detections of PAHs at concentrations exceeding one or more of the screening values are in samples from S11-SS-01 through S11-SS-05, and subsurface samples from BF-TP-01 and BF-TP-02. The maximum concentrations of the PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene, and dibenz(a,h)anthracene exceed the Region III RBC for industrial and residential soil. In addition, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene concentrations in soil exceed the Region III residential RBC. PAHs exceed the RBCs in both surface and subsurface samples. It should be noted that the surface samples were collected beneath a layer of crushed stone as indicated on the boring logs.

The PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene, and dibenz(a,h)anthracene concentrations also exceed USEPA SSLs for the soil to groundwater leaching pathway. The concentration of these same four constituents plus the PAH indeno(1,2,3-cd)pyrene exceed the NC SSL. The maximum concentration of the VOC benzene exceeds the USEPA and NC SSL. Benzene was detected in a single sample, which was collected from BF-TP-01. The PAHs and benzene were not detected in groundwater samples collected beneath and downgradient of this SWMU. As a result, these constituents are eliminated as COIs for the soil to groundwater leaching pathway.

Based on the results of the screening level risk assessment, soil at this SWMU was subjected to a quantitative, site-specific risk assessment (Section 4.4.10.7) to further evaluate the direct contact pathways.

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4.4.10.6 Screening Level Risk Assessment Results for Groundwater

Table 4-36 summarizes the constituents detected in SWMU No. 11 groundwater monitoring wells, the frequency of detection, minimum and maximum detected concentrations, and a comparison to NC 2L Standards and Federal MCLs. Figure 4-23 summarizes the results for the constituents detected at concentrations greater than the screening values.

Trichloromethane (chloroform) is the only organic compound detected at concentrations exceeding the NC 2L Standards. It was detected in MW-10 at a concentration of 0.0059 mg/l, which exceeds the conservative NC 2L Standard of 0.00019 mg/l. The trichloromethane concentration in MW-10 is well below the Federal MCL of 0.1 mg/l. Total cadmium was detected in MW-14 at a concentration greater than the NC 2L Standard (0.005 mg/l) and the Federal MCL (0.005 mg/l). Cadmium is not detected in downgradient well MW-10. Fluoride was detected in MW-14 at concentrations greater than the NC 2L Standard and Federal MCL, but the concentration in downgradient well MW-10 is less than both the NC 2L and Federal Standards. MW-10 provides the downgradient boundary for those constituents detected in MW-14 at concentrations exceeding the NC 2L Standards. As a result of constituents detected at concentrations exceeding the screening values, a site-specific risk assessment for groundwater at this SWMU is presented in Section 4.4.10.8.

4.4.10.7 Site-Specific Risk Assessment for Soil

The RFI soil samples were collected within the SWMU boundaries where the greatest degree of soil contamination from past activities would be expected. Potential COI concentrations outside the SWMU boundary are expected to be less than those inside the boundary. As a result, the concentrations detected in the samples are believed to be biased high, and the number of samples adequate to evaluate risk.

Following the risk assessment screening of site data, the following PAHs were identified as COIs in soil: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. Therefore, these constituents were evaluated in a site-specific risk assessment.

SWMU No. 11 is located within the main plant area, and is an open area north of Building 010 and east of Building 050. There are no active plant processes occurring at SWMU No. 11, and under

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current conditions plant workers are not expected to be in this area on a continuous basis. However, workers may infrequently pass through this area. This type of worker is unlikely to be exposed to COIs in surface soil because SWMU No. 11 is predominantly covered by gravel. Under current conditions, there are no complete exposure pathways with COIs in subsurface soil as there are no intrusive activities occurring in this area. Future conditions in the SWMU are expected to remain industrial. However, to maintain conservatism in the risk assessment, it was assumed this area could be developed as a process area in the future. It was assumed future construction may occur in the SWMU No. 11 area, resulting in a process area with the opportunity for regular contact by plant workers.

This risk assessment evaluates the following potential receptors and complete exposure pathways for SWMU No. 11:

- **Current Infrequent and Future Full-time Industrial Worker** – Incidental ingestion of COIs in surface soil, dermal contact with COIs in surface soil, inhalation of airborne particles generated by wind erosion. (No evaluation of inhalation of volatiles is necessary because the COIs are not considered to be volatile);
- **Current Off-Site Adult and Child Resident** – Inhalation of airborne particles generated by wind erosion on-site and carried by wind toward off-site residential areas; and
- **Future Construction Worker** – Incidental ingestion of COIs in all soil (i.e., surface and subsurface soil down to 10 ft-bgs), dermal contact with COIs in all soil; and inhalation of airborne particulates released during digging activities.

Appendix E-1 presents the major assumptions and exposure factors used in evaluating potential risks for each receptor. EPCs for surface and surface/subsurface soil are presented in Table 4-37. Toxicity criteria for SWMU No. 11 COIs are presented in Table E-3 of Appendix E.

Table 4-38 presents the theoretical excess lifetime cancer risks for the current and possible future receptors for SWMU No. 11. All of the calculated risks are below or within the range of 10^{-6} to 10^{-4}, and therefore acceptable. For current and future receptors, only the current and future on-site industrial worker receptors had cancer risk estimates greater than 10^{-6} (4×10^{-6} and 2×10^{-5}, respectively). Appendix E-3 discusses uncertainties that are applicable to the risk assessment of SWMU No. 11 and contribute to the conservatism of the risk estimates.

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4.4.10.8 Site-Specific Risk Assessment for Groundwater

Groundwater beneath SWMU No. 11 is not used for any purpose and occurs at a depth that does not present a direct contact risk to site workers. MW-10 provides the downgradient boundary for constituents detected at concentrations greater than the NC 2L Standards at MW-14. The residential well survey determined that the vast majority of local residences use water supplied by Stanly County. The residential well survey also determined that those residences believed to utilize home wells are either hydraulically isolated or upgradient from Alcoa's on-site and off-site SWMUs and AOCs. As a result, the groundwater at SWMU No. 11 does not present a risk to on-site workers and residential well users because there are no complete exposure pathways.

Groundwater beneath SWMU No. 11 flows toward and discharges to Badin Lake surface water. Therefore, Badin Lake represents the only potential complete exposure to SWMU No. 11 groundwater. The cadmium and fluoride concentrations are less than the NC 2L Standards immediately downgradient in MW-10 and therefore are eliminated as potential constituents of concern to the lake from this SWMU. The trichloromethane (chloroform) concentration in MW-10 exceeds the NC 2L Standard but is at such a low concentration that it is reasonable to expect it would be non-detectable at the lake.

4.4.10.9 Conclusions and Recommendations

The site-specific risk assessment for SWMU No. 11 shows risks are within USEPA's acceptable range for both on-site and off-site potential receptors. Also, the estimated risks are likely to be greater than true risks because of the generally conservative nature of risk assessment methods. As a result, there is no concern with the direct contact pathways at this SWMU.

Groundwater in the SWMU No. 11 area contains at concentrations that exceed NC 2L Standards and Federal MCLs, which were used for risk-screening purposes. Although the concentrations exceed the screening values, there is no direct exposure potential to the plant workers or local residences.

The only potential exposure to SWMU No. 11 groundwater constituents would be after it flows into and mixes with Badin Lake surface water. Cadmium and fluoride are the only two inorganics detected in the groundwater at the SWMU at concentrations exceeding the screening values but are at concentrations less than the screening values at downgradient monitoring well MW-10. As a result,

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cadmium and fluoride potentially associated with this SWMU do not pose a concern for Badin Lake. Trichloromethane is at such low concentrations in MW-10 it is reasonable to assume it would be at non-detectable concentrations at the property boundary. As a result of these findings, no further action is recommended for SWMU No. 11 except for inclusion of MW-10 and MW-14 in a periodic monitoring program.

4.4.11 SWMU No. 38: Old Rotary Station

SWMU No. 38 is Building 025, which Alcoa used in original operations at the facility to house power conversion equipment (Figure 4-24). The equipment was retired in the late 1950's during reconstruction of the plant. Alcoa used the building from approximately 1970 to 1982 to store electrical equipment, some of which contained PCBs. Items containing PCBs were stored in the southeastern corner of the building. Alcoa may also have stored SPL there. The approximately 75 x 60-foot building has a concrete floor overlain by a thin layer of carbon dust. The average thickness of the concrete slab is approximately 8-inches.

4.4.11.1 Summary of Pre-RFI Investigation Work

Confirmatory Sampling activities at this SWMU found PCBs in one of three soil samples obtained from beneath the concrete slab at a concentration of 0.81 mg/kg and total cyanide in one sample at 4.3 mg/kg. Based on the Confirmatory Sampling findings, USEPA required inclusion of this SWMU in the RFI.

4.4.11.2 Phase I RFI Data Summary

To confirm the low levels and isolated nature of PCBs identified by previous sampling results, one soil sample was collected during Phase I of the RFI from beneath the building's concrete slab for PCBs analysis. The sample was collected near the location where confirmatory sampling detected PCBs. Table 4-39 summarizes the PCBs analytical results, which were all below detection.

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4.4.11.3 Surface and Subsurface Conditions

The floor of this building is comprised of a thick slab of concrete. At boring S38-TB-01, the concrete is 2.5 ft thick. Beneath the concrete is olive-colored weathered slate.

4.4.11.4 Screening Level Risk Assessment for Soil

PCBs were not detected in the sample collected during the RFI and as a result there are no detections exceeding the risk-based screening values. Figure 4-24 shows the soil sample location.

4.4.11.5 Conclusions and Recommendations

The RFI sampling did not detect PCBs in soil beneath the concrete slab floor immediately next to the location where confirmatory sampling found low levels of PCBs. The RFI sampling verifies that PCBs are not present at concentrations of concern nor are they widespread in the subsurface. As a result of the RFI findings, no further action is recommended for this SWMU.

4.4.12 SWMU No. 42: Building 016

Building 016 is located in the east-central part of the plant, and is a fully-enclosed brick building (Figure 4-25). The building contains two gas-fired boilers for generation of the entire steam demand for Alcoa Badin Works, and two air compressors to generate a portion of the air demand for the plant. Alcoa constructed the approximate 60 x 40-foot building in 1952. Operation of the boilers and air compressors began in that same year. The air compressor operation continues to the present. The operation of the central boilers was halted in 1998. In 1991, during foundation work associated with replacement of an air compressor, Alcoa discovered oil beneath Building 016 and made an initial SWMU notification to the Department.

4.4.12.1 Summary of Pre-RFI Investigations

Periodic groundwater sampling has been conducted since 1992 by Alcoa on a voluntary basis at SWMU No. 42. Samples have been routinely analyzed for VOCs and SVOCs. Groundwater elevation data have been collected in conjunction with the sampling. The historic sampling results and groundwater

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elevations are provided in Appendix D. Free-floating product (lubricating oil) has been observed in B016-MW-2. However, VOCs and SVOCs have never been detected in groundwater samples collected at this SWMU. In October 1998, 0.2 feet of free product was noted in B016-MW-2. A sample of the lubricating oil was collected following RFI sampling protocols and submitted for a petroleum fingerprint analysis by Centre Analytical in State College, Pennsylvania. At the same time, a sample of the used compressor lubricating oil from the air compressors was submitted for fingerprinting to determine if the oil in the well was the same lubricating oil used in the air compressor.

The oil samples collected from monitoring well B016-MW-2 and the Building 016 compressor were determined by Centre Analytical to be similar in composition. The primary compounds, chemical class and molecular formula for the largest peaks on the sample chromatographs for the B016-MW-2 and compressor oil samples are provided on Tables 4-40 and 4-41. The kind of lubricating oil released at SWMU No. 42 is essentially a dewaxed paraffin.

4.4.12.2 Summary of Voluntary Work

Accessible, contaminated soils associated with the SWMU were removed in 1991 and 1994 in conjunction with air compressor upgrades. Buried plastic air compressor blowdown lines were replaced with iron piping in February 1999.

4.4.12.3 Phase I RFI Data Summary

Two soil borings (S42-TB-01 and S42-TB-02) were installed during the Phase I RFI activities at the locations illustrated on Figure 4-25 to assess for visual evidence of lubricating oil. No visual evidence of oil was found in the soil borings. B016-MW-3 was installed within a few feet of S42-TB-02. B016-MW-3 was installed to assess whether groundwater was impacted with dissolved phase constituents.

An oil/water interface probe was used to determine if free-floating oil was present in B016-MW-1, B016-MW-2, and B016-MW-3. In the absence of free-floating oil, groundwater samples were collected from B016-MW-1 and B016-MW-3 during the RFI and analyzed for VOCs and SVOCs. Groundwater was not sampled at B016-MW-2 due to the presence of free-floating product (lubricating

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oil) in the well. However, a sample of the lubricating oil was collected from the well and analyzed for VOCs and SVOCs. Table 4-42 provides the analytical results.

4.4.12.4 Surface and Subsurface Conditions

The ground surface within Building 016 is a concrete floor. The surface immediately outside and hydraulically downgradient (east) of Building 016 is vegetated with grass. At S42-TB-01 and S42-TB-02 (B016-MW-3), a dark-brown sandy silt (topsoil) with weathered slate fragments is present beneath the grass. Reddish-brown to yellowish-brown clayey-silt fill with fragments of weathered rock is generally present from 0.5 to 6 ft-bgs (Figure 26). Olive-colored weathered slate (residuum) is present from approximately 6 ft-bgs to the total depth of deepest boring (16 ft-bgs). The weathered slate is described as hard at 14 ft-bgs. S42-TB-01 and S42-TB-02 did not encounter any evidence of free product during drilling.

At B016-MW-1, red-brown silty clay is present beneath the topsoil to a depth of 17 ft-bgs where bedrock was encountered. At B016-MW-2, the red-brown silty clay is present from beneath the topsoil to total depth of the boring (17.5 ft-bgs). Bedrock was not encountered in B016-MW-2.

A free product thickness of 0.09 feet was measured on September 29, 1999 above the water table in B016-MW-2. Free product was not present in B016-MW-1 and B016-MW-3.

B016-MW-2 is believed to be within a backfilled area possibly associated with the Building 016 foundation. As illustrated on Figure 4-26, residual soils/partially weathered bedrock are relatively shallow at B016-MW-3 (about 6 ft-bgs) and at B016-MW-2 residual soils/partially weathered bedrock were not encountered at the total depth of the boring (17.5 ft-bgs). The residual soils/partially weathered bedrock were excavated from the B016-MW-2 area during construction of the foundation for Building 016 and the air compressors located in this building. The backfill materials, although of low permeability (e.g., silt and clay), are more permeable than the surrounding natural residual soils (e.g., the weathered bedrock/residual soils found at 6 ft-bgs in B016-MW-3), resulting in a local "bathtub" effect in the foundation area. The oil observed in B016-MW-2 is believed to be trapped inside of the foundation fill materials and localized very near to the Building 016 foundation area (Figure 4-26).

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4.4.12.5 Screening Level Risk Assessment for Groundwater

Figure 4-25 provides the well locations and selected analytical results for the free-product sample. There were no VOCs and SVOCs detected in the groundwater samples from B016-MW-1 and B016-MW-3. Appendix IX organic constituents detected in the oil sample are methylene chloride (0.7 mg/l), bis(2-ethylhexyl)phthalate (600 mg/l), and Di-N-Octyl Phthalate (360 mg/l). However, the laboratory report for the free-product sample states that methylene chloride was introduced by the laboratory.

4.4.12.6 Conclusions and Recommendations

A thin layer (0.09 foot) of lubricating oil was found on top of groundwater in B016-MW-2. However, the oil is believed to be trapped within fill materials in the immediate vicinity of the Building 016 foundation and unable to migrate to surrounding, less permeable natural soils. Monitoring results for wells B016-MW-1 and B016-MW-3 support this finding. The oil/water interface probe did not detect free product in these wells nor were VOCs and SVOCs detected in the groundwater samples. Based on the past voluntary work and RFI findings, no further action other than a periodic check for free product in B016-MW-2 and free-product removal from this well, if present, is recommended for this SWMU.

4.4.13 SWMU No. 43: Overhead Crane Rebuild Structure

The Overhead Crane Rebuild Structure is located in the west-central part of the plant facility, north of Building 061. It was an open structure consisting of a non-reinforced concrete slab (approximately 65 feet x 30 feet x 5 inches) and a sloping metal roof supported by steel columns (Figure 4-27). The structure contained several girders for placing and positioning overhead cranes. The structure was built in April 1992 as a temporary facility and used until early 1994 for rebuilding, sandblasting and painting overhead cranes. In July 1993, Alcoa collected surface soil samples adjacent to the structure to determine if constituents potentially associated with the sandblasting activities were present. Laboratory analysis indicated the presence of cadmium, chromium, and lead. Alcoa reported the Overhead Crane Rebuild Structure as a new SWMU in October 1993. The structure was dismantled in February 1994 and only the concrete slab remains. The SWMU No. 43 area is currently used for scrap wood management.

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4.4.13.1 Phase I RFI Data Summary

Soil samples were collected from eight borings (S43-HA-01 through S43-HA-08) at the locations illustrated on Figure 4-27 during Phase I. Except for S43-HA-05, four samples were collected from each boring at surface (0 to 0.5 ft-bgs), 0.5 to 1.0 ft-bgs, 1.0 to 1.5 ft-bgs, and 1.5 to 2.0 ft-bgs. At location S43-HA-05, only the top three intervals (0 to 0.5 ft-bgs, 0.5 to 1.0 ft-bgs, 1.0 to 1.5 ft-bgs) were sampled due to hand auger refusal when trying to retrieve a sample from 1.5 to 2.0 ft-bgs. The sample depths were based on the logic that sandblasted particles may accumulate in surface or near-surface soils. These samples were analyzed for cadmium, chromium, lead, and arsenic. Table 4-43 provides the soil analytical results.

4.4.13.2 Surface and Subsurface Conditions

A concrete pad is present where the SWMU No. 43 structure once stood. The surface soils surrounding the pad are comprised of variegated fill materials that are sparsely vegetated in some areas. Crushed stone is present at the surface over portions of the area surrounding the SWMU. The maximum thickness of the stone based on the borings is about 0.5 ft. Soils comprised of gravelly fine to coarse sand, are also found at surface. Beneath grassy areas, the surface soil is comprised of sandy silt. Fill materials comprised of dense reddish-brown clayey-silt material are generally found at a depth of about 0.5 ft-bgs and extend to at least 2 ft-bgs (the total depth of the borings). SPL, associated with SWMU No. 46 (West SPL Area), is present beneath a portion of this SWMU (see Section 4.4.14).

4.4.13.3 Screening Level Risk Assessment for Soil

Table 4-44 provides a summary of all detected constituents in soil samples, the frequency of detection, minimum and maximum detections, and a comparison to the risk screening values. Figure 4-27 provides a plan view of the soil sample locations and depths.

As indicated on Table 4-44, arsenic is the only constituent detected in soil that exceeds Region III industrial and residential RBCs. The maximum detected concentration of arsenic at this SWMU is 16.3 mg/kg, which is well below the statistically derived background concentration of 33 mg/kg.

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The maximum detected concentration of chromium (44.1 mg/kg) exceeds the USEPA SSL and NC SSL of 38 mg/kg, but it exceeded the SSL in only a single sample collected at a depth of 0.5 to 1.0 ft-bgs from boring S43-HA-04-0.5-1.0. Two samples collected from the same boring at depths of 1.0 to 1.5 ft-bgs and 1.5 to 2 ft-bgs do not exceed the SSL values and show diminishing concentrations with depth. The sample collected at 1.0 to 1.5 ft-bgs concentration is 31.7 mg/kg and the sample at 1.5 to 2.0 ft-bgs drops is 23.1 mg/kg. Also, the maximum detected concentration of chromium is far less than the statistically derived background value of 81 mg/kg and the depth to groundwater beneath this SWMU is relatively deep (approximately 25 ft-bgs) based on water levels measured in MW-28 and MW-29.

4.4.13.4 Conclusions and Recommendations

Historical activities at this SWMU (e.g., sand blasting) may have resulted in the potential for surface soil contamination. There were no constituents, other than arsenic, detected at concentrations in surface or subsurface soil exceeding the industrial and residential RBC. The arsenic concentrations are less than naturally occurring background concentrations. As a result, this SWMU does not present more of a direct contact risk than background and no further evaluation of this pathway is warranted.

Chromium exceeds the NC SSL value in a single surface soil sample, but samples at depth show chromium concentrations diminish to values less than the SSL more than 20 feet above the water table. Also, the maximum concentration of chromium is less than the statistically derived background values. As a result, this constituent does not present a concern for the soil to groundwater leaching pathway. Based on the screening level risk assessment results, no further action is recommended for this SWMU.

4.4.14 SWMU No. 46: West SPL Area

Alcoa identified this area as potentially receiving SPL through a review of historical photographs in 1998. Based on the photographs, filling activities are believed to have started after March 1964 and ended before April 1977. A February 1968 photograph shows evidence of activity in the area. Although not included in the RFI Work Plan, Alcoa decided to subject this area to RFI activities to assess the potential for SPL and determine whether it warranted inclusion as a SWMU. The West SPL Area was added as a SWMU in September 1999 with Alcoa's notification to the Department.

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4.4.14.1 Phase I RFI Soil Data Summary

Thirteen test pits (WA-TP-01, WA-TP01E, WA-TP-02 through WA-TP-05, WA-TP-06N, WA-TP-06S, and WA-TP07 through WA-TP-011) were advanced at the locations illustrated on Figure 4-28 to visually inspect for SPL. The test pit boring logs are provided in Appendix B-2.

Soil samples were collected for laboratory analysis to confirm the presence of SPL and to delineate the lateral extent of SPL. Six soil samples were collected and submitted for laboratory analysis. Sample WA-TP01-3.5-4.0 was collected as suspected SPL material and was analyzed for VOCs, SVOCs, metals (arsenic, barium, cadmium, chromium, lead, and selenium), total cyanide, weak acid dissociable cyanide, fluoride, and asbestos. Table 4-45 provides the soil analytical results from Phase I.

Soil samples WA-TP02-9.0-10.0 and WA-TP-01-8.5-9.5 were collected about a foot beneath the suspected SPL to assess vertical migration of potential COIs. WA-TP03-8.0-10.0, WA-TP01E-6.0-8.0, and WA-TP06-5.0-6.0 were collected outside the perimeter of suspected SPL to verify the lateral limits. The samples collected beneath the base and around the perimeter of the suspected SPL were analyzed for VOCs, SVOCs, metals (arsenic, barium, cadmium, chromium, lead, selenium), total cyanide, weak acid dissociable cyanide, and fluoride (Table 4-45).

4.4.14.2 Phase II RFI Data Summary

In August 2000, three surface soil samples (S46-SS-01, S46-SS-02, and S46-SS-03) were collected and three test pits (S46-TP-12, S46-TP-13, and S46-TP-14) were excavated at the locations illustrated on Figure 4-28. All surface soil samples were collected from the 0 to 0.5 ft-bgs interval to provide data needed to evaluate direct contact with the surface of the SWMU. Test pit samples were collected from the 7.0 to 8.0 ft-bgs interval at the WA-TP-12 and WA-TP-14 locations while the sample collected at the WA-TP-13 location was from the 9.0 to 10.0 ft-bgs interval. The subsurface samples were collected outside the limit of the suspected SPL to delineate the landfill boundary. Test pit logs are provided in Appendix B-2. All the samples were analyzed for Appendix IX PAHs, total and weak acid dissociable cyanide, and fluoride. Table 4-46 presents the analytical results from soil samples collected during Phase II from the area of SWMU No. 46.

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During Phase II, an upgradient and a downgradient monitoring well (MW-28 and MW-29, respectively) were installed for the purposes of characterizing groundwater flow in this area and evaluating groundwater quality downgradient of SWMU No. 46. Table 4-7 provides information on the monitoring well construction, and Table 4-47 presents analytical results from these wells. Figure 4-29 shows the locations of these wells, and Figure 4-7 shows groundwater contours based on groundwater level measurements.

4.4.14.3 Surface and Subsurface Conditions

The surface soils in the SWMU are comprised primarily of crushed stone that ranges from about 0.5 to 1 foot thick. Beneath the crushed stone, reddish-brown clayey-silt fill material is present to the base of the excavations outside of the SWMU boundary. Test pits inside the SWMU boundary show fill material comprised of carbonaceous material (including some SPL) and red brick present beneath the reddish-brown clayey-silt. In WA-TP-01, carbonaceous material and red brick was observed in the 3 to 7 ft-bgs interval. At WA-TP-02, carbonaceous material is present at 4.5 ft-bgs, and then again in the 7 to 9 ft-bgs interval. At WA-TP-03, carbonaceous material was observed from 3.5 ft-bgs to total depth of the test pit (10 ft-bgs). In WA-TP-11, a thin layer of carbonaceous material was found in the 8.5 to 9 ft-bgs interval. The reddish brown clayey-silt is present beneath the carbonaceous material. Depth to groundwater beneath this SWMU is approximately 25 ft-bgs based on water levels measured in MW-28 and MW-29.

4.4.14.4 Screening Level Risk Assessment for Soil

Table 4-48 provides a summary of all constituents detected in soil samples, the frequency of detection, minimum and maximum detection, and a comparison to risk screening values for soil samples collected from all depths from SWMU No. 46. Figure 4-28 shows the soil sample locations, depths, and analytical results for constituents whose concentrations exceed the risk-based screening values.

Benzo(a)pyrene and arsenic are the only constituents detected at concentrations greater than the industrial and residential RBCs. Arsenic is present at a maximum detected concentration of 19.4 mg/kg; however, this concentration is below the background concentration of 33 mg/kg. In addition to benzo(a)pyrene, four other PAHs were detected at concentrations in surface soil that exceed the USEPA Region III residential RBCs. These are benzo(a)anthracene, benzo(b)fluoranthene,

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dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Along with benzo(a)pyrene, these four PAHs are further assessed in a site-specific risk assessment for the SWMU soils in Section 4.4.14.6.

Concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and p-cresol in soil exceed the NC SSL. There are no organic constituents detected at concentrations exceeding the USEPA SSLs. The maximum concentration of total cyanide exceeds the NC and USEPA SSLs.

4.4.14.5 Screening Level Risk Assessment for Groundwater

There were no detected cyanide species or fluoride in the sample from MW-28, the upgradient well for SWMU No. 46. In downgradient well MW-29, total cyanide, weak acid dissociable cyanide, and fluoride were detected in groundwater samples at concentrations that exceed the NC 2L Standards for groundwater and the USEPA MCLs.

Groundwater flow in this area of the plant is generally to the east toward Badin Lake. While concentrations of cyanide and fluoride in MW-29 groundwater samples are above drinking water standards, there are no receptors drinking this groundwater, nor directly contacting it in any other means. The closest point of potential exposure is Badin Lake, and analytical results from well MW-10 located further downgradient (see Section 4.4.10) indicate that the cyanide and fluoride attenuate on-site to levels below the drinking water standards and below surface water human health criteria before groundwater reaches the lake. Therefore, cyanide and fluoride from this SWMU can be eliminated as COIs and a site-specific risk assessment for groundwater is not necessary for SWMU No. 46.

4.4.14.6 Site-Specific Risk Assessment for Soils

Following the risk assessment screening of Phase I and Phase II site data, benzo(a)pyrene was identified as a COI in soil for on-site (i.e., industrial) scenarios. Benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene also exceed residential RBCs in surface soil; therefore, these additional PAHs were included as COIs for off-site residential receptors with potential exposure to airborne particulates generated from the SWMU.

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SWMU No. 46 is located in the west-central end of the main Plant area. It is an open area where no active plant processes are performed. Scrap wood is staged near the SWMU. Under current conditions plant workers are not present at SWMU No. 46 on a regular basis. However, workers may infrequently pass through this area. In addition, under current conditions, there are no complete exposure pathways with COIs in subsurface soil as there are no intrusive activities occurring in this area. Future conditions in the SWMU are expected to remain industrial. However, to maintain conservatism in the risk assessment, it was assumed this area could be developed as a process area in the future. It was assumed future construction may occur in the SWMU No. 46 area, resulting in the potential for construction workers to contact subsurface soil and that there may be a process area with the opportunity for regular contact by plant workers. This risk assessment evaluates the following potential receptors and complete exposure pathways.

- **Current Infrequent and Future Full-time Industrial Worker**– Incidental ingestion of COIs in surface soil, dermal contact with COIs in surface soil, inhalation of airborne particles generated by wind erosion. (No evaluation of inhalation of volatiles is necessary because the COIs are not considered to be volatile);
- **Current Off-Site Adult and Child Resident** - Inhalation of airborne particles generated by wind erosion on-site and carried by wind toward off-site residential areas; and
- **Future Construction Worker** - Incidental ingestion of COIs in all soil (i.e.,, surface and subsurface soil down to 10 ft-bgs), dermal contact with COIs in all soil; and inhalation of airborne particulates released during digging activities.

Appendix E-1 presents the major assumptions and exposure factors used in evaluating potential risks for each receptor. Exposure point concentrations for COIs in surface and subsurface soil are presented in Table 4-49. Toxicity criteria are provided in Table E-3 of Appendix E.

Table 4-50 presents the theoretical excess lifetime cancer risks for the current and possible future receptors for SWMU No. 46. All of the risks for current receptors are well below the range of 10^{-6} to 10^{-4}, and the possible future industrial worker's theoretical excess lifetime cancer risk is at the lower end of the range. Therefore risks for all potential current and future receptors are acceptable.

4.4.14.7 Conclusions and Recommendations

The site-specific risk assessment for SWMU No. 46 shows estimated risks are below USEPA's acceptable range for both on-site and off-site potential receptors. As a result, there is no concern with this

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direct contact pathways at this SWMU.

PAHs were detected at concentrations exceeding the conservative NC SSLs, however, PAHs are eliminated as COIs for the soil to groundwater leaching pathway because they were not detected in groundwater downgradient of this SWMU or in any other site groundwater samples.

The concentration of total cyanide exceeds the NC and USEPA SSLs. Cyanide and fluoride were detected at concentrations exceeding the Federal MCLs and NC 2L Standards downgradient of this SWMU in MW-29. However, the concentration of these constituents diminish to less than the MCL, NC 2L Standard, and applicable surface water criteria within Alcoa's property boundary at downgradient monitoring well MW-10. There are no receptors drinking or contacting the groundwater. As a result, no further action, except for inclusion of MW-28 and MW-29 in a groundwater monitoring program for the site, is recommended for this SWMU.

4.4.15 AOC-A: Fuel Oil Tank Release

Figure 4-30 provides a plan view map of AOC-A. AOC-A refers to a release of approximately 3,500 gallons of No. 2 fuel oil from an underground pipeline located near Building 134 that occurred in 1985.

4.4.15.1 Summary of Previous Interim Measures Work

Alcoa discovered the release in June of 1985, and excavated 1,300 cubic feet of soil contaminated by the release. Alcoa installed two groundwater monitoring wells. One of the wells (MW-FO-2) remains; the other well is paved over. The wells were located downgradient from the location of the pipeline, as determined from topography and the location of Little Mountain Creek (interpreted to be in the direction of groundwater movement). These wells were sampled and tested five times between June 1987 and June 1989. Sample parameters included phenol, total alkanes, benzene, toluene and xylene. The results were provided to the Groundwater Section of the former Division of Environmental Management. These data are presented in the approved Confirmatory Sampling Work Plan.

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4.4.15.2 Summary of Previous Investigation Work

As part of Confirmatory Sampling, one groundwater sample was collected from MW-FO-2 and one soil sample from beneath the pipeline backfill. The groundwater sample was analyzed for VOCs and SVOCs. Low levels of benzene (0.008 mg/l), naphthalene (0.015 mg/l) and bis(2-ethylhexyl)phthalate (0.025 mg/l) were detected in groundwater. Analytes were not detected in soil.

Periodic groundwater sampling has been conducted by Alcoa on a voluntary basis. Samples have been analyzed for VOCs and SVOCs. The sampling results are provided in Appendix D.

4.4.15.3 Phase I RFI Data Summary

An oil/water interface probe was used to determine whether free product is present in MW-FO-2. No free product was detected. Groundwater from MW-FO-2 was sampled and analyzed for VOCs and SVOCs. Table 4-51 provides the analytical results.

4.4.15.4 Surface and Subsurface Conditions

The surface of this area is paved. Depth to groundwater at this location is approximately 13 ft-bgs. The oil/water interface probe did not detect free product (e.g., fuel oil) in MW-FO-2.

4.4.15.5 Screening Level Risk Assessment for Groundwater

There were no VOCs and SVOCs detected in the RFI groundwater samples.

4.4.15.6 Conclusions and Recommendations

The RFI sample results show no VOCs and SVOCs in MW-FO-2. Based on the previous soil removal action and RFI results, no further action is recommended for AOC-A.

4.4.16 AOC B: Compressor Oil Leakage Area

The Compressor Oil Leakage Area is located immediately north of SWMU No. 7, the Aerated

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Lagoon (Figure 4-31). The dimensions of the area are approximately 70 feet x 75 feet (largest dimensions). Alcoa located portable air compressors here for approximately two years from 1987 to 1989, situated on plastic sheeting, to complement the permanent compressed air system. Lubricating and crankcase oils used in the compressors during this time were Unocal products UNAX RX 68 and Guardol Motor Oil 15W-40, respectively. Stained soils were noted at the area upon removal of the air compressors in 1989. The RFA report also noted staining of soil in several locations in the AOC during the visual site inspection in 1990.

4.4.16.1 Summary of Interim Measures

In 1996, Alcoa completed the removal and proper disposal of visibly contaminated surface and near surface soil at AOC-B in conjunction with the closure of the Aerated Lagoon. In advance of the soil removal activity, Alcoa collected surface (0 to 1 ft-bgs) and near surface (1 to 2 ft-bgs) soil samples from 16 surveyed locations (32 soil samples total) to delineate the extent of oil and grease in AOC-B soils (Geraghty & Miller, October 1996). In addition to oil and grease (USEPA 9071A), soil samples were analyzed for PCBs (USEPA 8081) and none were detected. The sampling was done in accordance with the draft RFI Work Plan, dated April 11, 1994 and revised October 26, 1995. Because these samples were collected and analyzed following the protocol established in the draft RFI Work plan, the five sample locations that were not excavated as part of the interim measure are included in the RFI data set (e.g., included in the RFI risk assessment).

4.4.16.2 Phase I RFI Data Summary

The location of the excavation was re-established and soil samples were collected in October 1999 during Phase I at three locations (AB-HA-01 through AB-HA-03) at the bottom of the former excavation. In addition, three surface soil samples were collected outside the limits of the former excavation (AB-SS-01 through AB-SS-03). All six samples were analyzed for VOCs and SVOCs. Table 4-52 provides a summary of the AOC-B analytical data.

4.4.16.3 Surface and Subsurface Conditions

The boring logs (Appendix B-1) show crushed stone is present from surface to depths ranging from 0.2 to 0.5 ft-bgs. At location AB-HA-01, reddish-brown clayey-silt is present to total depth of the

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boring (1.6 ft-bgs). Auger refusal prevented further advancement of this boring. At AB-HA-02, reddish-brown slate was present beneath the crushed stone to 2.7 ft-bgs, the depth where auger refusal occurred. Yellowish-to reddish-brown clayey-silt was present in AB-HA-03 beneath the crushed stone to 1.5 ft-bgs. Reddish-brown clayey-silt is present at AB-HA-03 from 1.5 to 5 ft-bgs.

4.4.16.4 Screening Level Risk Assessment for Soil

Table 4-53 provides a summary of the constituents detected in soil, frequency of detection, minimum and maximum detected concentration, and a comparison to the risk screening values. Figure 4-31 provides sample location and depths, and selected analytical results.

There are no constituents detected at concentrations that exceed the industrial RBC for soil. Benzo(a)pyrene (0.04 mg/kg) is the only constituent detected in soil at a concentration that exceeds the residential RBC. The single detection of benzo(a)pyrene (out of six samples) was in the sample at location AB-HA-02 collected at a depth of 0.7 to 2 ft-bgs.

There are no constituents at concentrations exceeding the USEPA SSL values for the soil to groundwater leaching pathway. The benzo(a)pyrene detection in AB-HA-02 is also the only constituent detected in soil that exceeds the NC SSL. This is the same sample found to contain benzo(a)pyrene at a concentration greater than the residential RBC (soil sample from AB-HA-02 at a depth of 0.7 to 2 ft-bgs).

4.4.16.5 Conclusions and Recommendations

The RFI found benzo(a)pyrene in one soil sample from this AOC at concentrations greater than the residential RBC and NC SSL. However, this was detected at concentrations exceeding the screening values in only one of six samples and was not detected in any surface samples. As a result, this constituent does not present any direct contact issues with respect to on-site industrial workers because it is less than the industrial RBC. In addition, since the only detection of benzo(a)pyrene is in the subsurface, there is no potential for off-site transport to residential areas.

From a leaching perspective, the concentration of benzo(a)pyrene is 20 times less than the conservative USEPA SSL for this constituent. PAHs such as benzo(a)pyrene are not highly mobile in the subsurface because they tend to adsorb to soil particles. Also, even though PAHs have been detected

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elsewhere in site soils at higher concentrations, they have not been detected in any of the site monitoring wells. The single detection of benzo(a)pyrene at a concentration greater than the NC SSL is not believed to present a concern to the leaching from soil to groundwater pathway. As a result of these findings, no further action is recommended for AOC-B.

4.4.17 Badin Lake Surface Water and Sediment -- Plant Area

As indicated previously in Section 4.4.9, North End groundwater COIs may migrate to Badin Lake, which is a potential point of contact for human receptors. This section provides a data summary and risk assessment of surface water and sediment of Badin Lake in the embayment east of the plant.

4.4.17.1 Summary of Pre-RFI Investigations

Badin Lake surface water and sediment sampling was conducted by Woodward Clyde in 1996 and 1997 (Woodward Clyde, 1997). Figure 4-32 shows the sample locations adjacent to the plant area. The surface water and sediment samples were analyzed for a broad list of constituents, including most of the plant area groundwater COIs (arsenic, total and free cyanide, and fluoride) as well as PCBs and PAHs. These data are deemed to be of RFI quality, and therefore are included in the RFI groundwater to surface water evaluation. The analytical data from surface water and sediment samples collected in the Alcoa Embayment of Badin Lake are summarized in Tables 4-54 and 4-55, respectively.

4.4.17.2 Phase II RFI Data Summary

A surface water sample was collected from Badin Lake at the location shown on Figure 4-33. The sample was analyzed for trichloroethene to assess whether the detections of this constituent in groundwater at MW-4, MW-9, and MW-16 have affected Badin Lake surface water quality. Table 4-56 provides the Phase II RFI surface water data.

4.4.17.3 Screening Level Risk Assessment for Badin Lake Surface Water – Plant Area

Table 4-57 summarizes the detected constituents in Badin Lake embayment surface water and compares the maximum detected concentrations to available NC 2B Standards (15A NCAC 02B.0216 (3)(g)(i,ii)) and USEPA Water Quality Criteria (USEPA, 1999b) for the protection of human health.

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Figures 4-32 and 4-33 provide sample locations. PAHs, PCBs, trichloroethene, and fluoride were not detected in surface water samples collected from the embayment east of the plant Few inorganic constituents were detected, and none at levels that exceed the human health surface water screening values. Cyanide was detected in only one of 18 samples. Because concentrations of constituents in surface water samples are lower than these screening values, no COIs were identified in surface water in the embayment. Based on the results of the screening level risk assessment, potential risks associated with contact with embayment surface water are acceptable.

4.4.17.4 Screening Level Risk Assessment for Badin Lake Sediment – Plant Area

Table 4-58 presents a summary of all the sediment data collected in the embayment area of Badin Lake (Woodward Clyde, 1997), and compares maximum detected concentrations with screening values for human health. Industrial soil RBCs were applied as screening values for sediment as there are no standard human health-based criteria for sediment. The industrial soil RBCs are conservative values to apply to sediment, a medium for which only the most incidental contact is likely. Use of soil screening values for human health exposure to sediment is a common practice in human health risk assessment. A number of PAHs, Aroclors 1242 and 1260, and arsenic were detected at concentrations that exceed the screening values. The maximum detection of arsenic in sediment (11 mg/kg) is less than the background soil concentration of 33 mg/kg, and therefore arsenic is not included as a COI for sediment.

Most of the sediment samples were collected from surface water depths of 10 feet or greater, and therefore would not be accessible to human receptors in the lake. The initial screening-level risk assessment includes all of the sediment samples, but is followed by subsequent screenings of data from areas where human receptors may contact sediments (i.e., depth less than 10 feet). These are (1) the swimming cove to the east of the northernmost area of the plant and defined by a buoy line and (2) the boat launch area at the southern end of the Alcoa embayment of Badin Lake (Figure 4-32). In the swimming cove, ten samples were collected from sediments within the swimming cove buoy line and the shore (two samples collected in fall of 1996 and eight samples collected in December 1996/January 1997). Sample NEP-4 was collected from the swimming cove area in fall 1996, and the analytical results of this sample are in question because of laboratory QA/QC issues. Additional sampling was performed in the swimming cove in the winter of 1996/1997 to resolve the QA/QC issues associated with sample NEP-4. Therefore, NEP-4 was eliminated from the quantitative risk assessment of the swimming cove. Three of the subsequently collected samples (NEP-6, -9, and -10) were from depths greater than 10 feet

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and, therefore, were excluded for the screening of COIs for human receptors because they would not be accessible to these receptors. The other samples (NEP-1, -2, -3, -5, and -11, including two duplicate samples) were used to identify COIs and included in the quantitative risk assessment of sediments. However, it should be noted that sediments are discontinuous in this area, and there are many locations where a swimmer would encounter a rock subsurface rather than sediment when swimming in the cove.

Table 4-59 presents the screening of sediment data including the frequency of detection, minimum and maximum detected concentrations, and the USEPA Region III industrial soil RBCs for the swimming cove area sediments. Benzo(a)pyrene is the only constituent detected at higher concentrations in sediment than the screening values for human health, and it is identified as a COI for the site-specific risk assessment for the swimming cove area.

In the boat launch area, there were three samples (NEP-22, -23, and -24) collected for chemical analysis. The depths below the water surface of NEP-22 and NEP-24 are 7 to 9 meters (i.e., approximately 20 to 30 feet); only NEP-23 was collected at a depth that has potential for contact by a human receptor. Table 4-60 compares the concentrations of detected constituents with the human health screening values. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected at concentrations greater than the screening values, and are therefore identified as COIs for the boat launch area.

4.4.17.5 Site-specific Risk Assessment for Sediment

There were two exposure scenarios identified for sediment related to different areas of the Alcoa embayment. These are incidental contact with sediment while swimming in the swimming cove area and incidental contact with sediment in the boat launch area. Separate risk screenings were conducted for these areas. Benzo(a)pyrene was identified as a COI for the swimming cove; benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were identified as COIs in the boat launch area.

There are limited opportunities for human receptors to contact sediments in the Alcoa embayment of Badin Lake in large part because the lake bottom drops to a significant depth in a relatively short distance from shore in this area of the lake. The swimming cove and boat launch areas are two areas that have been identified as locations where human contact with sediments may occur. An adult and

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child swimmer is evaluated for contacting sediments in the swimming cove area and an adult boater is a potential receptor in the boat launch area. However, this latter receptor is evaluated only qualitatively because it is highly unlikely that anyone would contact sediments when launching a boat from a concrete shoreline ramp.

Incidental dermal contact with sediment while swimming is evaluated quantitatively in the risk assessment. Dose algorithms and exposure assumptions for this exposure pathway are provided in Appendix E-1. Toxicity criteria are provided in Table E-3 of Appendix E. The EPC for benzo(a)pyrene, the only identified COI in the swimming cove, is 1.4 mg/kg, the 95% UCL of the mean. The data for benzo(a)pyrene are normally distributed, with a maximum concentration of 1.9 mg/kg (the average of duplicates of 2.4 and 1.4 mg/kg).

Table 4-61 presents the summed theoretical excess lifetime cancer risk for the current and possible future adult and child swimmer receptors in the swimming cove.. The estimated risk for the adult swimmer is $8 \times 10^{-8}$and child swimmer is 1×10^{-7}, which is below the range of 10^{-6} to 10^{-4}, and therefore acceptable.

For sediments in the boat launch area, it is unlikely that anyone would contact sediments when launching a boat from a concrete shoreline ramp. If a person were to step into the sediments on a very rare occasion, the sediments are likely to wash off as the person's foot would pass through the water upon removal from the water. Although sediment PAH concentrations are between one and two orders of magnitude higher than those concentrations in the swimming cove, such incidental and rare contact in the boat launch area, if it occurred at all, would be expected to yield acceptable risks.

4.4.17.6 Conclusions and Recommendation

The screening level risk assessment for surface water and site-specific risk assessment for sediment show acceptable risks for these media. These estimated risks are likely greater than actual risks given the generally conservative nature of risk assessment methods. As a result, no further action is necessary for Badin Lake surface water and sediment for protection of human health.

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4.5 SWMU NO. 2: Alcoa/Badin Landfill

Alcoa operated the Alcoa/Badin Landfill (ABL) for approximately 70 years as an unlined municipal/industrial solid-waste landfill. The landfill is located approximately 500 ft south of the fenced plant area and occupies approximately 14 acres (Figures 1-2 and 4-34). In addition to municipal refuse generated by the town of Badin, undetermined amounts of solid refuse and various process wastes including carbon dust, small amounts of SPL and possibly asbestos were deposited in the landfill. Alcoa ceased operations at the landfill in the mid-1970's. The landfill was graded, covered with native soils, and seeded with grass. The landfill is partly surrounded by a chain-link fence with locking gates. The fence extends around the upland sides of the landfill, but does not extend along the landfill's southern boundary at Little Mountain Creek.

4.5.1 Summary of Pre-RFI Investigation Work

Periodic groundwater sampling has been conducted by Alcoa on a voluntary basis since 1991. Samples have been routinely analyzed for total and free cyanide, and fluoride and selected total and dissolved metals. Groundwater elevation data have been collected in conjunction with the sampling. The sampling results and groundwater elevation data are provided in Appendix D. The groundwater quality data are also discussed in Section 4.5.6.4.

In 1989, Alcoa initiated assessment of landfill gas emissions that focused on potential subsurface gas migration from the landfill to the homes along Grant Street, located west of the landfill. This assessment included installation and sampling of six gas probes (P-1 through P-6). The findings of sampling and assessment activities conducted over the period 1989 through 1994 were included in the RFI Work Plan previously submitted to the Department. Based on the results of the monitoring, Alcoa suspected that one or both of two underground North Carolina Natural Gas (NCNG) natural gas pipelines present beneath the landfill may have been leaking. The two pipelines, one 3-inch diameter and one 4-inch diameter supplied the Badin Works with natural gas. Based on review of historical aerial photographs, the 3-inch line was installed between 1959 and 1961, and the 4-inch line around 1980.

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4.5.2 Summary of Accelerated RFI Activities

As part of the described RFI Work Plan activities, Alcoa proposed to conduct "additional evaluation of potential air emissions". Alcoa completed this work on an accelerated schedule through monitoring conducted in 1995 and 1996. Following reports of gas odors in the landfill area, RFI activities were initiated in June 1995. The objective of the assessment was to characterize the nature (i.e., what gas(ses) are present) and extent (i.e., where is the gas) of the gas emissions at the Alcoa/Badin Landfill. To achieve this objective, 57 monitoring probes were installed on an approximately 100 feet grid on the landfill surface. The probes were constructed by hand augering approximately 2 to 3 feet into the landfill and placing a 2-inch diameter PVC pipe in the hole. Each pipe was capped and the space around the pipe backfilled with cuttings. In addition, four additional monitoring probes were constructed by hollow stem auger drilling along the west side of Grant Street to monitor for gas migration. The new and existing probes were screened for the presence of gas constituents using field instruments. Based on the field measurements, gas samples were collected from selected probes and laboratory analyzed for a broad suite of parameters.

The work conducted in 1995 and 1996 identified leaking natural gas line(s) as the major source of the air emissions from the landfill. The analytical results indicated that the gas samples composition were more indicative of natural gas than of landfill gas, suggesting possible leakage from one or both of the natural gas lines running through the landfill. First, the reported high concentrations of ethane, propane and butane are unlikely to be the result of biological degradation but are known to be present in natural gas. Second, the samples were characterized by low or absent carbon dioxide, a typical product of biological degradation. In contrast, carbon dioxide is typically absent from natural gas because its combination with moisture produces a corrosive condition that is damaging to pipe lines.

4.5.3 Summary of Interim Measures Work

Following discussion of the landfill gas monitoring results with representatives of NCNG, the 3-inch pipeline was tested in September 1995 and found to be leaking. The 3-inch line was cut and abandoned in place in September 1995. The 4-inch pipeline could not be tested without interrupting service to Alcoa. Construction of a new 6-inch pipeline around the Alcoa/Badin Landfill was started and completed in 1996 May. The 4-inch pipeline was cut and abandoned in place following the switch to the new 6-inch pipeline.

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In addition, interim measures consisting of landfill regrading and cover improvements were completed at the Alcoa/Badin Landfill in 1997 in accordance with an Interim Measures Work Plan (Alcoa, 1997) that was approved by the Department in a letter to Alcoa dated May 29, 1997. The objectives of the interim measures were to prevent surface run-on, promote surface run-off, and reduce infiltration. An Interim Measures Report was submitted to Department on June 8, 1998. As part of the studies in support of Interim Measures, a triple piezometer nest was installed between the toe of the Alcoa/Badin Landfill and Little Mountain Creek to determine if groundwater is captured by Little Mountain Creek.

4.5.4 Alcoa/Badin Landfill Topography

Elevations at the Alcoa/Badin Landfill (SWMU No. 2) range from about 540 ft-msl at the north and central location of the landfill to about 460 ft-msl at Little Mountain Creek (Figure 4-35).

4.5.5 Alcoa/Badin Landfill Geology

Past investigations by Aquaterra, Inc. (September, 1991a) and Geraghty & Miller (April, 1997) describe the geology at the SWMU No. 2 (Alcoa/Badin Landfill). The ABL overlies a natural ravine, which extends from the Badin Works south to Little Mountain Creek. Native fill material, municipal refuse, and various process wastes produced from the Badin Works plant operations were deposited in the former ravine. Based on the available boring logs (Geraghty & Miller, Inc. 1997 and Orbital Engineering, Inc., 1997) these disposal activities resulted in raising the topographic elevations of the valley by approximately 13 to 42 feet. This is illustrated in the cross-section presented on Figure 4-35, which is oriented along the axis of the ravine. Note that this cross-section reflects conditions prior to the regrading and cover improvements done in 1997. However, the new topography resulting from the cover improvements is also shown on the cross-section.

The bedrock beneath the site consists of volcanic argillite (green slate). Weathering has altered the uppermost portion of the slate into a silty clay saprolite. Based on drilling logs (Geraghty & Miller, Inc. 1997 and Orbital Engineering, Inc. 1997), this silty clay zone is approximately 4 to 14 feet thick. A mixture of native fill materials and plant waste overlies this silty clay and where present ranges in thickness to over 35 feet (Figure 4-35). It appears the waste material was deposited mainly along the axis of the ancestral ravine. As a result of past disposal activities, a portion of the ravine was filled, and a

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cover fill typically 10 feet thick was emplaced over the waste material. The cover and waste material were regraded in 1997 and covered with two feet of low permeability clay. The clay was covered with six inches of topsoil and a vegetative cover established. The topography of the landfill was reshaped to promote runoff, prevent run-on, and allow for maintenance of the face.

4.5.6 Alcoa/Badin Landfill Hydrogeology

Table 4-62 provides a summary of SWMU No. 2 (Alcoa/Badin Landfill) monitoring wells and selected piezometers construction details, and lithology of the screened intervals. Groundwater at the Alcoa/Badin Landfill is present in the landfill materials, residual soils (saprolite), alluvium, and bedrock. As illustrated on Figure 4-35, the water table resides within alluvium, fill materials, and residual soils (saprolite). Saturated bedrock lies beneath the residual soils.

4.5.6.1 Water Table Units (Alluvium, Fill Materials, and Residual Soils)

Groundwater elevations measured during the RFI range from approximately 523 ft-msl at ABL-PZ-1S to approximately 464 ft-msl at ABL-MW-5 and ABL-PZ-3S. Figure 4-36 provides an elevation contour map of the water table. The groundwater flow direction is southward toward Little Mountain Creek, and the average hydraulic gradient is approximately 0.05 ft/ft. Saturated thickness of the water table units is approximately 10 feet.

North of the landfill waste material, the water table surface resides within "native" fill material and residual soils (saprolite) (Figure 4-35). Beneath the northern and central portion of the landfill area, the water table resides within saprolite. Further south, the water table crosses into landfill waste material and then back into the "native fill material". South of the toe of the landfill, the water table resides within alluvium associated with the Little Mountain Creek flood plain. Groundwater in the alluvium discharges to Little Mountain Creek. Note that Figure 4-35 shows a typical water table elevation prior to installation of the clay cap. The saturated waste material at the base of the landfill may become dewatered as the cap inhibits precipitation infiltration.

Slug tests were performed on the triple piezometer nests installed by Geraghty & Miller in October and November 1996 and five of the piezometers installed by Orbital Engineering, Inc. (Table 4-63). The results of 12 slug tests conducted in the fill material, alluvium, saprolite, and/or the

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partially weathered bedrock zone, indicate that the hydraulic conductivity of these units range from 3.4×10^{-6} to 6.7×10^{-3} cm/sec (0.01 to 19 ft/day), with an average of 8.3×10^{-4} cm/sec (1.1 ft/day).

Based on the gradient of 0.05, an estimated effective porosity of 25 percent, and an average hydraulic conductivity of 1.1 ft/day, the average groundwater flow velocity of the water table units is 0.22 ft/day. The range of velocities based on the minimum and maximum hydraulic conductivities is 0.002 to 3.8 ft/day.

4.5.6.2 Bedrock Groundwater Zone

Groundwater potentiometric heads of bedrock wells indicate flow in this zone is from north to south beneath SWMU No. 2. The average horizontal gradient in the bedrock groundwater zone is approximately 0.035 ft/ft.

Slug tests performed by Geraghty and Miller (April, 1997) on eight bedrock wells are summarized on Table 4-63. The results of eight slug tests conducted in the bedrock indicate the hydraulic conductivity of this unit locally ranges from 2.1×10^{-5} to 2.1×10^{-4} cm/sec (0.06 to 0.6 ft/day), with an average of 8.23×10^{-5} cm/sec (0.23 ft/day). The average hydraulic conductivity of the bedrock units is an order of magnitude less than those determined for the water table units.

Using the gradient of 0.035 ft/ft and the average hydraulic conductivity calculated by the slug tests, and assuming 25% effective porosity the velocity in the bedrock is 1.15×10^{-5} cm/sec (0.03 ft/day). Based on the minimum and maximum hydraulic conductivity values, the range of velocities in bedrock is from 4.2×10^{-6} cm/sec to 4.2×10^{-5} cm/sec (0.008 to 0.08 ft/day). Actual velocities may vary due to heterogeneities and conduits that facilitate secondary flow (i.e., fractures and bedding planes).

4.5.6.3 Vertical Gradients

Vertical gradients are provided by three triple piezometer nests at the landfill (ABL-PZ-1S, 1I, and 1D, ABL-PZ-2S, 2I, and 2D, and ABL-PZ-3S, 3I, and 3D). The piezometer nests are located in a general north to south orientation across the Alcoa/Badin Landfill (Figure 4-36). ABL-PZ-1S, 1I, and 1D, located at a topographic high, have the greatest downward gradients between water table and bedrock piezometers. Downward gradients decrease at piezometer nest ABL-PZ-2S, 2I, and 2D, which are

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located within the Alcoa/Badin Landfill, with ABL-PZ-2S and -2I almost equal. At piezometer nest ABL-PZ-3S, 3I, and 3D, which is located near Little Mountain Creek, there is an upward gradient. The ABL-PZ-3 piezometer nest suggests the floodplain along Little Mountain Creek represents an area of discharge (i.e., the ancestral ravine and Little Mountain Creek). The vertical gradient observed in the floodplain suggests that both the water table units and bedrock groundwater discharges to Little Mountain Creek. In addition to the water elevation data, the observation of air bubbles in Little Mountain Creek during installation of ABL-PZ-3D with an air rotary rig supports a strong hydraulic connection between the creek and flood plain. As a result, there is no groundwater underflow beneath Little Mountain Creek at the depths investigated.

4.5.6.4 Groundwater Quality

Appendix D contains tables of historic groundwater elevations and fluoride, cyanide, and free cyanide (amenable, weak acid dissociable, and microdiffusion) analytical data. The historic data are consistent with the current RFI data set. Like the RFI data, total cyanide has been detected in the past in ABL-MW-5 at concentrations slightly exceeding the NC 2L Standard. However, it should be noted that the NC 2L Standard for total cyanide is based on the RfD for free cyanide, which is a more toxic form (see Section 1.5). Free cyanide and fluoride have never been detected in any of the monitoring wells at concentrations exceeding the NC 2L Standards.

4.5.6.5 Seeps

Three seeps (western, middle, and eastern) are present at the base of the landfill at the locations illustrated on Figure 4-37. Historic chemical data suggest the seeps emanate water that passes through the landfill materials. Table D.2-5 in Appendix D contains the seep data. A portion of the seep water is believed to originate upslope of the landfill due to precipitation infiltration and a portion from recharge from bedrock through the base of the landfill. The interim measures discussed in Section 4.5.3 are believed to be effectively minimizing precipitation infiltration. The seeps discharge into a seep collection system that discharges to Little Mountain Creek. Alcoa has submitted an NPDES permit application to the North Carolina Division of Water Quality to address the seep discharge to Little Mountain Creek.

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4.5.7 Phase I RFI Data Summary

Soil samples were collected from borings S2-HA-01 through S2-HA-06 around the perimeter of the landfill at the locations illustrated on Figure 4-34. Table 4-64 provides the soil analytical results. Soil samples were collected from each boring at surface (0-0.5 ft-bgs) and 0.5 to 2.0 ft-bgs. Samples S2-HA-01 and S2-HA-02 were collected to assess for potential releases near the toe of the landfill. Samples from S2-HA-01 and S2-HA-02 were analyzed for the potential landfill COIs, which include VOCs, SVOCs, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), total cyanide, weak acid dissociable cyanide, and fluoride.

Samples S2-HA-05 and S2-HA-06 were collected upslope of the landfill to provide background data. These samples were analyzed for background parameters and the potential landfill COIs, except for VOCs (VOCs would not be expected in background samples). The samples were analyzed for PAHs, total metals (arsenic, barium, cadmium, chromium, lead, selenium, and mercury), total cyanide, weak acid dissociable cyanide, and fluoride.

Samples S2-HA-03 and S2-HA-04 were collected to assess the potential for releases along each side of the landfill. These data were considered potentially useful for determining background in addition to delineation, and as a result were analyzed for both potential landfill COIs and background parameters [VOCs, SVOCs (which includes the PAHs), total metals (arsenic, barium, cadmium, chromium, lead, selenium, and mercury), total cyanide, weak acid dissociable cyanide, and fluoride]. The sample depths (0 to 6-inches and 0.5 to 2 ft-bgs) were selected to assess if landfill materials may have been released via transport over the edges of the landfill near their perimeters. Based on the similarity in constituent concentrations to upslope samples and their locations, these samples were included in the background data set. S2-HA-03 is on the other side of a drainage ditch from the landfill and S2-HA-04 on a natural topographic high.

Groundwater samples were collected during Phase I from six monitoring wells in the Alcoa/Badin Landfill (ABL-MW-1 through ABL-MW-6) (Figure 4-37). In accordance with the RFI Work Plan, the "most contaminated well" in the Alcoa/Badin Landfill was to be sampled for Appendix IX parameters. ABL-MW-5 was selected as the "most contaminated well" due to past observed concentrations of cyanide and fluoride and was subjected to Appendix IX analysis plus filtered metals, weak acid dissociable cyanide, free cyanide, fluoride, and TSS. Groundwater samples from the remaining

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wells were analyzed for VOCs, SVOCs, total cyanide, weak acid dissociable cyanide, free cyanide, total fluoride, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), filtered metals (arsenic, barium, cadmium, chromium, lead, and selenium), and TSS. Table 4-65 provides the groundwater analytical results.

To assess the potential impact of the Alcoa/Badin Landfill on Little Mountain Creek, two surface water samples and two sediment samples were collected during Phase I of the RFI from the creek at the locations shown on Figure 4-34 and 4-37. The sediment samples were analyzed for VOCs, SVOCs, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), total cyanide, weak acid dissociable cyanide, total fluoride, and PCBs. In addition to the parameters analyzed for sediments, the surface water samples were analyzed for filtered metals (arsenic, barium, cadmium, chromium, lead, and selenium). Tables 4-66 and 4-67 provide the Little Mountain Creek sediment and surface water sample results.

4.5.8 Surface and Subsurface Conditions

The surface of the landfill is vegetated with grass and is regularly mown as part of an on-going O&M plan to inspect and maintain the landfill cap. Beneath the grass is a 6-inch top-soil layer and then two feet of low permeability clay. Refer to sections 4.5.5 (Geology) and 4.5.6 (Hydrogeology) for further descriptions of the surface and subsurface conditions at SWMU No. 2.

4.5.9 Screening Level Risk Assessment for Soil

Table 4-68 provides a summary of the constituents detected in soil, frequency of detection, minimum and maximum detected concentration, and a comparison to the risk screening values. Figure 4-34 provide the soil sample locations and depths sampled.

Arsenic is the only constituent detected at concentrations exceeding the Region III RBCs for residential and industrial soil. The maximum detected concentration of arsenic is 15.8 mg/kg at location S2-HA-01 (0.5 to 1 ft-bgs). However, the maximum detected concentration of arsenic is well below the calculated background concentration of 33 mg/kg.

There were no constituents detected in soil at concentrations exceeding the USEPA and NC SSL values.

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4.5.10 Screening Level Risk Assessment for Groundwater

Table 4-69 provides a summary of the constituents detected in downgradient groundwater, minimum and maximum detected concentrations, and a comparison to the risk screening values.

Dissolved arsenic is found at concentrations exceeding the NC 2L Standard and the Federal MCL. However, this constituent is detected in only one of the six samples collected at this SWMU and the detection is in upgradient well ABL-MW-6 (Figure 4-37). Arsenic is reported to occur naturally in groundwater in parts of the Carolina Slate Belt including Stanly County. As a result, arsenic is eliminated as a COI.

Total cyanide was found at concentrations slightly exceeding the NC 2L Standard for cyanide in a single well. However, as discussed in section 1.5 of this report, the actual basis for the numerical calculation of the MCL and NC 2L standard is free cyanide and therefore it is the free cyanide concentration (e.g., weak acid dissociable and microdiffusion), which should be the basis for assessing risk. Because of this and the fact that only one well only slightly exceeded the 2L Standard as total cyanide, total cyanide is eliminated as a COI.

4.5.11 Screening Level Risk Assessment for Surface Water and Sediment

Table 4-70 and 4-71 provide a summary of the constituents detected in sediment and surface water, frequency of detection, minimum and maximum detected concentration, and a comparison to the risk screening values.

Only cyanide and fluoride were detected in Little Mountain Creek surface water samples. The only detection of cyanide by the microdiffusion method was well below the human health surface water screening values. There is no human health NC 2B Class WS-IV Standard (15 NCAC 02B.0216(3)(g)(i,ii) or Federal AWQC (USEPA, 1999) for fluoride. However, the detections were well below the NC 2L Standard and Federal MCL, which are very conservative values for surface water as they are based on exposure in drinking water.

Of the detected constituents in Little Mountain Creek sediments, only arsenic was above the conservative human health screening criteria for sediments. However, an upgradient sediment sample

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had a higher concentration of arsenic than the downgradient one. Therefore, arsenic is not identified as a site-specific COI in sediment.

4.5.12 Conclusions and Recommendations

There are no constituents detected in soil around the perimeter of the Alcoa/Badin Landfill at concentrations exceeding both risk-based screening values and background (arsenic exceeds risk-based screening values but not background concentrations). The surface of the SWMU has been capped with clean soil comprised of two feet of low permeability clay, six-inches of top-soil, and covered with vegetation. As a result, there is no concern regarding direct contact with soils on top of or adjacent to this SWMU.

Constituents were not detected in the soil samples collected outside the perimeter of the SWMU at concentrations exceeding the NC or USEPA SSLs. In the landfill area, surface drainage improvements and the low permeability clay cap are expected to reduce the amount of precipitation infiltration reaching the waste materials. However, groundwater also enters the landfill materials through discharge from the bedrock interface beneath the landfill into waste materials. As a result, the seep flow may diminish but may not dry up completely. To address the seeps, Alcoa has constructed a seep collection system and applied for an NPDES permit for the seeps from the NC DWQ. There were no COIs detected at concentrations greater than both the risk-based screening values and background concentrations in surface water and sediment samples.

Based on the RFI findings, the interim measures work, and the permitting of the seeps with the NC DWQ, no further action is recommended for this SWMU.

4.6 SWMU No. 3: Old Brick Landfill

Alcoa used the Old Brick Landfill from 1915 to 1960 as a disposal site for SPL and furnace brick originating from aluminum smelting operations. The landfill occupies approximately 3 acres and is located on Alcoa property, approximately 0.75 miles northeast of the main plant site, near Badin Lake. Alcoa estimates that approximately 22,000 cubic yards of waste were disposed in the landfill. The fill area slopes downward toward Badin Lake. In 1987, the fill area was covered with 12 inches of

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compacted clay, and a ditch was constructed on the upslope side to divert stormwater. A chain-link fence with locking gates surrounds the landfill (Figure 4-38).

4.6.1 Summary of Pre-RFI Investigations

Periodic groundwater sampling has been conducted by Alcoa on a voluntary basis since 1991. Samples have been routinely analyzed for total and free cyanide, and fluoride. Groundwater elevation data have been collected in conjunction with the sampling. The sampling results and groundwater elevation data are provided in Appendix D. The groundwater quality data are also discussed in Section 4.6.5.2.

4.6.2 Summary of Voluntary Measures

Since 1995, Alcoa has conducted additional voluntary activities to minimize infiltration of surface waters into the landfill. These activities included the 1996 improvements to a diversion channel to route surface water run-on around the landfill and the 1997 landslide and cover repairs. Notification of the 1996 diversion channel work was provided by Alcoa to the Department in a letter dated May 10, 1996. Notification for the Old Brick Landfill repair was provided by Alcoa to the Department in a letter dated August 25, 1997. The Department provided Alcoa with approval to implement the landslide and cover repairs in a letter dated September 8, 1997. These activities address the general recommendations that were contained in Law Environmental's 1994 Landfill Cap Inspection Report (Appendix F.3.3.4 of the RFI Work Plan).

4.6.3 Old Brick Landfill Topography

Topography at the Old Brick Landfill (SWMU No. 3) rises steeply from an elevation of about 600 ft-msl at the upper part of the fill area to 675 feet at the hilltop to the southwest. From the toe of SWMU No. 3 at about 560 ft-msl, again the slope is steep down to Badin Lake (approximately 510 ft-msl) to the northeast.

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4.6.4 Old Brick Landfill Geology

Past investigations by Aquaterra (September 1991b) describe the geology at the Old Brick Landfill. The site has been mapped and reported as being underlain by basaltic tuff (a volcanic rock). The rock is described as well jointed, fine-grained rock that does not exhibit cleavage (Conley, 1962). The base of the basaltic tuffs are characterized by conglomerate comprised of mafic lithic fragments and round argillite pebbles in a matrix of fine-grained mafic tuff. Above its base the basaltic tuff consists of faintly-bedded lithic crystal tuffs. The basaltic tuffs consist of predominantly chlorite, feldspar, horneblende, and pyroxene minerals (Aquaterra, September 1991b).

Five soil borings installed by Aquaterra indicate the geology encountered during drilling operations and exhibited in the outcrops at the site are consistent with the reported descriptions. Spheroid ally weathered basaltic tuff boulders were abundant. Mineralized quartz veins were also located throughout the site. The soils encountered were silty clays composed of red, brown, and yellow color mixtures and appeared to be the result of weathering of the mafic bedrock.

A past investigation by Law Engineering (November 1987) initially defined the limits of the waste area using soil borings. Soil borings also determined the fill to be approximately 29 ft deep inside the landfill.

4.6.5 Old Brick Landfill Hydrogeology

The following sections discuss the hydrogeology of the Old Brick Landfill including groundwater occurrence and flow and groundwater quality.

4.6.5.1 Groundwater Occurrence and Flow

Monitoring well construction for the SWMU No. 3 (Old Brick Landfill) is summarized on Table 4-72. Groundwater at the Old Brick Landfill occurs in bedrock and saprolite/partially weathered bedrock. Based on observation of water levels made during well installation, semi-confined conditions are suspected at OBL-MW-2, OBL-MW-3, and OBL-MW-5. The landfilled materials are situated well above the water table. The base of the landfill is reported by Law Engineering (November 1987) at an elevation of about 570 ft-msl, whereas the highest groundwater elevation on the up-slope side of the

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landfill is approximately 545 ft-msl (or 25 feet below the base of the landfilled materials). The groundwater elevation at the downslope side of the landfill is about 520 ft-msl (or 50 feet below the base of the landfill materials).

A groundwater elevation contour map for the Old Brick Landfill (Figure 4-39) shows groundwater flow is to the northeast toward Badin Lake. Elevations measured during the RFI range approximately from 586 ft-msl at OBL-MW-1 to 505 ft-msl at OBL-MW-3. The horizontal gradient averages 0.12 ft/ft.

Hydraulic conductivity of the units at the Old Brick Landfill have been defined based on past hydrogeologic investigations (Aquaterra, September 1991b). Table 4-73 summarizes hydraulic conductivity values calculated from slug tests performed on four monitoring wells. The hydraulic conductivities measured by slug testing ranged from 1.3×10^{-5} cm/sec (0.004 ft/day) to 1.19×10^{-2} cm/sec (34 ft/day). The average hydraulic conductivity is 3.3×10^{-3} cm/sec (8.8 ft/day).

In addition, a recovery test was conducted in OBL-MW-2 by bailing the well dry and measuring the change in water levels over time. The hydraulic conductivity values calculated from this method is 5.11×10^{-7} cm/sec (0.001 ft/day).

Using the gradient of 0.12 ft/ft and the average hydraulic conductivity determined by the slug tests, the velocity, assuming 25% effective porosity (Fetter, 1980, Freeze and Cherry, 1979) is 1.5×10^{-3} cm/sec (4.2 ft/day). Actual velocities may vary due to heterogeneities and conduits that facilitate secondary flow (i.e., fractures and bedding planes).

4.6.5.2 Groundwater Quality

Appendix D contains tables of historic groundwater elevations and fluoride, cyanide, and free cyanide (amenable, weak acid dissociable, and microdiffusion) analytical data. The historic data are consistent with the current RFI data. Like the RFI data, total cyanide has been detected in the past in OBL-MW-2 and OBL-MW-4 at concentrations slightly exceeding the NC 2L Standard. However, the NC 2L Standard for total cyanide is conservatively based on the RfD for free cyanide (see Section 1.5). Free cyanide has been detected at concentrations slightly exceeding the NC 2L Standard in less than half

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the sampling rounds. Fluoride has never been detected in any of the monitoring wells at concentrations exceeding the NC 2L Standards.

4.6.6 Phase I RFI Data Summary

Soil samples were collected from borings S3-HA-01 through S3-HA-06 around the perimeter of the landfill at the locations illustrated on Figure 4-38. Table 4-74 provides the soil analytical results. Soil samples were collected from each boring at surface (0 to 0.5 ft-bgs) and 0.5 to 2.0 ft-bgs. Samples S3-HA-04 and S3-HA-05 were collected to assess for potential releases near the toe of the landfill. Samples from S3-HA-04 and S3-HA-05 were analyzed for the potential landfill COIs, which include VOCs, SVOCs, total metals (arsenic, barium, cadmium, chromium, lead, and selenium), total cyanide, weak acid dissociable cyanide, and fluoride.

Samples S3-HA-01 and S3-HA-02 were collected upslope of the landfill to provide background data. The sample depths (0 to 6-inches and 0.5 to 2 ft-bgs) were selected to assess whether landfill materials may have been released via transport over the edges of the landfill near the perimeter. These samples were analyzed for background parameters and the landfill COIs, except for VOCs (VOCs would not be expected in background samples). The samples were analyzed for PAHs, total metals (arsenic, barium, cadmium, chromium, lead, selenium, and mercury), total cyanide, weak acid dissociable cyanide, and fluoride.

Samples S3-HA-03 and S3-HA-06 were collected to assess if releases had occurred along each side of the landfill. These data were considered to be potentially useful for background purposes in addition to delineation and as a result were analyzed for both landfill COIs and background parameters VOCs, SVOCs (including PAHs), total metals (arsenic, barium, cadmium, chromium, lead, selenium, and mercury), total cyanide, weak acid dissociable cyanide, and fluoride. Based on the similarities in constituent concentrations and the location in the field, the sample results for S3-HA-03 and S3-HA-06 were incorporated into the background data set.

Groundwater samples were collected from five monitoring wells in the Old Brick Landfill (OBL-MW-1 through OBL-MW-5) during Phase I. Groundwater samples were analyzed for VOCs, SVOCs, total cyanide, weak acid dissociable cyanide, microdiffusion cyanide, total fluoride, total metals

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(arsenic, barium, cadmium, chromium, lead, and selenium), filtered metals (arsenic, barium, cadmium, chromium, lead, and selenium), and TSS. Analytical results are on Table 4-75.

4.6.7 Phase II RFI Data Summary

One monitoring well (OBL-MW-6) was installed at the location shown on Figure 4-40 to further delineate the Phase I detection of cyanide in OBL-MW-4. Groundwater from OBL-MW-6 was sampled and laboratory analyzed for total cyanide, weak acid dissociable cyanide, and microdiffusion cyanide (Table 4-76).

4.6.8 Surface and Subsurface Conditions

The surface of the landfill is vegetated with grass that is regularly mown as part of routine landfill cover O&M activities. Beneath the vegetative cover is a 6-inch layer of top soil and a 12-inch layer of compacted clay. Refer to Section 4.6.4 (Geology) and 4.6.5 (Hydrogeology) for further descriptions of subsurface conditions at SWMU No. 3.

4.6.9 Screening Level Risk Assessment for Soil

Table 4-77 provides a summary of the constituents detected in soil, frequency of detection, minimum and maximum detected concentration, and a comparison to the risk screening values. Figure 4-38 provides a summary of constituents detected in soil at concentrations exceeding the risk-based screening values.

Arsenic is the only constituent detected in soil at concentrations that exceed the Region III RBCs for industrial and residential soil. However, the maximum concentration of this constituent (36.3 mg/kg) is less than the statistically-derived concentrations in background samples for this area (86 mg/kg).

Chromium is the only inorganic constituent detected at concentrations that exceed the USEPA and NC SSL values for the soil to groundwater migration pathway. However, the chromium concentrations downslope of the SWMU in S3-HA-04 and S3-HA-05 are less than the statistically derived background value of 62 mg/kg.

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Acetone (3.8 mg/kg) is present in one sample (S3-HA-04) at a concentration greater than the SSL value calculated using the North Carolina leaching equation. The detection of acetone is believed to be an artifact of the laboratory and not believed to be present in SWMU No. 3 soils. Owing to its volatility, this constituent would not be expected in surface soils. Also, it was detected in S3-HA-03, which is also considered a background sample because it was collected north of drainage ditch that runs along the north side of the SWMU. As a result, acetone is dropped as a COI and no further evaluation of this constituent is warranted.

4.6.10 Screening Level Risk Assessment for Groundwater

Table 4-78 provides a summary of the constituents detected in groundwater, minimum and maximum detected concentration, and a comparison to the risk screening values.

Total cyanide was detected in groundwater at concentrations greater than the NC 2L Standards in three monitoring wells (OBL-MW-2, OBL-MW-3 and OBL-MW-4). However, as noted in Section 1.5, free rather than total cyanide should be the applicable form for comparing with groundwater standards because NC 2L Standard is based on the RfD for free cyanide. The Federal MCL for cyanide references free cyanide only. Weak acid dissociable cyanide was detected at concentrations exceeding the screening value in OBL-MW-2. Microdiffusion cyanide was detected at concentrations exceeding the screening value in OBL-MW-2 and OBL-MW-4. As a result of the constituents detected at concentrations exceeding the screening values, this SWMU is subjected to a site-specific risk assessment for groundwater. There was no cyanide (microdiffusion, weak acid dissociable, or total) detected in the groundwater sample collected from OBL-MW-6 during Phase II of the RFI.

4.6.11 Site-Specific Risk Assessment for Groundwater

Groundwater beneath SWMU No. 3 is not used for any purpose and is at depths that do not present a direct contact risk to site workers. Alco, Alcoa owns the property in the vicinity of this SWMU and therefore controls the drilling or installation of wells in this area. The residential wells survey determined that the vast majority of local residences use water supplied by Stanly County. The residential wells survey also determined that those residences believed to utilize home wells are either hydraulically isolated or upgradient from Alcoa's on-site and off-site SWMUs and AOCs. The nearest residential well to SWMU No. 3 is on the opposite side of Badin Lake. As a result, the groundwater at

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SWMU No. 3 does not present a risk to on-site receptors and residential well users because there are no complete exposure pathways.

Groundwater beneath SWMU No. 3 flows toward and discharges to Badin Lake surface water. The only potential complete exposure to groundwater at SWMU No. 3 is for receptors in Badin Lake.

4.6.12 Badin Lake Surface Water and Sediment – Old Brick Landfill Area

4.6.12.1 Summary of Pre-RFI Investigations

Badin Lake surface water and sediment sampling was conducted by Woodward Clyde in 1996 and 1997 (Woodward Clyde, 1997). Figure 4-41 shows the location of the surface water and sediment samples collected downgradient of SWMU No. 3 in Badin Lake. The surface water and sediment samples were analyzed for a broad list of constituents. These data are deemed to be of RFI quality, and therefore are included in the RFI groundwater to surface water evaluation. The surface water data are summarized on Table 4-54 (see sample results for WA-OBL-092296-001) and the sediment data on Table 4-55 (see sample SX-OBL-092296-002).

4.6.12.2 Screening Level Risk Assessment for Badin Lake Surface Water – Old Brick Landfill

Table 4-79 summarizes the constituents detected in Badin Lake adjacent to the Old Brick Landfill. This table also compares the maximum concentration of detected constituents to the NC 2B Standards (15A NCAC 02B.0216(3)(g)(i,ii)) and USEPA Water Quality Criteria (USEPA, 1999b) for the protection of human health. None of the detected constituents are present at concentrations exceeding these surface water screening values.

4.6.12.3 Screening Level Risk Assessment for Badin Lake Sediment – Old Brick Landfill

Table 4-80 presents a summary of all constituents detected in the sediment sample collected from Badin Lake adjacent to SWMU No. 3. It also compares the maximum detected concentration of constituents to the industrial soil RBCs. Industrial soil RBCs were applied as screening values for sediments as there are no standard human health-based criteria for sediment. The industrial soil RBCs are conservative values to apply to sediment, a medium for which only the most incidental contact is likely.

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Use of soil screening values for human health exposure to sediment is a common practice in human health risk assessment. As indicated on Table 4-80, arsenic is the only constituent detected at concentrations exceeding the industrial RBCs. However, the concentration of arsenic in sediment (37 mg/kg) is less than the calculated background value for soil (86 mg/kg).

4.6.12.4 Conclusions and Recommendations

The screening level risk assessment for soil shows no constituents present in soil adjacent to the landfill at concentrations exceeding the risk screening values. As a result, there are no direct contact concerns related to soil surrounding the SWMU. The SWMU itself has a cap that is maintained by Alcoa, which prevents direct contact with underlying materials. There were no detections of constituents in soil at concentrations that exceed the conservative SSLs and background values, and the landfill cap is believed to be effectively inhibiting leaching of landfill materials. As a result, no further action is necessary to address the soil to groundwater leaching pathways.

Cyanide (total, weak acid dissociable, and free) were detected at concentrations exceeding the NC 2L Standard and USEPA MCL for cyanide. However, groundwater beneath this SWMU is not used for any purpose and is hydraulically isolated from residential wells. The only potential, complete exposure pathway to groundwater is after it flows into Badin Lake.

Evaluation of Badin Lake surface water and sediment data show no constituents present at concentrations exceeding the screening values and background levels. Based on these findings, no further action other than periodic monitoring of groundwater for cyanide is recommended for SWMU No. 3.

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5.0 RFI SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

The RFI evaluated environmental conditions at 14 on-site and two off-site SWMUs/AOCs. The RFI provided the data needed to effectively characterize the nature and extent of COIs detected in the media of interest at each of the SWMUs and AOCs. Media investigated during the RFI included soil, groundwater, surface water, sediment, and landfill gas. The site physical conditions (e.g., geology and hydrogeology) were characterized to understand the potential COI transport mechanisms.

A conservative risk-based screening approach was used to evaluate analytical data and focus the RFI on COIs found at concentrations potentially posing risk to human health. As appropriate, the risk assessment of the SWMUs and AOCs focused on potential human exposure scenarios because the Badin Works is an active industrial facility occupied by plant operations and/or areas that undergo routine operation and maintenance activities (e.g., mowing of landfill areas). In addition to the media on the plant property (i.e., soil and groundwater), the risk assessment included an evaluation of human health for off-property surface water and sediment in Badin Lake and Little Mountain Creek.

A site-specific risk assessment was conducted for those SWMUs/AOCs where COIs exceeded the screening values. The site-specific risk assessment assumed current and future land use at the facility is industrial, but also included an evaluation of off-site residential areas and Badin Lake.

Following is a summary of the major findings for the plant area, SWMU No. 2 (Alcoa/Badin Landfill), and SWMU No. 3 (Old Brick Landfill).

5.1.1 Plant Area

RFI SWMUs/AOCs in the plant area include SWMU Nos. 1, 4, 11 22, 25, 33, 35, 38, 42, 44 and 46 and AOCs –A and –B (Figure 1-4, Table 1-1). SWMUs in the north end of the plant (North End) include SWMU Nos. 1, 4, 22, 25, 33, 35, and 44. In accordance with NCDENR's letter to Alcoa dated September 9, 1999 and the approved RFI Work Plan, SWMUs in the North End are addressed using the "SWMU-Area Concept", whereby SWMUs are grouped together based on commonalities.

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Groundwater for all the SWMUs in the North End (SWMU Nos. 1, 4, 22, 25, 33, 35, and 44) is addressed using the SWMU-Area concept because the SWMUs are all located within a contiguous infilled valley, have the same COIs, and the COIs in groundwater are not traceable to any individual SWMU. Groundwater beneath the SWMUs and AOCs in the central and southern portion of the plant (SWMU Nos. 11, 38, 42, and 46, and AOCs-A and –B), and off-site landfills (SWMU Nos. 2 and 3) is addressed on an individual SWMU and AOC basis.

SWMU Nos. 1, 4, and 33 are grouped into "SWMU Group 1" for the purpose of evaluating soils based on the results of the RFI and Interim Measures (IMs) Work. These SWMUs were grouped together based on similar COIs and proximity to one another. The soil evaluation for each of the remaining SWMUs is evaluated individually.

The major findings of the RFI in the plant area are:

- The primary COIs identified in soil by the screening level risk assessment are total and free (weak acid dissociable) cyanide, fluoride, PAHs and PCBs. Based on the interim measures work previously performed and the risk assessment, these COIs do not present a direct contact risk to potential receptors under current and reasonably anticipated future land use.

  The emplacement of a low permeability cap as an interim measure at SWMU Group 1 (SWMU Nos. 1, 4, and 33) has eliminated the potential for contact by workers with the constituents detected in SWMU Group 1 soil. Also, the cap eliminates any potential concerns for off-site contact with SWMU Group 1 soil because the cap eliminates the potential for soil to be eroded and transported off-site by wind or water. As a result, soils at this SWMU Group do not present a concern with respect to direct contact by workers or residents. Alcoa has a program in place to inspect and maintain the cap on a semi-annual basis.

  The RFI verified the effectiveness of soil removal activities previously conducted by Alcoa at SWMU No. 22, AOC-A, and AOC-B. RFI analytical data show no constituents in SWMU No. 22 soil detected at concentrations exceeding the direct contact risk-based screening values or background concentrations, verifying the effectiveness of the 1994 soil removal activities at this SWMU. RFI samples collected at AOC-B show no constituents detected at concentrations greater than the applicable direct contact screening values (residential and industrial RBCs for surface soils and industrial RBCs for subsurface soil). These results verify the effectiveness of the soil removal action conducted at AOC-B in 1996. The effectiveness of AOC-A soil removal performed in 1985 was verified through historic monitoring and RFI groundwater samples at AOC-A that show no constituents detected.

  The screening level risk assessment for SWMU No. 43 shows no constituents detected at concentrations exceeding the risk screening levels. SWMU Nos. 11, 35, 44, and 46 each had constituents detected at concentrations exceeding the conservative risk screening values and therefore were subjected to site-specific risk assessments. The site-specific risk assessments

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for each SWMU found direct contact risks at these SWMUs to be within or below USEPA's acceptable range.

As a result of the interim measures work and soil removal activities, and based on the RFI risk assessment, no further action is required to address direct contact pathways for soils at the SWMUs and AOCs in the plant area.

- The screening level risk assessment indicated that SWMU Group 1 (SWMU Nos. 1, 4, and 33), SWMU Nos. 11, 35, 44, and 46 and AOC-B contain constituents at concentrations exceeding the conservative screening values used to evaluate the soil to groundwater leaching pathway. The cap placed as an interim measure at SWMU Group 1 addresses the leaching from soil to groundwater at SWMU Nos. 1, 4, and 33. Many of the constituents identified (e.g., PAHs) are eliminated as COIs for the soil to groundwater leaching pathway because they were not detected in site groundwater.

- COIs identified in plant groundwater by the screening level risk assessment are total and free (weak acid dissociable and microdiffusion) cyanide, fluoride, arsenic, trichloroethene, and trichloromethane (chloroform). LNAPL was found in a single monitoring at SWMU No. 42 trapped within the immediate area of the Building 016 foundation; however, there were no dissolved phase LNAPL constituents found in groundwater immediately downgradient of SWMU No 42, confirming the limited extent of the LNAPL. Groundwater beneath the plant area is not used for any purpose and there is no direct exposure potential with groundwater to the plant workers or local residents. Alcoa owns the land from the plant to Badin Lake to the east. Therefore, Alcoa can ensure that no drinking water wells will be installed between the SWMUs/AOCs and Badin Lake. A residential well survey determined that nearly all residences are connected to the Stanly County potable supply. While there are few residences with home wells, these homes are hydraulically upgradient of the plant area. Based on the RFI findings, there is no risk to current or potential groundwater users from COIs in groundwater.

- Groundwater beneath the plant area flows toward and discharges to Badin Lake. As a result, Badin Lake represents the only potential complete exposure pathway to the COIs in groundwater. The groundwater velocity is relatively slow beneath the plant area (average of 1 ft/day). Therefore, the groundwater discharge rate from the plant area to the Lake is low and plant area groundwater provides only a minor contribution to this large volume lake. The risk-based screening of surface water samples in Badin Lake shows plant area groundwater COIs are not present in the Lake at levels exceeding human health surface water screening values. A human health screening level risk assessment of Badin Lake sediments identified PCBs and PAHs as potential COIs and as a result a site-specific human health risk assessment was performed. The site-specific risk assessment for Badin Lake sediments concluded that areas where sediments can be contacted by human receptors are limited (e.g., the swimming cove or boat launch area), and that potential risks to COIs in this area are within acceptable limits.

5.1.2 SWMU No. 2 (Alcoa/Badin Landfill)

- This SWMU was subjected to an interim measure (regrading and capping) to minimize the amount of precipitation infiltration and leaching of Landfill COIs. The cap also eliminates

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the potential for direct contact with the landfill materials.

- The screening level risk assessment for soil shows there are no COIs present in soil adjacent to the landfill at concentrations exceeding the conservative risk-based screening values. As a result, soils surrounding SWMU No. 2 do not pose unacceptable risk to potential current or reasonably anticipated future receptors.

- The screening level risk assessment for groundwater shows only total cyanide exceeding the screening values, in a single well downgradient of the landfill. Groundwater beneath the landfill is not used for any purpose. There is a residential groundwater well on the opposite side of Little Mountain Creek, at an approximate distance of 0.3 miles to the south. However, groundwater elevation data from triple piezometers at this SWMU show Little Mountain Creek acts as a hydraulic barrier and as a result, groundwater containing COIs does not flow under the creek. The groundwater velocity beneath the Alcoa Badin Landfill is relatively slow (average of about 0.2 ft/day) and as a result the rate of groundwater discharge to Little Mountain Creek is minor. Also, the concentration of free cyanide (i.e., weak acid dissociable and microdiffusion) in SWMU No. 2 monitoring wells does not exceed the screening value. The MCL and NC 2L Standard for cyanide are based on the RfD for free cyanide. As a result, the total cyanide detection in the single well at concentrations slightly above the screening value does not warrant further evaluation.

- Seeps containing low levels of cyanide and fluoride manifest at the base of the landfill. Alcoa has constructed a seep collection system and applied for an NPDES permit for seep discharge to Little Mountain Creek. As a result, there is no further action necessary to address seep discharge.

- The screening level risk assessment for Little Mountain Creek shows no COIs present at concentrations exceeding applicable human health screening values.

5.2 SWMU No. 3 (Old Brick Landfill)

- This SWMU was subjected to an interim measure (regrading and capping) to minimize the amount of precipitation infiltration and leaching of landfill COIs. The cap also eliminates the potential for direct contact with the landfill materials.

- The screening level risk assessment for soil shows there are no COIs present adjacent to the landfill at concentrations exceeding the conservative risk-based screening values. As a result, soils do not present a risk to potential current or reasonably anticipated future receptors.

- The screening level risk assessment for groundwater shows only total and free cyanide exceeding the screening values. Groundwater beneath the landfill is not used for any purpose. Residential wells identified in the survey are on the other side of Badin Lake and hydraulically isolated from SWMU No. 3.

- Groundwater beneath this SWMU flows toward and discharges to Badin Lake. As a result, Badin Lake surface water and sediment represents the only potential complete exposure pathway to the COIs in groundwater. The groundwater velocity is relatively slow beneath the landfill area (average of about 4 ft/day). As a result of this low velocity, groundwater discharge to the Lake is minor. The risk-based screening of surface water and sediment

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samples in Badin Lake shows Old Brick Landfill COIs are not present in the lake at levels exceeding the risk screening values.

5.3 Conclusions and Recommendations

The next step in the RCRA Corrective Action process for sites where remediation is warranted would be to evaluate potential remedial alternatives in a Corrective Measures Study (CMS). The purpose of the remediation would be based on the need to satisfy one or more remedial goals. The corrective action goals for the Alcoa Badin Works would be to perform remediation on media with contaminants at concentrations posing unacceptable risk to human health and/or the environment, where appropriate.

The RFI has established that no unacceptable risks currently exist due to constituents at the Badin Works SWMUs and AOCs under current and reasonably anticipated future land use. Therefore no remediation is warranted, and accordingly a CMS is not necessary at this time to address the media at the SWMUs. Alcoa is recommending that a groundwater monitoring plan be developed to monitor the natural attenuation of those constituents found at concentrations greater than MCLs or NC 2L Standards.

Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	MW-1 9/14/99	MW-1 9/15/99	B016-MW-1 10/1/99	MW-2 9/17/99	MW-2A 9/18/99	MW-3 9/17/99	MW-3 9/23/99	MW-3 9/24/99	B016-MW-3 10/2/99	B016-MW-3 10/4/99	MW-4 1/8/00
Parameters											
pH	5.8	5.71	6.6	7.94	6.67	6.13	5.54	6.37	6.3	6.26	7.37
Conductivity (ms/cm)[a]	0.061	871	1.51	5.5	0.849	290	0.107	0.216	0.827	0.764	0.15
Turbidity (NTU)[b]	3.25	3.5	9.7	6.9	3.4	NR[c]	0.8	0.2	>200	9.93	150
Temperature (° C)[d]	20.7	19	25.3	22.9	18.1	18.2	19.1	18.9	22.7	23.5	17.8

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	MW-4 9/20/99	MW-4 9/23/99	MW-5 9/21/99	MW-5 1/4/00	MW-6A 9/18/99	MW-6 9/20/99	MW-7 9/14/99	MW-8 9/21/99	MW-8 1/4/00	MW-9 9/21/99	MW-9 1/4/00
Parameters											
pH	7.4	7.54	5.76	5.89	7.85	11.16	6.95	6.51	6.32	7.11	7.3
Conductivity (ms/cm)[a]	1.23	133	846	51.8	0.389	21	0.081	1.03	58.2	1.31	82.7
Turbidity (NTU)[b]	92	33.4	9	2	0.01	5.1	3.01	13.1	24.1	4.5	2.48
Temperature (° C)[d]	21.5	20.7	20	19.4	18.5	20.6	21.9	19.8	18.5	20.3	10.8

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	MW-10 9/21/99	MW-10 1/4/00	MW-11 9/17/99	MW-12 9/17/99	MW-13 9/14/99	MW-14 9/20/99	MW-16 9/21/99	MW-16 1/5/00	MW-17 9/22/99	MW-17 1/5/00	MW-18 9/21/99
Parameters											
pH	5.23	5.62	5.95	7.1	5.8	5.72	6.92	7.03	5.35	5.04	5.76
Conductivity (ms/cm)[(a)]	0.378	9.9	0.14	0.513	0.61	1.53	1.37	36.3	0.092	6.1	0.082
Turbidity (NTU)[(b)]	7.2	0.9	5.1	3.8	3.25	4	4.86	2.42	0.9	3.9	3.6
Temperature (° C)[(d)]	18.7	18.6	17.6	18.3	20.7	21.7	20.4	18.1	17.8	15.4	17.4

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	MW-18 9/24/99	MW-18 1/4/00	MW-19 9/21/99	MW-19 9/24/99	MW-19 1/4/00	MW-20A 9/17/99	MW-20 1/5/00	MW-21 9/16/99	MW-22 9/17/99	MW-24 9/16/99	MW-25 9/22/99
Parameters											
pH	5.74	5.72	5.71	5.47	5.51	5.67	8.08	10.63	10.68	10.49	8.4
Conductivity (ms/cm)[(a)]	0.11	2.2	0.076	0.078	6.3	172	26.4	19.1	20.8	17.7	1.76
Turbidity (NTU)[(b)]	6.6	3.19	2	1.71	0.24	9.2	2.29	8.7	9.7	5.5	8.12
Temperature (° C)[(d)]	16.6	16.46	16.9	16.7	17.1	16.8	14.5	21.8	20.6	17.8	17.9

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	MW-25A 9/23/99	MW-25A 1/5/00	MW-25 1/5/00	MW-26 9/22/99	MW-27 10/1/99	MW-27 10/4/99	MW-6 9/7/00	MW-7 9/7/00	MW-16 9/7/00	MW-25 9/7/00	MW-28 9/6/00	MW-29 9/6/00
Parameters												
pH	6.67	6.44	7.85	8.17	7.86	9.25	10.41	6.16	6.78	7.66	6.00	6.64
Conductivity (ms/cm)[(a)]	1.05	88.7	75.9	0.731	2.24	3.33	16.2	0.55	0.737	1.37	0.103	1.77
Turbidity (NTU)[(b)]	9.9	6.4	0.7	7.1	199	24.5	4.9	8.1	2.8	5.9	173	27.5
Temperature (° C)[(d)]	16.5	15.7	17.1	20.5	18.5	18.7	20.19	17.99	19.90	18.27	18.84	18.67

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-6

Groundwater Field Parameters Prior to Sample Collection

Alcoa Badin, NC Works RFI

Well ID Sample Date	OBL-MW-6 9/6/00	MW-10 9/7/00
Parameters		
pH	6.17	5.58
Conductivity (ms/cm)[(a)]	0.119	0.171
Turbidity (NTU)[(b)]	33.4	12.00
Temperature (° C)[(d)]	16.16	18.33

Notes:

(a) ms/cm = microsiemens per centimeter
(b) NTU = Nephelometric turbidity units
(c) NR = not recorded
(d) (° C) = degrees celcius

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Table 2-7

Phases I and II RFI Surface Water and Sediment Investigation Summary

Alcoa Badin, NC Works RFI

Surface Water/ Sediment Investigation Location	Sample Location	Analytical Sample Designation	Sample Date (and RFI Phase)	Sample Depth ft-bgs[a]	Sample Collection Method	Total CN[b]	WAD CN[c]	MD CN[d]	FL[e]	TSS[f]	Total Metals (6)[g]	Diss. Metals (6)[h]	APP IX VOCs[i]	Trichloroethene	APP IX SVOCs[j]	PCBs[k]
Little Mountain Creek Surface Water	LMC-SW-01	LMC-SW01-2799	10/16/99 (Phase I)	--	Direct into Container[l]	X[m]	X	--[n]	X	X	X	X	X	--	X	X
		LMC-SW-01	9/25/99 (Phase I)	--	Direct into Container	--	--	X	--	--	--	--	--	--	--	--
	LMC-SW-02	LMC-SW02-2799	10/06/99 (Phase I)	---	Direct into Container	X	X	--	X	X	X	X	X	--	X	X
		LMC-SW-02	9/25/99 (Phase I)	---	Direct into Container	--	--	X	--	--	--	--	--	--	--	--
Little Mountain Creek Sediment	LMC-SD-01	LMC-S001-0.0-0.3	9/25/99 (Phase I)	0.0-0.3	Stainless Steel Spoon	X	X	--	X	--	X	X	X	--	X	X
	LMC-SD-02	LMC-S002-0.0-0.4	9/25/99 (Phase I)	0.0-0.4	Stainless Steel Spoon	X	X	--	X	--	X	X	X	--	X	X
Badin Lake Surface Water	NE-SW	NE-SW-2520	9/7/00 (Phase II)	--	Direct into Container	--	--	--	--	--	--	--	--	X	--	--

Note:

(a) ft-bgs = feet below ground surface.
(b) Total CN = total cyanide.
(c) WAD CN = weak acid dissociable cyanide.
(d) MD CN = microdiffusion cyanide.
(e) Fl = fluoride.
(f) TSS = total suspended solids.
(g) Total Metals include arsenic, barium, cadmium, chromium, lead and selenium.
(h) Dissolved Metals include arsenic, barium, cadmium, chromium, lead and selenium.
(i) App IX VOCs = Appendix IX volatile organic compounds.
(j) App IX SVOCs = Appendix IV semi-volatile organic compounds.
(k) PCBs = polychlorinated bi-phenyls.
(l) Collected directly into sample container except for VOCs. VOC vials were pre-preserved; therefore samples were collected into a dedicated amber glass container and poured into the VOC containers.
(m) X = sample analyzed for indicated parameter.
(n) -- = sample not analyzed for indicated parameter.

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Table 2-8

Data Validation Summary For Soil/Sediment Samples

Alcoa Badin, NC Works RFI

Parameter	Total Number of Samples	Validated Number of Samples	Percent Validated (%)
Total Cyanide	85	30	35
Weak Acid Dissociable Cyanide	85	30	35
Fluoride	85	30	35
Total metals (Arsenic, Cadmium, Chromium, Lead)	104	18	17
Total metals (Barium, Selenium)	73	18	25
Total Metals (Mercury)	39	5	13
VOCs[a]	64	22	34
SVOCs (includes PAH analyses)[b]	90	19	21
PCBs[c]	21	9	43
Asbestos	2	0	See Text

Notes:

[a] VOCs = Volatile Organic Compounds
[b] SVOCs = Semi-Volatile Organic Compounds, PAHs = Polynuclear Aromatic Hydrocarbons
[c] PCBs = Polychlorinated Biphenyls

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Table 2-9

Data Validation Summary For Groundwater/Surface Water Samples

Alcoa Badin, NC Works RFI

Parameter	Total Number of Samples	Number of Validated Samples	Percent Validated (%)
Total Cyanide	76	76	100
Weak Acid Dissociable Cyanide	76	76	100
Microdiffusion Cyanide	76	76	100
Fluoride	51	11	22
Total metals (As, Ba Cd, Cr, Pb, Se or Appendix IX Metals)[a]	43 45[e] 6[f]	6 8[e] 6[f]	14 18[e] 100[f]
Dissolved metals (As, Ba Cd, Cr, Pb, Se or Appendix IX Metals)	43 47[e] 6[f]	6 10[e] 6[f]	14 21[e] 100[f]
Total Metals (Mercury)	2	1	50
Dissolved Metals (Mercury)	2	1	50
Total Suspended Solids	48	8	17
VOCs[b]	51	6	11
SVOCs[c]	51	6	11
Pesticides	3	1	33
PCBs[d]	5	1	20
Herbicides	3	1	33
Sulfide	3	1	33
Trichloromethane	4	4	100
Trichloroethene	4	4	100
Appendix IX PAHs[g]	3	3	100

Notes:

[a] As = Arsenic, Ba = Barium, Cd = Cadmium, Cr = Chromium, Pb = Lead, Se = Selenium
[b] VOCs = Volatile Organic Compounds
[c] SVOCs = Semi-Volatile Organic Compounds
[d] PCBs = Polychlorinated Biphenyls
[e] Barium only
[f] Thallium and Antimony only
[g] PAHs = polynuclear aromatic hydrocarbons

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Table 2-10

Investigations and Interim Measures Reports Previously Submitted to the Department

Alcoa Badin, NC Works RFI

Plant Area Reports	SWMU No. 2 (Alcoa/Badin Landfill) Reports	SWMU No. 3 (Old Brick Landfill) Reports
Law Engineering: October 20, 1989, "Report of Environmental Services – North End Subsurface Exploration"	Law Environmental, Inc.: January 22, 1990, "Preliminary Assessment of Gas Emissions, Badin Landfill	Law Engineering: November 25, 1987, "Report of Subsurface Exploration, Off-Site Waste Pile"
Law Environmental, Inc.: June 1, 1990, "Phase I Groundwater Assessment Northwest Valley"	Law Environmental, Inc.: March 15, 1991, "Report of Methane Gas Probe Installation and Monitoring, Badin Landfill"	Aquaterra, Inc.: September 3, 1991 "Preliminary Soil and Groundwater Assessment"
Law Environmental, Inc.: November 12, 1990, "Phase II Groundwater Assessment Northwest Valley"	Law Environmental, Inc.: March 28, 1991, "Report of Methane Monitoring, Homesites Near Old Badin Landfill"	PACE, Inc.: March 18, 1992, "Report of Laboratory Analysis"
Law Environmental, Inc.: April 3, 1991, "Installation of Ground-Water Monitoring Well (MW-16), Northwest Valley Ground-Water Contamination Assessment"	Aquaterra, Inc.: September 3, 1991, "Preliminary Soil and Ground-Water Assessment"	Aquaterra, Inc.: October 28, 1992, "Ground Water Assessment Report"
Alcoa: December 6, 1991 SOC Compliance Letter to the Department	Aquaterra, Inc.: December 6, 1991, "Groundwater Sampling"	Aquaterra, Inc.: February 7, 1994, "November 1993 Ground Water Sampling Event"
Aquaterra, Inc.: July 31, 1992 "Soil and Ground Water Assessment Aluminum Company of America"	PACE, Inc.: March 18, 1992, "Report of Laboratory Analysis"	Law Environmental, Inc.: March 4, 1994, "Landfill Cap Inspection Report, Old Brick Landfill"
Law Environmental, Inc.: August 6, 1992, "Report of Ground-Water Assessment and Preliminary Ground-Water Recovery Study"	Aquaterra, Inc.: October 28, 1992, "Ground Water Assessment Report"	Alcoa: May 1996, "Specifications for Old Brick Landfill (SWMU #3) Channel Improvements"
Aquaterra, Inc.: October 5, 1992 "Building 016 Groundwater Assessment Alcoa-Badin"	Law Environmental, Inc.: April 8, 1993 "Report of Consulting Services and Methane Monitoring"	Law Engineering and Environmental Services, Inc.: October 9, 1996, "Geotechnical Exploration – Old Brick Landfill Cap"
Law Environmental, Inc. June 28, 1993 "Confirmatory Sampling Report Alcoa Badin Works"	Alcoa Technical Center, Analytical Chemistry Division: September 9, 1993, "Badin Groundwater Characterization"	Alcoa: August 1997, "Specification for the Landslide Repair at the Old Brick Landfill (SWMU #3)"

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Table 2-10

Past Investigations and Interim Measures Reports Previously Submitted to the Department

Alcoa Badin, NC Works RFI

Plant Area Reports	SWMU No. 2 (Alcoa/Badin Landfill) Reports	SWMU No. 3 (Old Brick Landfill) Reports
Aquaterra, Inc.: June 29, 1993 "Additional Ground Water Sampling Report Building 016 Aluminum Company of America"	Aquaterra, Inc.: February 7, 1994, "November 1993 Ground Water Sampling Event"	---
Pace, Inc.: August 12, 1993 "Report of Laboratory Analysis"	Performance Analytical, Inc.: March 2, 1994 and March 15, 1994, "Laboratory Reports"	---
Aquaterra, Inc.: "Building 016 Monthly Groundwater Sampling October 18, 1993 and January 6, 1994"	Trigon Engineering Consultants, Inc.: April 4, 1996, "Soil Vapor Monitoring Report"	---
Four Seasons Environmental Inc.: February 23, 1994, "Proposal of Sampling and Delineation of PCBs at Former Scrap Yard"	Law Engineering, Inc.: May 9, 1994, "Report of Air Emissions Monitoring (February, 1994)"	---
Law Environmental National Laboratories: March 14, 1994 "Chemical Analysis of Samples Received on 2/24/94"	Law Engineering, Inc.: October 19, 1994 "Report of Air Emissions Monitoring (August, 1994)"	---
Law Environmental National Laboratories: April, 1994 "Report of Groundwater Monitoring "	Trigon Engineering Consultants, Inc.: August 16, 1996, "Soil Vapor Monitoring Report"	---
Four Seasons, Environmental, Inc.: June 10, 1994, "Final Report PCB Delineation Operations Solid Waste Management Unit-22"	Trigon Engineering Consultants, Inc.: September 16, 1996, "Soil Vapor Monitoring Report"	---
Four Seasons Environmental, Inc.: November 3, 1994 "Final Report; Soil and Debris Removal Project: Solid Waste Management Unit 22"	Trigon Engineering Consultants, Inc.: November 22, 1996, "Soil Vapor Monitoring Report"	---
Geraghty and Miller, Inc.: December 1995,"Onsite SPL Landfill Boring Data, Alcoa Badin Works"	Trigon Engineering Consultants, Inc.: January 22, 1997, "Soil Vapor Monitoring Report"	---
Alcoa: January 1996, "Interim Measures Workplan, On-Site Landfill (SWMU #1) and Wet-Weather Run-On Diversion (SWMU #33)"	Geraghty and Miller, Inc.: April 1, 1997, "Constituent Flux Determination Aluminum Company of America North End Setting Badin Works Facility"	---

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Table 2-10

Past Investigations and Interim Measures Reports Previously Submitted to the Department

Alcoa Badin, NC Works RFI

Plant Area Reports	SWMU No. 2 (Alcoa/Badin Landfill) Reports	SWMU No. 3 (Old Brick Landfill) Reports
Geophex, Ltd.: April 1996, "Geophysical Survey Report"	Alcoa: April 1997, "Interim Measures Workplan, Alcoa-Badin Landfill (SWMU #2) Regrading and Cover System Installation"	---
Geraghty and Miller, Inc.: October 1996, "Findings of Soil Assessment Activities at Area of Concern B (AOC-B)"	Alcoa: May 1998, "Interim Measures Report, Alcoa-Badin Landfill (SWMU #2) Regrading and Cover System Installation"	---
Law Engineering and Environmental Services, Inc.: October 31, 1996 "CQA Report, On-Site Landfill Surface Water Control Improvements"	---	---
Geraghty and Miller, Inc.: November 1996, "Pine Tree Area Investigation"	---	---
Geraghty and Miller, Inc.: November 1996, "Constituent Flux Determination, North End Setting Badin Works Facility"	---	---
Alcoa: December 1996, "Interim Measures Report, On-Site Landfill and Wet Weather Run-on Diversion"	---	---
Geraghty and Miller, Inc.: February 1997, "Findings of Soil Assessment Activities at the Spent Potlining Landfill (SWMU #1) and Wet Weather Run-On Diversion (SWMU #33)"	---	---

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Table 2-11

Accelerated RFI Soil Investigation Summary

Alcoa Badin, NC Works RFI

Soil Investigation Location	Sample Location	Analytical Sample Designation	Sample Date	Sample Depth (ft-bgs)[a]	Sample Collection Method	Total CN [b]	Amenable CN[c]	Fl[d]	PCBs[e]
AOC-B	AOC-B-SS-9	SS(S)-9	3/1/96	0.0-1.0	Hand Auger	---[f]	---	---	X[g]
	AOC-B-SS-11	SS(S)-11	3/1/96	0.0-1.0	Hand Auger	---	---	---	X
	AOC-B-SS-12	SS(S)-12	3/1/96	0.0-1.0	Hand Auger	---	---	---	X
	AOC-B-SS-13	SS(S)-13	3/1/96	0.0-1.0	Hand Auger	---	---	---	X
	AOC-B-SS-14	SS(S)-14	3/1/96	0.0-1.0	Hand Auger	---	---	---	X
SWMU No. 22	SWMU#1 TP-14	SWMU#1 TP-14	2/29/96	2	Backhoe	X	X	X	---
SWMU No. 35	SWMU#1 TP-10	SWMU#1 TP-10	2/28/96	3.5	Backhoe	X	X	X	---
	SWMU#1 TP-11	SWMU#1 TP-11	2/28/96	5.5	Backhoe	X	X	X	---
	SWMU#1 TP-15	SWMU#1 TP-15	2/29/96	3	Backhoe	X	X	X	---
SWMU No. 44	PTG-SB-1	SB-1	7/15/96	18	HSA/SS	X	X	X	---
	PTG-SB-2	SB-2	7/16/96	15	HSA/SS[h]	X	X	X	---
	PTG-SB-3	SB-3	7/17/96	15	HSA/SS	X	X	X	---
	PTG-SB-4	SB-4	7/17/96	28	HSA/SS	X	X	X	---
	PTG-SB-5	SB-5	7/17/96	5	HSA/SS	X	X	X	---
	PTG-SB-6	SB-6	7/19/96	20	HSA/SS	X	X	X	---
	PTG-SB-7	SB-7	7/19/96	15	HSA/SS	X	X	X	---
SWMU GROUP 1 (SWMU Nos. 1, 4, and 33)	SWMU#1 SS-1	SWMU#1 SS-1	2/27/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-2	SWMU#1 SS-2	2/27/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-3	SWMU#1 SS-3	2/28/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-4	SWMU#1 SS-4	2/29/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-4(D)	SWMU#1 SS-4(D)	2/29/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-5	SWMU#1 SS-5	2/29/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 SS-6	SWMU#1 SS-6	2/29/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#1 TP-1	SWMU#1 TP-1	2/27/96	3.5	Backhoe	X	X	X	---
	SWMU#1 TP-2	SWMU#1 TP-2	2/27/96	3.5	Backhoe	X	X	X	---
	SWMU#1 TP-3	SWMU#1 TP-3	2/27/96	2.5	Backhoe	X	X	X	---
	SWMU#1 TP-4	SWMU#1 TP-4	2/27/96	4.5	Backhoe	X	X	X	---
	SWMU#1 TP-5	SWMU#1 TP-5	2/28/96	1.5	Backhoe	X	X	X	---
	SWMU#1 TP-6	SWMU#1 TP-6	2/28/96	2	Backhoe	X	X	X	---
	SWMU#1 TP-6(D)	SWMU#1 TP-6(D)	2/28/96	2	Backhoe	X	X	X	---
	SWMU#1 TP-7	SWMU#1 TP-7	2/28/96	8.5	Backhoe	X	X	X	---
	SWMU#1 TP-8	SWMU#1 TP-8	2/28/96	1.5	Backhoe	X	X	X	---
	SWMU#1 TP-9	SWMU#1 TP-9	2/28/96	3.5	Backhoe	X	X	X	---
	SWMU#1 TP-12	SWMU#1 TP-12	2/28/96	3	Backhoe	X	X	X	---
	SWMU#1 TP-13	SWMU#1 TP-13	2/29/96	3.5	Backhoe	X	X	X	---
	SWMU#4 SS-1	SWMU#4 SS-1	2/26/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#4 SS-2	SWMU#4 SS-2	2/26/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#4 SS-3	SWMU#4 SS-3	2/26/96	0.0-0.5	Hand Auger	X	X	X	---
	SWMU#4 SS-4	SWMU#4 SS-4	2/26/96	0.0-0.5	Hand Auger	X	X	X	---

Notes:

(a) ft-bgs = feet below ground surface
(b) Total CN = Total Cyanide
(c) Amenable CN = Amenable Cyanide
(d) Fl = Fluoride
(e) PCBs = Polychlorinated biphenyls
(f) --- = not analyzed for indicated parameter
(g) X = analyzed for indicated parameter
(h) HSA/SS = Hollow-stem auger/split spoon

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Table 3-1

Constituent Specific Parameters Used to Develop Default SSLs

Alcoa Badin, NC Works RFI

Constituent	CW[a]		Koc[b]	Kd[c] (Default)	Kd (Site-Specific)	H[d]	H'[d]
	(mg/L)	Source	(L/kg)	(L/kg)		(atm-m^3/mol)	(dimensionless)
Inorganics							
Arsenic	0.05	NC 2L	NA(e)	29	NA	NA	NA
Barium	2	NC 2L	NA	41	NA	NA	NA
Cadmium	0.005	NC 2L	NA	75	NA	NA	NA
Chromium	0.05	NC 2L	NA	1800000	NA	NA	NA
Copper	1	NC 2L	NA	360	NA	NA	NA
Cyanide	0.154	NC 2L	NA	9.9	NA	NA	NA
Lead	0.015	NC 2L	NA	890	NA	NA	NA
Mercury	0.0011	NC 2L	NA	52	NA	NA	NA
Nickel	0.1	NC 2L	NA	65	NA	NA	NA
Selenium	0.05	NC 2L	NA	5	NA	NA	NA
Silver	0.018	NC 2L	NA	8.3	NA	NA	NA
Thallium	0.0005	NC 2L	NA	71	NA	NA	NA
Vanadium	0.26	NC 2L	NA	1000	NA	NA	NA
Zinc	2.1	NC 2L	NA	62	NA	NA	NA
Organics							
1,1-Dichloroethene	0.007	NC 2L	58.9	0.0589	0.30039	2.61E-02	1.07E+00
1,1,1-Trichloroethane	0.2	NC 2L	110	0.11	0.561	1.72E-02	7.05E-01
2-Butanone (MEK)	0.17	NC 2L	32	0.032	0.1632	5.14E-05	2.11E-03
2-Hexanone	0.28	NC 2L	14.8	0.0148	0.07548	3.78E-05	1.55E-03
2-Methylnaphthalene	0.028	NC 2L	7940	7.94	40.494	3.31E-04	1.36E-02
4-Methylphenol	0.0035	NC 2L	17	0.017	0.0867	2.37E-07	9.72E-06
Acenaphthene	0.08	NC 2L	7080	7.08	36.108	1.55E-04	6.36E-03
Acetone	0.7	NC 2L	0.575	0.000575	0.0029325	3.88E-05	1.59E-03
Anthracene	2.1	NC 2L	29500	29.5	150.45	6.51E-05	2.67E-03
Benzene	0.001	NC 2L	58.9	0.0589	0.30039	5.56E-03	2.28E-01
Benzo(a)anthracene	0.00005	NC 2L	398000	398	2029.8	3.34E-06	1.37E-04
Benzo(a)pyrene	0.0000047	NC 2L	1020000	1020	5202	1.13E-06	4.63E-05
Benzo(b)fluoranthene	0.000047	NC 2L	1230000	1230	6273	1.11E-04	4.55E-03
Benzo(k)fluoranthene	0.00047	NC 2L	1230000	1230	6273	8.29E-07	3.40E-05
Benzo(g,h,i)perylene	0.21	NC 2L	1600000	1600	8160	1.25E-07	5.13E-06
bis(2-Chloroethyl)ether	0.000031	NC 2L	16	0.0155	0.07905	1.80E-05	7.38E-04
bis(2-Ethylhexyl) phthalate	0.003	NC 2L	15100000	15100	77010	1.02E-07	4.18E-06
Carbon Disulfide	0.7	NC 2L	46	0.0457	0.23307	3.02E-02	1.24E+00
Carbon Tetrachloride	0.0003	NC 2L	174	0.174	0.8874	3.05E-02	1.25E+00
Chlorobenzene	0.05	NC 2L	219	0.219	1.1169	3.71E-03	1.52E-01
Chloromethane	0.0026	NC 2L	5.5	0.0055	0.02805	9.90E-03	4.06E-01
Chrysene	0.005	NC 2L	398000	398	2029.8	9.46E-05	3.88E-03
cis-1,2-Dichloroethene	0.07	NC 2L	35.5	0.0355	0.18105	4.07E-03	1.67E-01
Dibenzofuran	0.028	NC 2L	9120	9.12	46.512	7.45E-07	3.05E-05
Dibenz(a,h)anthracene	0.0000047	NC 2L	3800000	3800	19380	1.47E-08	6.03E-07
di-n-Butyl phthalate	0.7	NC 2L	33900	33.9	172.89	9.39E-10	3.85E-08
Ethylbenzene	0.029	NC 2L	363	0.363	1.8513	7.88E-03	3.23E-01
Fluoranthene	0.28	NC 2L	107000	107	545.7	1.61E-05	6.60E-04
Fluorene	0.28	NC 2L	13800	13.8	70.38	6.37E-05	2.61E-03
Indeno(1,2,3-cd)pyrene	0.000047	NC 2L	3470000	3470	17697	1.60E-06	6.56E-05
Methylene Chloride	0.005	NC 2L	11.7	0.0117	0.05967	2.19E-03	8.98E-02
Naphthalene	0.021	NC 2L	2000	2	10.2	4.83E-04	1.98E-02
Phenanthrene	0.21	NC 2L	14000	14	71.4	3.90E-05	1.60E-03
Phenol	0.3	NC 2L	28.8	0.0288	0.14688	3.98E-07	1.63E-05
Pyrene	0.21	NC 2L	105000	105	535.5	1.10E-05	4.51E-04
Styrene	0.1	NC 2L	776	0.776	3.9576	2.76E-03	1.13E-01
Tetrachloroethene	0.0007	NC 2L	155	0.155	0.7905	1.84E-02	7.54E-01
Toluene	1	NC 2L	182	0.182	0.9282	6.63E-03	2.72E-01
Trichloroethene	0.0028	NC 2L	166	0.166	0.8466	1.03E-02	4.22E-01
Trichloromethane	0.00019	NC 2L	39.8	0.0398	0.20298	3.66E-03	1.50E-01
Trichlorofluoromethane (Freon 11)	2.1	NC 2L	159	0.159	0.8109	5.81E-02	2.39E+00
m+p-Xylene	0.53	NC 2L	407	0.407	2.0757	7.34E-03	3.01E-01
o-Xylene	0.53	NC 2L	363	0.363	1.8513	5.20E-03	2.13E-01

Notes:

[a]Cw = target groundwater concentration (milligrams/liter)

[b]Koc = soil-organic carbon partition coefficient (liters/kilogram)

[c]Kd = soil-water partition coefficient (liters/kilograms)

[d]H, H' = Henry's Law constant (atmosphere - cubic meters/moles)

[e]NA = not applicable

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Table 3-2

Preliminary Exposure Analysis of SWMUs/AOCs

Alcoa Badin, NC Works RFI

SWMU/AOC	Potentially Affected Media	Exposure Setting	Potential Receptors
SWMU Group 1 [a]	Subsurface Soil	Within Plant fence; capped area; not an active production area; no complete exposure pathways	None
SWMU No. 22	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker,
SWMU No. 25	Subsurface Soil	Contact only through digging	Future Construction Worker
SWMU No. 35	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-genèration of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
SWMU No. 44	Surface Soil	Outside of Plant fence but on Alcoa property; no industrial activities	Trespasser
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	No complete exposure pathways	None
North End Groundwater [b]	Groundwater	No complete exposure pathways	None
SWMU No. 11	Surface Soil	Within Plant fence; not an active production area, but near a production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None

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Table 3-2

Preliminary Exposure Analysis of SWMUs/AOCs

Alcoa Badin, NC Works RFI

SWMU/AOC	Potentially Affected Media	Exposure Setting	Potential Receptors
SWMU No. 38	Surface Soil	Within Plant fence; not an active production area, but near a production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None
SWMU No. 42	Groundwater	No complete exposure pathways; no migration	None
SWMU No. 43	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None
SWMU No. 46	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None
AOC-A	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None

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Table 3-2

Preliminary Exposure Analysis of SWMUs/AOCs

Alcoa Badin, NC Works RFI

SWMU/AOC	Potentially Affected Media	Exposure Setting	Potential Receptors
AOC-B	Surface Soil	Within Plant fence; not an active production area	Current Infrequent Worker, Future Full-time Industrial Worker
	Air	Wind-generation of COIs in surface soil particulates, volatile COIs released from soil	On-site Worker Receptors, Off-site Residential Receptors (Adult and Child)
	Subsurface Soil	Contact only through digging	Future Construction Worker
	Groundwater	No complete exposure pathways	None
Badin Lake - Plant area	Surface Water	Recreational swimming	Swimmer, Adult and Child
	Sediment	Recreational swimming	Swimmer, Adult and Child
SWMU No. 2	Subsurface Soil	Fenced, capped landfill, no complete exposure pathways	None
	Perimeter Surface Soil (potential pre-cap migration)	Within SWMU fence	Infrequent Worker, Trespasser
Little Mountain Creek	Surface Water	Hiking, playing	Hiker, Adult and Adolescent child
	Sediment	Hiking, playing	Hiker, Adult and Adolescent child
SWMU No. 3	Subsurface Soil	Fenced, capped landfill, no complete exposure pathways	None
	Perimeter Surface Soil (potential pre-cap migration)	Outside of SWMU fence on Alcoa property; SWMU 3 is located away from the Plant.	Hiker/Trespasser, Adult and Adolescent Child
Badin Lake - OBL area	Surface Water	Hiking, incidental contact	Hiker, Adult and Adolescent Child
	Sediment	Hiking, incidental contact	Hiker, Adult and Adolescent Child

[a] SWMUs No. 1, 4, and 33

[b] Groundwater in North End of Plant evaluated as a single unit.

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Table 4-1

Topographic Map Fracture Trace Summary

Alcoa-Badin, NC Works RFI

Range (Degrees)	Number of Occurances	Percentage
N0-9E	14	6.3
N10-19E	8	3.6
N20-29E	29	12.9
N30-39E	22	9.8
N40-49E	26	11.6
N50-59E	16	7.1
N60-69E	11	4.9
N70-79E	10	4.5
N80-90E	7	3.1
N0-9W	9	4.0
N10-19W	14	6.3
N20-29W	9	4.0
N30-39W	9	4.0
N40-49W	8	3.6
N50-59W	11	4.9
N60-69W	4	1.8
N70-79W	10	4.5
N80-90W	7	3.1
Total	224	100

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Table 4-2

Field Fracture Measurement Summary

Alcoa Badin, NC Works RFI

Range (Degrees)	Number of Occurances	Percentage
N0-9E	4	3.0
N10-19E	3	2.2
N20-29E	5	3.7
N30-39E	8	6.0
N40-49E	25	18.7
N50-59E	11	8.2
N60-69E	12	9.0
N70-79E	4	3.0
N80-90E	9	6.7
N0-9W	5	3.7
N10-19W	7	5.2
N20-29W	9	6.7
N30-39W	3	2.2
N40-49W	5	3.7
N50-59W	12	9.0
N60-69W	3	2.2
N70-79W	7	5.2
N80-90W	2	1.5
Total	134	100

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA01-0.0-0.5	NE-HA01-0.5-2.0	NE-HA02-0.0-0.5	NE-HA02-0.5-0.9	NE-HA03-0.0-0.5	NE-HA03-0.0-0.5D	NE-HA03-0.5-2.0	NE-HA04-0.0-0.5	NE-HA04-0.5-2.0
Sample Depth (ft-bgs)[a]	0.0-0.5	0.5-2.0	0.0-0.5	0.5-0.9	0.0-0.5	Duplicate	0.5-2.0	0.0-0.5	0.5-2.0
Parameter									
Inorganics (mg/kg)[b]									
Fluoride	7.10	7.30	5.00	3.00	3.20	3.1	2.00	2.90	< 0.63
Cyanide, Free (Weak Acid Dissociable)	< 3.2[c]	< 3.1	< 3.5	< 3.1	< 3.1	<3.1	< 3.1	< 3.1	< 3.2
Cyanide, Total	3.40	< 3.1	< 3.5	< 3.1	< 3.1	<3.1	< 3.1	< 3.1	< 3.2
Arsenic	9.90	13.80	7.20	12.10	14.40	9.4	14.60	18.50	20.80
Barium	116.00	41.60	111.00	59.20	75.40	84.6	49.70	68.00	< 101
Cadmium	< 0.25	< 0.24	< 0.28	< 0.25	< 0.25	<0.25	< 0.25	< 0.25	< 1
Chromium	22.30	43.10	13.30	14.20	45.80	28.5	30.40	23.30	40.60
Lead	63.90	21.60	35.60	24.60	17.10	17.2	12.60	34.70	19.60
Selenium	0.80	1.50	< 0.71	< 0.62	1.40	1.3	1.30	< 0.62	< 2.5
Mercury	< 0.13	< 0.12	< 0.14	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.13
VOCs[d] (mg/kg)									
1,1,1,2-Tetrachloroethane	NA[c]	NA	NA	NA	NA	N/A	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	N/A	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	N/A	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Benzene	NA		NA	NA	NA	N/A	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Chloroprene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	N/A	NA	NA	NA

Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA01-0.0-0.5	NE-HA01-0.5-2.0	NE-HA02-0.0-0.5	NE-HA02-0.5-0.9	NE-HA03-0.0-0.5	NE-HA03-0.0-0.5D	NE-HA03-0.5-2.0	NE-HA04-0.0-0.5	NE-HA04-0.5-2.0
Sample Depth (ft-bgs)[a]	0.0-0.5	0.5-2.0	0.0-0.5	0.5-0.9	0.0-0.5	Duplicate	0.5-2.0	0.0-0.5	0.5-2.0
Parameter									
Dibromochloromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Dichloromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Ethyl Methacrylate	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Trichloroethylene	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	N/A	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	N/A	NA	NA	NA
SVOCs[f] (mg/kg)									
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA01-0.0-0.5	NE-HA01-0.5-2.0	NE-HA02-0.0-0.5	NE-HA02-0.5-0.9	NE-HA03-0.0-0.5	NE-HA03-0.0-0.5D	NE-HA03-0.5-2.0	NE-HA04-0.0-0.5	NE-HA04-0.5-2.0
Sample Depth (ft-bgs)[a]	0.0-0.5	0.5-2.0	0.0-0.5	0.5-0.9	0.0-0.5	Duplicate	0.5-2.0	0.0-0.5	0.5-2.0
Parameter									
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (O-Cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (P-Cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-Oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-O-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(A)Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
A,A-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.47	< 0.4	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Acenaphthylene	0.45	< 0.4	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1.5	0.68	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(B)Fluoranthene	4.8	1.3	0.94	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Benzo(A)Anthracene	5.4	1.8	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Benzo(A)Pyrene	4.8	1.5	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Benzo(G,H,I)Perylene	2.6	0.67	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Benzo(K)Fluoranthene	4.5	1.5	0.7	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	5.2	1.7	0.68	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.42
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)Anthracene	1.1	< 0.4	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA01-0.0-0.5	NE-HA01-0.5-2.0	NE-HA02-0.0-0.5	NE-HA02-0.5-0.9	NE-HA03-0.0-0.5	NE-HA03-0.0-0.5D	NE-HA03-0.5-2.0	NE-HA04-0.0-0.5	NE-HA04-0.5-2.0
Sample Depth (ft-bgs)[a]	0.0-0.5	0.5-2.0	0.0-0.5	0.5-0.9	0.0-0.5	Duplicate	0.5-2.0	0.0-0.5	0.5-2.0
Parameter									
Diethyl Phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butyl Phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dinoseb	NA	NA	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	8.6	3.2	0.52	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Fluorene	0.62	< 0.4	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	2.6	0.76	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	< 0.42	< 0.4	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-N-Butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-Di-N-Propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	NE-HA01-0.0-0.5 0.0-0.5	NE-HA01-0.5-2.0 0.5-2.0	NE-HA02-0.0-0.5 0.0-0.5	NE-HA02-0.5-0.9 0.5-0.9	NE-HA03-0.0-0.5 0.0-0.5	NE-HA03-0.0-0.5D Duplicate	NE-HA03-0.5-2.0 0.5-2.0	NE-HA04-0.0-0.5 0.0-0.5	NE-HA04-0.5-2.0 0.5-2.0
Phenanthrene	4.9	2.1	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-Phenylene Diamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	6.3	2	< 0.47	< 0.41	< 0.41	<0.41	< 0.41	< 0.41	< 0.42
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = Volatile Organic Compounds.

[e] NA = Not Analyzed.

[f] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	NE-HA05-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5D 0.0-0.5	S2-HA03-0.0-0.5R 0.0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0.0-0.5 0.0-0.5	S2-HA04-0.5-2.0 0.5-2.0	S2-HA05-0.0-0.5 0.0-0.5
Inorganics (mg/kg)[b]									
Fluoride	2.50	< 0.61	< 0.6	NA	< 0.63	NA	< 0.6	< 0.6	1.20
Cyanide, Free (Weak Acid Dissociable)	< 3	< 3.1	< 3	NA	< 3.1	NA	< 3	< 3	< 3.2
Cyanide, Total	< 3	< 3.1	< 3	NA	< 3.1	NA	< 3	< 3	< 3.2
Arsenic	8.20	12.20	12.2	NA	15.70	NA	7.80	2.30	19.10
Barium	88.10	50.40	51.6	NA	29.90	NA	< 23.9	< 24.1	76.90
Cadmium	< 0.24	< 0.24	< 0.24	NA	< 0.25	NA	< 0.24	< 0.24	< 0.51
Chromium	17.60	22.60	25.3	NA	24.00	NA	19.80	14.50	45.90
Lead	25.10	11.70	12.3	NA	13.40	NA	24.40	17.30	31.80
Selenium	1.20	1.00	1.2	NA	1.10	NA	1.10	< 0.6	< 1.3
Mercury	< 0.12	< 0.12	< 0.12	NA	< 0.13	NA	< 0.12	< 0.12	< 0.13
VOCs[d] (mg/kg)									
1,1,1,2-Tetrachloroethane	NA	< 0.0062	< 0.0062	< 0.0061	<0.0063	< 0.0063	< 0.006	< 0.006	NA
1,1,1-Trichloroethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,1,2,2-Tetrachloroethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,1,2-Trichloroethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,1-Dichloroethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,1-Dichloroethene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	0.0069	< 0.006	NA
1,2,3-Trichloropropane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,2-Dibromo-3-Chloropropane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
1,2-Dibromoethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,2-Dichloroethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,2-Dichloropropane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
1,4-Dioxane	NA	< 0.62	< 0.62	< 0.61	< 0.63	< 0.63	< 0.6	< 0.6	NA
2-Butanone	NA	< 0.025	< 0.025	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024	NA
2-Hexanone	NA	< 0.025	< 0.025	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024	NA
4-Methyl-2-Pentanone	NA	< 0.025	< 0.025	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024	NA
Acetone	NA	0.038	0.071	0.032	< 0.025	< 0.025	0.062	< 0.024	NA
Acetonitrile	NA	< 0.12	< 0.12	< 0.12	< 0.13	< 0.13	< 0.12	< 0.12	NA
Acrolein	NA	< 0.12	< 0.12	< 0.12	< 0.13	< 0.13	< 0.12	< 0.12	NA
Acrylonitrile	NA	< 0.12	< 0.12	< 0.12	< 0.13	< 0.13	< 0.12	< 0.12	NA
Allyl Chloride	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Benzene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Bromodichloromethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Bromoform	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Bromomethane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Carbon Disulfide	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Carbon Tetrachloride	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Chlorobenzene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Chloroethane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Chloroform	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Chloromethane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Chloroprene	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Cis-1,3-Dichloropropene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA05-0.0-0.5	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5D	S2-HA03-0.0-0.5R	S2-HA03-0.5-2.0	S2-HA03-0.5-2.0R	S2-HA04-0.0-0.5	S2-HA04-0.5-2.0	S2-HA05-0.0-0.5
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter									
Dibromochloromethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Dibromomethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Dichlorodifluoromethane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Dichloromethane	NA	0.011	0.0092	< 0.0061	0.0075	< 0.0063	0.0076	< 0.006	NA
Ethyl Methacrylate	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Ethylbenzene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Iodomethane	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	0.0064	< 0.006	NA
Isobutyl Alcohol	NA	< 0.25	< 0.25	< 0.24	< 0.25	< 0.25	< 0.24	< 0.24	NA
Methacrylonitrile	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Methyl Methacrylate	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Propionitrile	NA	< 0.025	< 0.025	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024	NA
Styrene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Tetrachloroethene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Toluene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Trans-1,2-Dichloroethene	NA	< 0.0031	< 0.0031	< 0.003	< 0.0032	< 0.0031	< 0.003	< 0.003	NA
Trans-1,3-Dichloropropene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Trans-1,4-Dichloro-2-Butene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Trichloroethylene	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Trichlorofluoromethane	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Vinyl Acetate	NA	< 0.012	< 0.012	< 0.012	< 0.013	< 0.013	< 0.012	< 0.012	NA
Vinyl Chloride	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
Xylene (Total)	NA	< 0.0062	< 0.0062	< 0.0061	< 0.0063	< 0.0063	< 0.006	< 0.006	NA
SVOCs[f] (mg/kg)									
1,2,4,5-Tetrachlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,2,4-Trichlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,2-Dichlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,3-Dichlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,4-Dichlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,3,5-Trinitrobenzene	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
1,3-Dinitrobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
1,4-Naphthoquinone	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
1-Naphthylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2,3,4,6-Tetrachlorophenol	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
2,4,5-Trichlorophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.39	NA
2,4,6-Trichlorophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2,4-Dichlorophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2,4-Dimethylphenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.39	NA
2,4-Dinitrophenol	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
2,4-Dinitrotoluene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2,6-Dichlorophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2,6-Dinitrotoluene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Acetylaminofluorene	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
2-Chloronaphthalene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Chlorophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	NE-HA05-0.0-0.5	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5D	S2-HA03-0.0-0.5R	S2-HA03-0.5-2.0	S2-HA03-0.5-2.0R	S2-HA04-0.0-0.5	S2-HA04-0.5-2.0	S2-HA05-0.0-0.5
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter									
2-Methyl-4,6-Dinitrophenol	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
2-Methylnaphthalene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Methylphenol (O-Cresol)	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Naphthylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Nitroaniline	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
2-Nitrophenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
2-Picoline	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
3,3'-Dichlorobenzidine	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
3,3'-Dimethylbenzidine	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
3-Methylcholanthrene	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
3-Nitroaniline	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
4-Aminobiphenyl	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
4-Bromophenyl Phenyl Ether	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
4-Chloro-3-Methylphenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
4-Chloroaniline	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
4-Chlorophenyl Phenyl Ether	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
4-Methylphenol (P-Cresol)	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
4-Nitrophenol	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
4-Nitroquinoline-1-Oxide	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
5-Nitro-O-Toluidine	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
7,12-Dimethylbenz(A)Anthracene	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
A,A-Dimethylphenethylamine	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Acenaphthene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Acenaphthylene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Acetophenone	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Aniline	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Anthracene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Aramite	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Benz(B)Fluoranthene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Benzo(A)Anthracene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Benzo(A)Pyrene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Benzo(G,H,I)Perylene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Benzo(K)Fluoranthene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Benzyl Alcohol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Benzyl Butyl Phthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Bis(2-Chloroethoxy)Methane	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Bis(2-Chloroethyl)Ether	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Bis(2-Chloroisopropyl)Ether	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Bis(2-Ethylhexyl)Phthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Chlorobenzilate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Chrysene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Diallate	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Dibenzo(A,H)Anthracene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Dibenzofuran	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	NE-HA05-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5D 0.0-0.5	S2-HA03-0.0-0.5R 0.0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0.0-0.5 0.0-0.5	S2-HA04-0.5-2.0 0.5-2.0	S2-HA05-0.0-0.5 0.0-0.5
Diethyl Phthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Dimethoate	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Dimethyl Phthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Di-N-Butyl Phthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Di-N-Octylphthalate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Dinoseb	NA	< 0.00033	< 0.79	NA	< 0.00033	NA	< 0.00033	< 0.8	NA
Disulfoton	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Ethyl Methanesulfonate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Famphur	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
Fluoranthene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Fluorene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Hexachlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Hexachlorobutadiene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Hexachlorocyclopentadiene	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Hexachloroethane	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Hexachlorophene	NA	<	<	NA	<	NA	<	<	NA
Hexachloropropene	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
Indeno(1,2,3-Cd)Pyrene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Isodrin	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Isosafrole	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Kepone	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
Methapyrilene	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Methyl Methanesulfonate	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Methyl Parathion	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Naphthalene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Nitrobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosodiethylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosodimethylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosodi-N-Butylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitroso-Di-N-Propylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosodiphenylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosomethylethylamine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosomorpholine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosopiperidine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
N-Nitrosopyrrolidine	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
O,O,O-Triethyl Phosphorothioate	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
O-Toluidine	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Parathion	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
P-Dimethylaminoazobenzene	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Pentachlorobenzene	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Pentachloroethane	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Pentachloronitrobenzene	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Pentachlorophenol	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Phenacetin	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	NE-HA05-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5 0.0-0.5	S2-HA03-0.0-0.5D 0.0-0.5	S2-HA03-0.0-0.5R 0.0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0.0-0.5 0.0-0.5	S2-HA04-0.5-2.0 0.5-2.0	S2-HA05-0.0-0.5 0.0-0.5
Phenanthrene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Phenol	NA	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	NA
Phorate	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
P-Nitroaniline	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
P-Phenylene Diamine	NA	< 4	< 3.9	NA	< 4.2	NA	< 3.9	< 4	NA
Pronamide	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Pyrene	< 0.39	< 0.4	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4	< 0.42
Pyridine	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Safrole	NA	< 0.81	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8	NA
Tetraethyldithiopyrophosphate	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA
Thionazin	NA	< 2	< 1.9	NA	< 2	NA	< 1.9	< 1.9	NA

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = Volatile Organic Compounds.

[e] NA = Not Analyzed.

[f] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0	S3-HA01-0.0-0.5	S3-HA01-0.5-2.0	S3-HA02-0.0-0.5
Sample Depth (ft-bgs)[a]	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter						
Inorganics (mg/kg)[b]						
Fluoride	< 0.6	1.20	7.20	2.1	< 0.66	1.9
Cyanide, Free (Weak Acid Dissociable)	< 3	< 3.1	< 3.1	< 3.4	< 3.3	< 3.3
Cyanide, Total	< 3	< 3.1	< 3.1	< 3.4	< 3.3	5.30
Arsenic	33.60	18.80	18.00	47.10	64.00	51.60
Barium	81.40	167.00	262.00	34.60	< 26.4	68.50
Cadmium	< 0.24	< 0.99	< 1	< 0.27	< 0.26	< 0.26
Chromium	26.20	33.90	35.60	50.60	46.90	32.50
Lead	27.60	179.00	239.00	9.70	6.00	5.50
Selenium	< 0.6	< 2.5	< 2.5	0.89	1.20	< 0.66
Mercury	< 0.12	< 0.12	< 0.13	< 0.13	< 0.13	< 0.13
VOCs[d] (mg/kg)						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA
Chloroprene	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA

Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0	S3-HA01-0.0-0.5	S3-HA01-0.5-2.0	S3-HA02-0.0-0.5
Sample Depth (ft-bgs)[a]	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter						
Dibromochloromethane	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Dichloromethane	NA	NA	NA	NA	NA	NA
Ethyl Methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA	NA
Trichloroethylene	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	NA
SVOCs[f] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0	S3-HA01-0.0-0.5	S3-HA01-0.5-2.0	S3-HA02-0.0-0.5
Sample Depth (ft-bgs)[a]	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter						
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylphenol (O-Cresol)	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA
4-Methylphenol (P-Cresol)	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-Oxide	NA	NA	NA	NA	NA	NA
5-Nitro-O-Toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(A)Anthracene	NA	NA	NA	NA	NA	NA
A,A-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
Acenaphthene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Acenaphthylene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Acetophenone	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA
Anthracene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Aramite	NA	NA	NA	NA	NA	NA
Benz(B)Fluoranthene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Benzo(A)Anthracene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Benzo(A)Pyrene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Benzo(G,H,I)Perylene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Benzo(K)Fluoranthene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Benzyl Alcohol	NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA
Chrysene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Diallate	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)Anthracene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Dibenzofuran	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0	S3-HA01-0.0-0.5	S3-HA01-0.5-2.0	S3-HA02-0.0-0.5
Sample Depth (ft-bgs)[a]	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter						
Diethyl Phthalate	NA	NA	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA	NA	NA
Di-N-Butyl Phthalate	NA	NA	NA	NA	NA	NA
Di-N-Octylphthalate	NA	NA	NA	NA	NA	NA
Dinoseb	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA
Fluoranthene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Fluorene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Hexachlorobenzene	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Isodrin	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl Methanesulfonate	NA	NA	NA	NA	NA	NA
Methyl Parathion	NA	NA	NA	NA	NA	NA
Naphthalene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Nitrobenzene	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodi-N-Butylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-Di-N-Propylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA	NA	NA
O-Toluidine	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA
P-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0	S3-HA01-0.0-0.5	S3-HA01-0.5-2.0	S3-HA02-0.0-0.5
Sample Depth (ft-bgs)[a]	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5	0.5-2.0	0.0-0.5
Parameter						
Phenanthrene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Phenol	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA
P-Nitroaniline	NA	NA	NA	NA	NA	NA
P-Phenylene Diamine	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA
Pyrene	< 0.4	< 0.41	< 0.41	< 0.44	< 0.44	< 0.44
Pyridine	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = Volatile Organic Compounds.

[e] NA = Not Analyzed.

[f] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S3-HA02-0.5-1.7	S3-HA03-0.0-0.5	S3-HA03-0.0-0.5R	S3-HA03-0.5-2.0	S3-HA03-0.5-2.0R	S3-HA06-0.0-0.5	S3-HA06-0.0-0.5D	S3-HA06-0.0-0.5R	S3-HA06-0.5-2.0
Sample Depth (ft-bgs)[a]	0.5-1.7	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0
Parameter									
Inorganics (mg/kg)[b]									
Fluoride	< 0.64	1.5	NA	< 0.63	NA	1.2	< 0.66	NA	< 0.67
Cyanide, Free (Weak Acid Dissociable)	< 3.2	< 3	NA	< 3.1	NA	< 3.4	< 3.3	NA	< 3.4
Cyanide, Total	< 3.2	< 3	NA	< 3.1	NA	< 3.4	< 3.3	NA	< 3.4
Arsenic	59.20	57.8	NA	72.7	NA	28.50	24.20	NA	36.30
Barium	43.30	81.2	NA	55.2	NA	75.80	102.00	NA	37.50
Cadmium	< 0.26	< 0.24	NA	< 0.25	NA	< 0.27	< 0.26	NA	< 0.27
Chromium	31.80	30.9	NA	40.3	NA	63.20	58.90	NA	96.40
Lead	4.80	11.9	NA	8	NA	12.00	14.70	NA	12.30
Selenium	0.97	< 0.61	NA	1.8	NA	1.90	< 0.66	NA	< 0.67
Mercury	< 0.13	< 0.12	NA	< 0.13	NA	< 0.14	< 0.13	NA	< 0.13
VOCs[d] (mg/kg)									
1,1,1,2-Tetrachloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,1,1-Trichloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,1,2,2-Tetrachloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,1,2-Trichloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,1-Dichloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,1-Dichloroethene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,2,3-Trichloropropane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,2-Dibromo-3-Chloropropane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
1,2-Dibromoethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,2-Dichloroethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,2-Dichloropropane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
1,4-Dioxane	NA	< 0.61	< 0.63	< 0.63	< 0.62	< 0.68	< 0.66	< 0.68	< 0.67
2-Butanone	NA	0.052	< 0.025	< 0.025	< 0.025	< 0.027	0.028	< 0.027	< 0.027
2-Hexanone	NA	< 0.024	< 0.025	< 0.025	< 0.025	< 0.027	< 0.026	< 0.027	< 0.027
4-Methyl-2-Pentanone	NA	< 0.024	< 0.025	< 0.025	< 0.025	< 0.027	< 0.026	< 0.027	< 0.027
Acetone	NA	< 1.2	0.21	0.16	0.00021	0.13	< 1.3	0.12	0.075
Acetonitrile	NA	< 0.12	< 0.13	< 0.13	< 0.12	< 0.14	< 0.13	< 0.14	< 0.13
Acrolein	NA	< 0.12	< 0.13	< 0.13	< 0.12	< 0.14	< 0.13	< 0.14	< 0.13
Acrylonitrile	NA	< 0.12	< 0.13	< 0.13	< 0.12	< 0.14	< 0.13	< 0.14	< 0.13
Allyl Chloride	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Benzene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Bromodichloromethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Bromoform	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Bromomethane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Carbon Disulfide	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Carbon Tetrachloride	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Chlorobenzene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Chloroethane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Chloroform	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Chloromethane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Chloroprene	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Cis-1,3-Dichloropropene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S3-HA02-0.5-1.7	S3-HA03-0.0-0.5	S3-HA03-0.0-0.5R	S3-HA03-0.5-2.0	S3-HA03-0.5-2.0R	S3-HA06-0.0-0.5	S3-HA06-0.0-0.5D	S3-HA06-0.0-0.5R	S3-HA06-0.5-2.0
Sample Depth (ft-bgs)[a]	0.5-1.7	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0
Parameter									
Dibromochloromethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Dibromomethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Dichlorodifluoromethane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Dichloromethane	NA	0.01	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Ethyl Methacrylate	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Ethylbenzene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Iodomethane	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Isobutyl Alcohol	NA	< 0.24	< 0.25	< 0.25	< 0.25	< 0.27	< 0.26	< 0.27	< 0.27
Methacrylonitrile	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Methyl Methacrylate	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Propionitrile	NA	< 0.024	< 0.025	< 0.025	< 0.025	< 0.027	< 0.026	< 0.027	< 0.027
Styrene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Tetrachloroethene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Toluene	NA	0.045	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Trans-1,2-Dichloroethene	NA	< 0.003	< 0.0032	< 0.0031	< 0.0031	< 0.0034	< 0.0033	< 0.0034	< 0.0034
Trans-1,3-Dichloropropene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Trans-1,4-Dichloro-2-Butene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Trichloroethylene	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Trichlorofluoromethane	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Vinyl Acetate	NA	< 0.012	< 0.013	< 0.013	< 0.012	< 0.014	< 0.013	< 0.014	< 0.013
Vinyl Chloride	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
Xylene (Total)	NA	< 0.0061	< 0.0063	< 0.0063	< 0.0062	< 0.0068	< 0.0066	< 0.0068	< 0.0067
SVOCs[b] (mg/kg)									
1,2,4,5-Tetrachlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,2,4-Trichlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,2-Dichlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,3-Dichlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,4-Dichlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,3,5-Trinitrobenzene	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
1,3-Dinitrobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
1,4-Naphthoquinone	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
1-Naphthylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,3,4,6-Tetrachlorophenol	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
2,4,5-Trichlorophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,4,6-Trichlorophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,4-Dichlorophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,4-Dimethylphenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,4-Dinitrophenol	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
2,4-Dinitrotoluene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,6-Dichlorophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2,6-Dinitrotoluene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Acetylaminofluorene	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
2-Chloronaphthalene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Chlorophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S3-HA02-0.5-1.7	S3-HA03-0.0-0.5	S3-HA03-0.0-0.5R	S3-HA03-0.5-2.0	S3-HA03-0.5-2.0R	S3-HA06-0.0-0.5	S3-HA06-0.0-0.5D	S3-HA06-0.0-0.5R	S3-HA06-0.5-2.0
Sample Depth (ft-bgs)[a]	0.5-1.7	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0
Parameter									
2-Methyl-4,6-Dinitrophenol	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
2-Methylnaphthalene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Methylphenol (O-Cresol)	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Naphthylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Nitroaniline	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
2-Nitrophenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
2-Picoline	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
3,3'-Dichlorobenzidine	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
3,3'-Dimethylbenzidine	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
3-Methylcholanthrene	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
3-Nitroaniline	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
4-Aminobiphenyl	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
4-Bromophenyl Phenyl Ether	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
4-Chloro-3-Methylphenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
4-Chloroaniline	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
4-Chlorophenyl Phenyl Ether	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
4-Methylphenol (P-Cresol)	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
4-Nitrophenol	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
4-Nitroquinoline-1-Oxide	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
5-Nitro-O-Toluidine	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
7,12-Dimethylbenz(A)Anthracene	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
A,A-Dimethylphenethylamine	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Acenaphthene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Acenaphthylene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Acetophenone	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Aniline	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Anthracene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Aramite	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Benz(B)Fluoranthene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzo(A)Anthracene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzo(A)Pyrene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzo(G,H,I)Perylene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzo(K)Fluoranthene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzyl Alcohol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Benzyl Butyl Phthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Bis(2-Chloroethoxy)Methane	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Bis(2-Chloroethyl)Ether	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Bis(2-Chloroisopropyl)Ether	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Bis(2-Ethylhexyl)Phthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Chlorobenzilate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Chrysene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Diallate	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Dibenzo(A,H)Anthracene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Dibenzofuran	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S3-HA02-0.5-1.7	S3-HA03-0.0-0.5	S3-HA03-0.0-0.5R	S3-HA03-0.5-2.0	S3-HA03-0.5-2.0R	S3-HA06-0.0-0.5	S3-HA06-0.0-0.5D	S3-HA06-0.0-0.5R	S3-HA06-0.5-2.0
Sample Depth (ft-bgs)[a]	0.5-1.7	0.0-0.5	0.0-0.5	0.5-2.0	0.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-2.0
Parameter									
Diethyl Phthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Dimethoate	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Dimethyl Phthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Di-N-Butyl Phthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Di-N-Octylphthalate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Dinoseb	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Disulfoton	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Ethyl Methanesulfonate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Famphur	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
Fluoranthene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Fluorene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Hexachlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Hexachlorobutadiene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Hexachlorocyclopentadiene	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Hexachloroethane	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Hexachlorophene	NA	< 1.9	NA	<	NA	< 2.2	<	NA	<
Hexachloropropene	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
Indeno(1,2,3-Cd)Pyrene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Isodrin	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Isosafrole	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Kepone	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
Methapyrilene	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Methyl Methanesulfonate	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Methyl Parathion	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Naphthalene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Nitrobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosodiethylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosodimethylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosodi-N-Butylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitroso-Di-N-Propylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosodiphenylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosodiphenylamine/Diphenylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosomethylethylamine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosomorpholine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosopiperidine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
N-Nitrosopyrrolidine	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
O,O,O-Triethyl Phosphorothioate	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
O-Toluidine	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Parathion	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
P-Dimethylaminoazobenzene	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Pentachlorobenzene	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Pentachloroethane	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Pentachloronitrobenzene	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Pentachlorophenol	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Phenacetin	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89

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Table 4-3

RFI Background Soil Sample Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0.0-0.5	S3-HA03-0.0-0.5R 0.0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0.0-0.5	S3-HA06-0.0-0.5D 0.0-0.5	S3-HA06-0.0-0.5R 0.0-0.5	S3-HA06-0.5-2.0 0.5-2.0
Phenanthrene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Phenol	NA	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Phorate	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
P-Nitroaniline	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
P-Phenylene Diamine	NA	< 4	NA	< 4.1	NA	< 4.5	< 4.4	NA	< 4.4
Pronamide	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Pyrene	< 0.43	< 0.4	NA	< 0.41	NA	< 0.45	< 0.44	NA	< 0.44
Pyridine	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Safrole	NA	< 0.8	NA	< 0.83	NA	< 0.9	< 0.87	NA	< 0.89
Tetraethyldithiopyrophosphate	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1
Thionazin	NA	< 1.9	NA	< 2	NA	< 2.2	< 2.1	NA	< 2.1

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = Volatile Organic Compounds.

[e] NA = Not Analyzed

[f] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-4

Background Concentrations for Selected Parameters

Alcoa Badin, NC Works RFI

Sample Designation	Benzo(a)anthracene mg/kg[a]	Benzo(a)pyrene mg/kg	Benzo(b)fluoranthene mg/kg	Dibenzo(a,h)anthracene mg/kg	Indeno(1,2,3-cd)pyrene mg/kg	Fluoride mg/kg	Total Cyanide mg/kg	Weak Acid Dissociable Cyanide mg/kg	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg
Northeast End of Plant and SWMU No. 2											
NE-HA01-0.0-0.5	5.40	4.80	4.80	1.10	2.60	7.1	3.4	3.2 U[b]	9.9	0.25 U	22.3
NE-HA01-0.5-2.0	1.80	1.50	1.30	0.40 U	0.76	7.3	3.1 U	3.1 U	13.8	0.24 U	43.1
NE-HA02-0.0-0.5	0.47 U	0.47 U	0.94	0.47 U	0.47 U	5	3.5 U	3.5 U	7.2	0.28 U	13.3
NE-HA02-0.5-0.9	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	3	3.1 U	3.1 U	12.1	0.25 U	14.2
NE-HA03-0.0-0.5	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	3.2	3.1 U	3.1 U	14.4	0.25 U	45.8
NE-HA03-0.5-2.0	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	2	3.1 U	3.1 U	14.6	0.25 U	30.4
NE-HA04-0.0-0.5	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	2.9	3.1 U	3.1 U	18.5	0.25 U	23.3
NE-HA04-0.5-2.0	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.63 U	3.2 U	3.2 U	20.8	1 U	40.6
NE-HA05-0.0-0.5	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	2.5	3 U	3 U	8.2	0.24 U	17.6
S2-HA03-0.0-0.5	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.61 U	3.1 U	3.1 U	12.2	0.24 U	22.6
S2-HA03-0.0-0.5D	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.6 U	3 U	3 U	12.2	0.24	25.3
S2-HA03-0.5-2.0	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.63 U	3.1 U	3.1 U	15.7	0.25 U	24
S2-HA04-0.0-0.5	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.6 U	3 U	3 U	33.6	0.24 U	26.2
S2-HA04-0.5-2.0	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.6 U	3 U	3 U	2.3	0.24 U	14.5
S2-HA05-0.0-0.5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	1.2	3.2 U	3.2 U	7.8	0.24 U	19.8
S2-HA05-0.5-2.0	1.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.6 U	3 U	3 U	19.1	0.51 U	45.9
S2-HA06-0.0-0.5	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	1.2	3.1 U	3.1 U	24.2	0.26 U	58.9
S2-HA06-0.5-2.0	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	7.2	3.1 U	3.1 U	36.3	0.27 U	96.4
SWMU No. 3											
S3-HA01-0.0-0.5	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	2.1	3.4 U	3.4 U	72.7	0.25 U	40.3
S3-HA01-0.5-2.0	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.66 U	3.3 U	3.3 U	18	1 U	35.6
S3-HA02-0.0-0.5	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	1.9	5.3	3.3 U	28.5	0.27 U	63.2
S3-HA02-0.5-1.7	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.64 U	3.2 U	3.2 U	59.2	0.26 U	31.8
S3-HA03-0.0-0.5	0.4 U	0.40 U	0.40 U	0.40 U	0.40 U	1.5	3 U	3 U	18.8	0.99 U	33.9
S3-HA03-0.5-2.0	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.63 U	3.1 U	3.1 U	51.6	0.26 U	32.5
S3-HA06-0.0-0.5	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	1.2	3.4 U	3.4 U	64	0.26 U	46.9
S3-HA06-0.0-0.5D	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.66 U	3.3 U	3.3 U	47.1	0.27 U	50.6
S3-HA06-0.5-2.0	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.67 U	3.4 U	3.4 U	57.8	0.24 U	30.9

Notes:

(a) mg/kg = milligrams per kilogram
(b)"U" - Not detected.

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Table 4-5

Summary of Selected Soil Background Concentrations - Organics

Alcoa Badin, NC Works RFI

	Benzo(a)anthracene mg/kg[(a)]	Benzo(a)pyrene mg/kg	Benzo(b)fluoranthene mg/kg	Dibenzo(a,h)anthracene mg/kg	Indeno(1,2,3-cd)pyrene mg/kg
All Background Areas - Excluding SWMU No. 3					
Normality Test Used	Wilks-Shapiro	Wilks-Shapiro	Wilks-Shapiro	Wilks-Shapiro	Wilks-Shapiro
Data Distribution	Non-parametric	Non-parametric	Non-parametric	Non-parametric	Non-parametric
Method Utilized to Determine 95% UCL	Jackknife	Jackknife	Jackknife	Jackknife	Jackknife
95% UCL or maximum non-detect value	1.10	0.99	1.01	0.34	0.60
Background Area SWMU No. 3					
Normality Test Used	NA[(b)]	NA	NA	NA	NA
Data Distribution	NA	NA	NA	NA	NA
Method Utilized to Determine 95% UCL	NA	NA	NA	NA	NA
95% UCL or maximum non-detect value	0.45	0.45	0.45	0.45	0.45

Notes:

(a) mg/kg = milligrams per kilograms
(b) NA - Not Applicable

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Table 4-6

Summary of Selected Soil Background Concentrations - Inorganics

Alcoa Badin, NC Works RFI

	Fluoride mg/kg[a]	Total Cyanide mg/kg	Weak Acid Dissociable Cyanide mg/kg	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg
All Background Areas - Excluding SWMU No. 3						
Normality Test Used	Wilks-Shapiro	Wilks-Shapiro	NA[b]	Wilks-Shapiro	NA	Wilks-Shapiro
Data Distribution	Non-parametric	Non-parametric	NA	Normal	NA	Log-Normal
Method Utilized to Determine 95% UCL	Jackknife	Jackknife	NA	NA	NA	NA
Mean + 2 standard deviations[c]	NA	NA	NA	33.3	NA	81.3
95% UCL or maximum non-detect value	3.53E+00	1.84E+00	3.50E+00	NA	1.00E+00	NA
Background Area SWMU No. 3						
Normality Test Used	Wilks-Shapiro	Wilks-Shapiro	NA	Wilks-Shapiro	NA	Wilks-Shapiro
Data Distribution	Non-parametric	Non-parametric	NA	Normal	NA	Normal
Method Utilized to Determine 95% UCL	Jackknife	Jackknife	NA	NA	NA	NA
Mean + 2 standard deviations*	NA	NA	NA	86.5	NA	62.5
95% UCL or maximum non-detect value	1.39E+00	2.80E+00	3.40E+00	NA	1.00E+00	NA

Notes:

(a) mg/kg = milligrams per kilogram.
(b) NA = not applicable.
(c) for normal distributions = mean + 2x standard deviation of normal data, for lognormal distributions = e^(mean of log transformed data + 2*standard deviation of log transformed data)

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Table 4-7

Plant Area Monitoring Well Construction

Alcoa Badin, NC Works RFI

SWMU(s) AOC[a]	Well Number	Top of Casing Elevation (ft-msl)[b]	Ground surface (ft-msl)	Top of Screen (ft-bgs)[c]	Bottom of Screen (ft-bgs)	Top of Screen Elevation (ft-msl)	Bottom of Screen Elevation (ft-msl)	Screened Interval Lithology
46	MW-1	555.59	553.08	23	33	530.08	520.08	Partially Weathered Bedrock
4	MW-2	538.67	538.72	15	25	523.72	513.72	Residual Soil/Partially Weathered Bedrock
4	MW-2A	538.58	538.38	37	47	501.38	491.38	Bedrock
1	MW-3	542.02	539.78	14	24	525.78	515.78	Partially Weathered Bedrock
22	MW-4	524.71	522.32	6	16	516.32	506.32	Residual Soil/Partially Weathered Bedrock
25	MW-5	517.50	517.67	6	16	511.67	501.67	Fill Material/Residual Soil/Partially Weathered Bedrock
4	MW-6	526.11	523.65	6	16	517.65	507.65	Fill Material/Residual Soil
4	MW-6A	525.05	523.25	48	53	475.25	470.25	Bedrock
Background	MW-7	565.71	565.70	27.5	37.5	538.2	528.2	Partially Weathered Bedrock
22	MW-8	523.01	523.56	13.5	23.5	510.06	500.06	Partially Weathered Bedrock
22	MW-9	529.30	527.32	14	24	513.32	503.32	Partially Weathered Bedrock
11	MW-10	531.03	531.16	21	31	510.16	500.16	Partially Weathered Bedrock
1	MW-11	545.18	542.53	5.5	15.5	537.03	527.03	Fill/Partially Weathered Bedrock
33	MW-12	525.58	525.89	10.5	20.5	515.39	505.39	Partially Weathered Bedrock
Background	MW-13	549.02	546.25	23	33	523.25	513.25	Partially Weathered Bedrock
11	MW-14	527.07	525.11	7.5	17.5	517.61	507.61	Fill Material/Partially Weathered Bedrock
Background	MW-15	526.15	524.53	8	18	516.53	506.53	Residual Soil
22.0	MW-16	520.22	520.26	7.5	17.5	512.76	502.76	Partially Weathered Bedrock
1	MW-17	515.10	514.09	9	19	505.09	495.09	Partially Weathered Bedrock
1	MW-18	552.44	551.17	33	43	518.17	508.17	Partially Weathered Bedrock
1	MW-19	547.30	545.66	29	49	516.66	496.66	Partially Weathered Bedrock
1	MW-20	545.31	542.48	6	13	536.48	529.48	Fill Material
1	MW-20A	544.99	542.41	29	39	513.41	503.41	Bedrock
4	MW-21	544.35	541.80	10	20	531.8	521.8	Fill Material
4	MW-22	527.78	523.50	5	15	518.5	508.5	Fill Material
1	MW-23	540.36	537.84	6	16	531.84	521.84	Fill Material
1	MW-24	544.18	541.63	20	30	521.63	511.63	Fill Material
25	MW-25	514.45	515.08	5	15	510.08	500.08	Fill Material
25	MW-25A	515.02	515.13	34	44	481.13	471.13	Bedrock
25	MW-26	510.92	511.09	4	14	507.09	497.09	Fill Material
35	MW-27	521.82	519.76	6.5	16.5	513.26	503.26	Fill Material/Residual Soil/Partially Weathered Bedrock
Background	MW-28	564.94	562.43	41	51	521.43	511.43	Partially Weathered Bedrock
46	MW-29	558.35	555.35	33.3	43.3	522.05	512.05	Partially Weathered Bedrock
42	B016-MW-1	521.46	NA[d]	6.5	16.5	NA[d]	NA[d]	Fill Material
42	B016-MW-2	524.04	NA[d]	7	17	NA[d]	NA[d]	Fill Material
42	B016-MW-3	518.57	518.80	7	17	511.8	501.8	Residual Soil/Partially Weathered Bedrock
A	MW-FO-2	523.50	522.40	18.9	28.9	503.50	493.50	Not Available

Notes:

(a) SWMU assignment based on proximity to nearest SWMU or original purpose of well. All these monitring wells are considered relevant to the north end of the plant, in the context of a Solid Waste Management Unit Area-concept, not to an individual SWMU.

(b) ft-msl = feet above mean sea level.

(c) ft-bgs = feet below ground surface.

(d) NA = Not Available

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Table 4-8

Plant Area Slug Test Data Summary For Water Table Units

Alcoa Badin, NC Works RFI

Well No.	Test Type	Zone Tested	Hydraulic Conductivity (ft/day)[a]	Hydraulic Conductivity (cm/sec)[b]	Reference
MW-1	Slug Out	Partially Weathered Rock (Hard Clayey Silt)	8.42E-02	2.97E-05	Law, June 1990
MW-2	Slug Out	Residual Soils/ Partially Weathered Rock (Hard Clayey Silt)	2.26E-01 6.91E-01	7.97E-05 2.44E-04	Law, June 1990 G&M, October 1995
MW-3	Slug Out	Partially Weathered Rock (Hard Clayey Silt)	1.10E-01	3.88E-05	Law, June 1990
MW-4	Slug Out	Residual Soils/ Partially Weathered Rock (Hard Clayey Silt)	6.16E-01	2.18E-04	Law, June 1990
MW-5	Slug Out Slug Out	Fill (Clayey Silt)/ Residual Soils (Stiff Clayey Silt)/ Partial Weathered Rock (Hard Silt)	3.89E-01 3.06E+00	1.37E-04 1.08E-03	Law, June 1990 G&M, November 1996
MW-6	Slug Out	Fill (Sandy Silt w/Brick and Debris)/ Residual Soil (Stiff Clayey Silt)	2.53E+00	8.94E-04	G&M, October 1995
PZ-6	Slug Out	Fill (Silty Clay) Residual Soils (Silt)	1.59E+01	5.62E-03	G&M, November 1996
MW-8	Slug Out	Partially Weathered Rock (Clayey Silt and Gravel)	8.70E+00	3.07E-03	G&M, November 1996
MW-9	Slug Out	Partially Weathered Rock (Hard Clayey Silt)	3.60E+01	1.27E-02	G&M, November 1996
MW-17	Slug Out	Partially Weathered Rock (Sandy Silt)	1.64E-01	5.78E-05	G&M, November 1996
MW-25	Slug Out	Fill (Sand w/Silt and Clay)	2.09E+01	7.37E-03	G&M, November 1996
MW-26	Slug Out	Fill Material (Rubble)	2.56E+01	9.02E-03	G&M, November 1996
Average Fill Material			2.32E+01	8.20E-03	
Average Residual Soils/PWR[c]			5.82E+00	2.05E-03	
Average All Tests			8.21E+00	2.90E-03	

Notes:

(a) ft/day = feet per day
(b) cm/sec = centimeters per second
(c) Partially Weathered Bedrock

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Table 4-9

Pumping Test Data Summary For Plant Area

Alcoa Badin, NC Works RFI

Well	Zone Tested	Jacob Method			Theis Type Curve Method		
		Transmissivity		Storativity	Transmissivity		Storativity
		gpd/ft[(a)]	cm^2/sec[(b)]	unitless	gpd/ft	cm^2/sec	unitless
P1	Fill/Residual Soil	1100	1.584	0.05	400	0.576	0.07
P2	Fill/Residual Soil	700	1.008	0.09	600	0.864	0.15
MW-6	Fill (Sandy Silt w/Brick and Debris) and Residual Soil (Stiff clayey silt)	1400	2.016	0.18	1000	1.44	0.2

Notes: [(a)] gpd/ft = gallons per day per foot

[(b)] cm^2/sec = centimeters squared per second

Reference: Law, August 6, 1992

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Table 4-10

Plant Area Slug Test Data Summary For Bedrock

Alcoa Badin, NC Works RFI

Well No	Test Type	Zone Tested	Hydraulic Conductivity (ft/min)[a]	Hydraulic Conductivity (ft/day)[b]	Hydraulic Conductivity cm/sec[c]	Reference
MW-2A	Slug In	Bedrock	7.44E-04	1.07E+00	3.78E-04	G&M, October 1995
MW-2A	Slug Out	Bedrock	8.90E-04	1.28E+00	4.52E-04	G&M, October 1995
MW-6A	Slug In	Bedrock	1.85E-03	2.66E+00	9.40E-04	G&M, October 1995
MW-6A	Slug Out	Bedrock	9.26E-04	1.33E+00	4.70E-04	G&M, October 1995
MW-20A	Slug In	Bedrock	4.49E-05	6.47E-02	2.28E-05	G&M, October 1995
MW-20A	Slug Out	Bedrock	3.75E-05	5.40E-02	1.91E-05	G&M, October 1995
MW-25A	Slug In	Bedrock	1.54E-03	2.22E+00	7.83E-04	G&M, November 1996
	Slug Out		1.28E-03	1.84E+00	6.49E-04	G&M, November 1996
Average All Tests			9.14E-04	1.32E+00	4.64E-04	
Average All Slug In Tests			1.05E-03	1.50E+00	5.31E-04	
Average All Slug Out Tests			7.83E-04	1.13E+00	3.98E-04	

Notes:

[a] ft/min = feet per minute.
[b] ft/day = feet per day.
[c] cm/sec = centimeters per second.

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Table 4-11

Vertical Gradients Summary For Plant Area Wells

Alcoa Badin, NC Works RFI

Well No.	Water Elevation ft-msl[a]	Difference In Head (feet)	Difference in Center of Screens (feet)	Vertical Gradient
MW-2 MW-2A	518.11 518.02	-0.09	22.09	-0.004
MW-6 MW-6A	515.47 517.04	1.57	36.86	0.043
MW-20 MW-20A	Dry at 529.48 521.36	NA[b]	18.08	NA
MW-25 MW-25A	506.75 506.85	0.1	29.95	0.003

Notes:

[a] ft-msl = feet above mean sea level

[b] NA = Not available

A negative vertical gradient indicates downward flow.

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Table 4-12

SWMU No. 1 (On-Site Landfill)
Accelerated RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	SWMU#1 SS-1 0.0-0.5	SWMU#1 SS-2 0.0-0.5	SWMU#1 SS-3 0.0-0.5	SWMU#1 SS-4 0.0-0.5	SWMU#1 SS-4(D) 0.0-0.5	SWMU#1 SS-5 0.0-0.5	SWMU#1 SS-6 0.0-0.5
Inorganics (mg/kg)[b]							
Fluoride	4.4	120	240	1570	1410	57	96
Cyanide, Amenable	0.3	< 0.25[c]	0.46	6	6	1.2	< 0.25
Cyanide, Total	0.9	9.1	3	50	48	5.3	1.1
Barium	31	35	69	49 J[d]	49 J	61 J	42 J
Chromium	17	18	21	26	24	30	22
Lead	< 20	< 20	31	< 20	< 20	< 20	31
VOCs[e] (mg/kg)							
1,1,1-Trichloroethane	< 43	< 60	< 12	< 11	< 11	< 11	< 12
2-Butanone	< 211	< 300	< 12	< 11	< 11	< 11	< 12
Acrolein	NA[f]	NA	< 298	< 287	< 278	< 287	< 294
Acrylonitrile	NA	NA	< 12	< 11	< 11	< 11	< 12
Dichloromethane	< 43	< 60	< 8.9	< 5.7	< 5.6	< 5.7	< 5.9
Toluene	< 43	< 60	< 6	< 5.7	< 5.6	< 5.7	< 5.9
SVOCs[g] (mg/kg)							
Chrysene	< 2.5	< 2.5	0.93 J	4.1	4.4	0.91 J	< 2.4
Benzo(g,h,i)Perylene	< 2.5	< 2.5	0.56 J	2.3	1.89 J	< 2.4	< 2.4
Indeno(1,2,3-cd)Pyrene	< 2.5	< 2.5	0.65 J	2.5	2.3	0.42 J	< 2.4
Anthracene	< 2.5	< 2.5	< 2.5	< 2.3	0.42 J	< 2.4	< 2.4
Benz(b)Fluoranthene	< 2.5	< 2.5	0.84 J	4.8	5	0.91 J	< 2.4
Benzo(a)Anthracene	< 2.5	< 2.5	0.86 J	3.2	3.4	0.45 J	< 2.4
Benzo(a)Pyrene	< 2.5	< 2.5	0.9 J	3.6	3.8	< 2.4	< 2.4
Benzo(k)Fluoranthene	< 2.5	< 2.5	0.79 J	4	4.4	0.68 J	< 2.4
Di-n-Butyl Phthalate	< 2.5	< 2.5	< 2.5	< 2.3	< 2.3	< 2.4	< 2.4
Fluoranthene	< 2.5	< 2.5	1.8 J	3.8	3.9	0.45 J	2.4
Phenanthrene	< 2.5	< 2.5	1.4 J	1.1 J	1.2 J	< 2.4	< 2.4
Pyrene	< 2.5	< 2.5	1.4 J	5.3	5.5	0.48 J	< 2.4

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Table 4-12

SWMU No. 1 (On-Site Landfill)
Accelerated RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	SWMU#1 TP-1 3.5	SWMU#1 TP-2 3.2	SWMU#1 TP-3 2.5	SWMU#1 TP-4 4.5	SWMU#1 TP-5 1.5	SWMU#1 TP-6 2	SWMU#1 TP-6(D) 2
Inorganics (mg/kg)[b]							
Fluoride	3200	8100	8000	460	950	390	370
Cyanide, Amenable	74	511	189	69	1.5	1	0.6
Cyanide, Total	164	617	500	117	1.6	1.5	1.1
Barium	NA[f]	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
VOCs[e] (mg/kg)							
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA
Dichloromethane	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA
SVOCs[g] (mg/kg)							
Chrysene	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA
Benz(b)Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Di-n-Butyl Phthalate	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA

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Table 4-12

SWMU No. 1 (On-Site Landfill)
Accelerated RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	SWMU#1 TP-7 8.5	SWMU#1 TP-8 1.5	SWMU#1 TP-9 3.5	SWMU#1 TP-12 3	SWMU#1 TP-13 3.5
Inorganics (mg/kg)[b]					
Fluoride	320	25.1	110	2100	1.4
Cyanide, Amenable	3.1	< 0.25[c]	0.37	< 0.25	< 0.25
Cyanide, Total	4.7	0.74	2.2	1.4	< 0.25
Barium	NA[f]	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
VOCs[e] (mg/kg)					
1,1,1-Trichloroethane	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA
Dichloromethane	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA
SVOCs[g] (mg/kg)					
Chrysene	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA
Benz(b)Fluoranthene	NA	NA	NA	NA	NA
Benzo(a)Anthracene	NA	NA	NA	NA	NA
Benzo(a)Pyrene	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	NA	NA	NA	NA	NA
Di-n-Butyl Phthalate	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA

Notes:

[a] ft-bgs = feet below ground surface. Sample depths prior to cap installation.
[b] mg/kg = milligram per kilogram.
[c] < = not detected at indicated detection limit
[d] J = Estimated Value
[e] VOCs = Volatile Organic Compounds
[f] NA = not analyzed.
[g] SVOCs - Semi-Volatile Organic Compounds

Table 4-13

SWMU No. 4 (Former K088 Storage Pad)
Accelerated RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	SWMU#4 SS-1 0.0-0.5	SWMU#4 SS-2 0.0-0.5	SWMU#4 SS-3 0.0-0.5	SWMU#4 SS-4 0.0-0.5
Inorganics (mg/kg)[b]				
Cyanide, Amenable	4	< 0.25[d]	< 0.25	< 0.25
Cyanide, Total	23	16	64	14
Fluoride	670	480	4900	770
Barium	49	0.13	0.16	0.11
Chromium	12	13	24	25
Lead	< 20	27	< 20	< 20
VOCs[e] (mg/kg)				
1,1,1-Trichloroethane	< 0.06 J [c]	< 0.04 J	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,1,2-Trichloroethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,1-Dichloroethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,1-Dichloroethene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,2-Dichlorobenzene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,2-Dichloroethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,2-Dichloropropane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
1,4-Dichlorobenzene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Cis-1,3-Dichloropropene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Trans-1,2-Dichloroethene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Trans-1,3-Dichloropropene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
2-Butanone	< 0.28 J	< 0.22 J	< 0.23	< 0.23
2-Chloroethylvinyl Ether	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Benzene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Bromodichloromethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Bromoform	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Bromomethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Carbon Tetrachloride	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Chloroethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Chloroform	< 0.06 J	< 0.04 J	0.0064	0.0078
Chloromethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Dichlorodifluoromethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Dichloromethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Ethylbenzene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
m- And p-Xylene	< 0.11 J	< 0.09 J	< 0.09	< 0.09
M-Dichlorobenzene	< 0.06	< 0.04 J	< 0.05	< 0.05

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Table 4-13

SWMU No. 4 (Former K088 Storage Pad)
Accelerated RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	SWMU#4 SS-1 0.0-0.5	SWMU#4 SS-2 0.0-0.5	SWMU#4 SS-3 0.0-0.5	SWMU#4 SS-4 0.0-0.5
o-Xylene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Tetrachloroethene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Toluene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Trichloroethylene	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Trichlorofluoromethane	< 0.06 J	< 0.04 J	< 0.05	< 0.05
Vinyl Chloride	< 0.06 J	< 0.04 J	< 0.05	< 0.05
SVOCs[f] (mg/kg)				
Chrysene	23.6	41.1	6.7	3.4
Benzo(g,h,i)Perylene	6	33.1	4.7	3.1
Indeno(1,2,3-cd)Pyrene	7.4	31	5	2.7
Anthracene	0.6 J	6.3 J	< 2.4	< 2.2
Benz(b)Fluoranthene	48 J	43.9	8.7	3.8
Benzo(a)Anthracene	10.9	31.3	5.3	2.2
Benzo(a)Pyrene	4.9	41.4	5.9	3
Benzo(k)Fluoranthene	11.5	27.8	4.4	1.84
Di-n-Butyl Phthalate	< 2.3	< 11.8	< 2.4	< 2.2
Fluoranthene	7.2	35.5	6.6	2.7
Naphthalene	< 2.3	< 11.8	0.55 J	0.65 J
Phenanthrene	1.9	33.6	0.58 J	0.47 J
Pyrene	6.4	36	6.9	3

Notes:

[a] ft-bgs = feet below ground surface. Sample depths prior to cap installation.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit

[d] J = Estimated Value

[e] VOCs = Volatile Organic Compounds

[f] SVOCs - Semi-Volatile Organic Compounds

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Table 4-14

Soil Screening Table
SWMU Group 1

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b]DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Barium	mg/kg[d]	11	11	0.11	69	140000	5500	1600	1648				
Chromium	mg/kg	11	11	12	30	6100	230	38	38				
Lead	mg/kg	3	11	27	31	1000	400	NA	267				
Other													
Cyanide (amenable)	mg/kg	15	23	0.3	511	41000	1600	40	31			✓	✓
Cyanide (total)	mg/kg	22	23	0.74	617	41000	1600	40	31			✓	✓
Fluoride	mg/kg	23	23	1.4	8100	120000	4700	NA	NA		✓		
SVOCs[e]													
Anthracene	mg/kg	3	11	0.42 J	6.3 J	610000	23000	12000	1250				
Benzo(a)anthracene	mg/kg	8	11	0.45 J	31.3	7.8	0.87	2	0.40	✓	✓	✓	✓
Benzo(a)pyrene	mg/kg	7	11	0.9 J	41.4	0.78	0.087	8	0.1	✓	✓	✓	✓
Benzo(b)fluoranthene	mg/kg	8	11	0.84 J	48 J	7.8	0.87	5	1.2	✓	✓	✓	✓
Benzo(g,h,i)perylene[f]	mg/kg	7	11	0.56 J	33.1	61000	2300	4200	6720				
Benzo(k)fluoranthene	mg/kg	8	11	0.68 J	27.8	78	8.7	49	12		✓		✓
Chrysene	mg/kg	8	11	0.91 J	41.1	780	87	160	40				✓
Fluoranthene	mg/kg	9	11	0.45 J	35.5	82000	3100	4300	600				
Indeno(1,2,3-cd)pyrene	mg/kg	8	11	0.42 J	31	7.8	0.87	14	3	✓	✓	✓	✓
Naphthalene	mg/kg	2	11	0.55 J	0.65 J	41000	1600	84	1				
Phenanthrene[f]	mg/kg	7	11	0.47 J	33.6	61000	2300	4200	60				
Pyrene	mg/kg	8	11	0.48 J	36	61000	2300	4200	442				
VOCs[g]													
Trichloromethane	mg/kg	2	11	0.0064 J	0.0078 J	940	100	0.6	0.001				✓

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Dilution Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] RBC for Pyrene as a Surrogate

[g] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

Table 4-15

SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID Sample Depth (ft-bgs) Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
Miscellaneous				
Percent Solids	83.9	83	79.1	NA
Inorganics				
Cyanide, Dissociable	0.72	< 0.6	< 0.63	NA
Cyanide, Amenable	NA	NA	NA	0.65
Cyanide, Total	1.6	4.3	2	1.2
Fluoride	317	299	493	130
Arsenic	6.3	11.9	8.3	NA
Barium	< 95.4	81.4	32	NA
Cadmium	< 0.95	< 0.24	< 0.25	NA
Chromium	16.5	31.2	14.4	NA
Lead	11.3	15.9	7.6	NA
Selenium	< 2.4	1.3	< 0.63	NA
PCBs				
Aroclor 1016	< 0.039	< 0.04	< 0.042	NA
Aroclor 1221	< 0.039	< 0.04	< 0.042	NA
Aroclor 1232	< 0.039	< 0.04	< 0.042	NA
Aroclor 1242	< 0.039	< 0.04	< 0.042	NA
Aroclor 1248	< 0.039	< 0.04	< 0.042	NA
Aroclor 1254	< 0.039	< 0.04	< 0.042	NA
Aroclor 1260	< 0.039	< 0.04	< 0.042	NA
VOCs				
1,1,1,2-Tetrachloroethane	< 0.006	< 0.006	< 0.0063	NA
1,1,1-Trichloroethane	< 0.006	< 0.006	< 0.0063	NA
1,1,2,2-Tetrachloroethane	< 0.006	< 0.006	< 0.0063	NA
1,1,2-Trichloroethane	< 0.006	< 0.006	< 0.0063	NA
1,1-Dichloroethane	< 0.006	< 0.006	< 0.0063	NA
1,1-Dichloroethene	< 0.006	< 0.006	< 0.0063	NA
1,2,3-Trichloropropane	< 0.006	< 0.006	< 0.0063	NA
1,2-Dibromo-3-Chloropropane	< 0.012	< 0.012	< 0.013	NA
1,2-Dibromoethane	< 0.006	< 0.006	< 0.0063	NA
1,2-Dichloroethane	< 0.006	< 0.006	< 0.0063	NA
1,2-Dichloropropane	< 0.006	< 0.006	< 0.0063	NA
1,4-Dioxane	< 0.6	< 0.6	< 0.63	NA
2-Butanone	< 0.024	< 0.024	< 0.025	NA

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Table 4-15

SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs) / Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
2-Hexanone	< 0.024	< 0.024	< 0.025	NA
4-Methyl-2-Pentanone	< 0.024	< 0.024	< 0.025	NA
Acetone	< 0.024	< 0.024	< 0.025	NA
Acetonitrile	< 0.12	< 0.12	< 0.13	NA
Acrolein	< 0.12	< 0.12	< 0.13	NA
Acrylonitrile	< 0.12	< 0.12	< 0.13	NA
Allyl Chloride	< 0.012	< 0.012	< 0.013	NA
Benzene	< 0.006	< 0.006	< 0.0063	NA
Bromodichloromethane	< 0.006	< 0.006	< 0.0063	NA
Bromoform	< 0.006	< 0.006	< 0.0063	NA
Bromomethane	< 0.012	< 0.012	< 0.013	NA
Carbon Disulfide	< 0.006	< 0.006	< 0.0063	NA
Carbon Tetrachloride	< 0.006	< 0.006	< 0.0063	NA
Chlorobenzene	< 0.006	< 0.006	< 0.0063	NA
Chloroethane	< 0.012	< 0.012	< 0.013	NA
Chloroform	< 0.006	< 0.006	< 0.0063	NA
Chloromethane	< 0.012	< 0.012	< 0.013	NA
Chloroprene	< 0.012	< 0.012	< 0.013	NA
Cis-1,3-Dichloropropene	< 0.006	< 0.006	< 0.0063	NA
Dibromochloromethane	< 0.006	< 0.006	< 0.0063	NA
Dibromomethane	< 0.006	< 0.006	< 0.0063	NA
Dichlorodifluoromethane	< 0.012	< 0.012	< 0.013	NA
Dichloromethane	< 0.006	< 0.006	< 0.0063	NA
Ethyl Methacrylate	< 0.006	< 0.006	< 0.0063	NA
Ethylbenzene	< 0.006	< 0.006	< 0.0063	NA
Iodomethane	< 0.006	< 0.006	< 0.0063	NA
Isobutyl Alcohol	< 0.24	< 0.24	< 0.25	NA
Methacrylonitrile	< 0.006	< 0.006	< 0.0063	NA
Methyl Methacrylate	< 0.006	< 0.006	< 0.0063	NA
Propionitrile	< 0.024	< 0.024	< 0.025	NA
Styrene	< 0.006	< 0.006	< 0.0063	NA
Tetrachloroethene	< 0.006	< 0.006	< 0.0063	NA
Toluene	< 0.006	< 0.006	< 0.0063	NA
Trans-1,2-Dichloroethene	< 0.003	< 0.003	< 0.0032	NA
Trans-1,3-Dichloropropene	< 0.006	< 0.006	< 0.0063	NA

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SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs) / Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
Trans-1,4-Dichloro-2-Butene	< 0.006	< 0.006	< 0.0063	NA
Trichloroethylene	< 0.006	< 0.006	< 0.0063	NA
Trichlorofluoromethane	< 0.012	< 0.012	< 0.013	NA
Vinyl Acetate	< 0.012	< 0.012	< 0.013	NA
Vinyl Chloride	< 0.006	< 0.006	< 0.0063	NA
Xylene (Total)	< 0.006	< 0.006	< 0.0063	NA
SVOCs				
1,2,4,5-Tetrachlorobenzene	< 0.39	< 0.4	< 0.42	NA
1,2,4-Trichlorobenzene	< 0.39	< 0.4	< 0.42	NA
Chrysene	< 0.39	< 0.4	< 0.42	NA
1,2-Dichlorobenzene	< 0.39	< 0.4	< 0.42	NA
1,3,5-Trinitrobenzene	< 1.9	< 1.9	< 2	NA
1,3-Dinitrobenzene	< 0.39	< 0.4	< 0.42	NA
1,4-Dichlorobenzene	< 0.39	< 0.4	< 0.42	NA
1,4-Naphthoquinone	< 1.9	< 1.9	< 2	NA
1-Naphthylamine	< 0.39	< 0.4	< 0.42	NA
2,3,4,6-Tetrachlorophenol	< 1.9	< 1.9	< 2	NA
2,4,5-Trichlorophenol	< 0.39	< 0.4	< 0.42	NA
2,4,6-Trichlorophenol	< 0.39	< 0.4	< 0.42	NA
2,4-Dichlorophenol	< 0.39	< 0.4	< 0.42	NA
2,4-Dimethylphenol	< 0.39	< 0.4	< 0.42	NA
2,4-Dinitrophenol	< 1.9	< 1.9	< 2	NA
2,4-Dinitrotoluene	< 0.39	< 0.4	< 0.42	NA
2,6-Dichlorophenol	< 0.39	< 0.4	< 0.42	NA
2,6-Dinitrotoluene	< 0.39	< 0.4	< 0.42	NA
2-Acetylaminofluorene	< 3.9	< 4	< 4.2	NA
2-Chloronaphthalene	< 0.39	< 0.4	< 0.42	NA
2-Chlorophenol	< 0.39	< 0.4	< 0.42	NA
2-Methyl-4,6-Dinitrophenol	< 1.9	< 1.9	< 2	NA
2-Methylnaphthalene	< 0.39	< 0.4	< 0.42	NA
2-Methylphenol (O-Cresol)	< 0.39	< 0.4	< 0.42	NA
2-Naphthylamine	< 0.39	< 0.4	< 0.42	NA
2-Nitroaniline	< 1.9	< 1.9	< 2	NA
2-Nitrophenol	< 0.39	< 0.4	< 0.42	NA
2-Picoline	< 0.79	< 0.8	< 0.83	NA

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Table 4-15

SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs) / Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
3,3'-Dichlorobenzidine	< 1.9	< 1.9	< 2	NA
3,3'-Dimethylbenzidine	< 1.9	< 1.9	< 2	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.39	< 0.4	< 0.42	NA
3-Methylcholanthrene	< 0.79	< 0.8	< 0.83	NA
3-Nitroaniline	< 1.9	< 1.9	< 2	NA
4-Aminobiphenyl	< 1.9	< 1.9	< 2	NA
4-Bromophenyl Phenyl Ether	< 0.39	< 0.4	< 0.42	NA
4-Chloro-3-Methylphenol	< 0.39	< 0.4	< 0.42	NA
4-Chloroaniline	< 0.39	< 0.4	< 0.42	NA
4-Chlorophenyl Phenyl Ether	< 0.39	< 0.4	< 0.42	NA
4-Methylphenol (P-Cresol)	< 0.39	< 0.4	< 0.42	NA
4-Nitrophenol	< 1.9	< 1.9	< 2	NA
4-Nitroquinoline-1-Oxide	< 3.9	< 4	< 4.2	NA
5-Nitro-O-Toluidine	< 0.79	< 0.8	< 0.83	NA
7,12-Dimethylbenz(A)Anthracene	< 0.79	< 0.8	< 0.83	NA
A,A-Dimethylphenethylamine	< 1.9	< 1.9	< 2	NA
Acenaphthene	< 0.39	< 0.4	< 0.42	NA
Acenaphthylene	< 0.39	< 0.4	< 0.42	NA
Acetophenone	< 0.39	< 0.4	< 0.42	NA
Aniline	< 0.39	< 0.4	< 0.42	NA
Anthracene	< 0.39	< 0.4	< 0.42	NA
Aramite	< 0.79	< 0.8	< 0.83	NA
Benz(B)Fluoranthene	< 0.39	< 0.4	< 0.42	NA
Benzo(A)Anthracene	< 0.39	< 0.4	< 0.42	NA
Benzo(A)Pyrene	< 0.39	< 0.4	< 0.42	NA
Benzo(G,H,I)Perylene	< 0.39	< 0.4	< 0.42	NA
Benzo(K)Fluoranthene	< 0.39	< 0.4	< 0.42	NA
Benzyl Alcohol	< 0.39	< 0.4	< 0.42	NA
Benzyl Butyl Phthalate	< 0.39	< 0.4	< 0.42	NA
Bis(2-Chloroethoxy)Methane	< 0.39	< 0.4	< 0.42	NA
Bis(2-Chloroethyl)Ether	< 0.39	< 0.4	< 0.42	NA
Bis(2-Chloroisopropyl)Ether	< 0.39	< 0.4	< 0.42	NA
Bis(2-Ethylhexyl)Phthalate	< 0.39	< 0.4	< 0.42	NA
Chlorobenzilate	< 0.39	< 0.4	< 0.42	NA
Diallate	< 0.79	< 0.8	< 0.83	NA

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Table 4-15

SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs) / Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
Dibenzo(A,H)Anthracene	< 0.39	< 0.4	< 0.42	NA
Dibenzofuran	< 0.39	< 0.4	< 0.42	NA
Diethyl Phthalate	< 0.39	< 0.4	< 0.42	NA
Dimethoate	< 0.79	< 0.8	< 0.83	NA
Dimethyl Phthalate	< 0.39	< 0.4	< 0.42	NA
Di-N-Butyl Phthalate	< 0.39	< 0.4	< 0.42	NA
Di-N-Octylphthalate	< 0.39	< 0.4	< 0.42	NA
Dinoseb	< 0.79	< 0.8	< 0.83	NA
Disulfoton	< 1.9	< 1.9	< 2	NA
Ethyl Methanesulfonate	< 0.39	< 0.4	< 0.42	NA
Famphur	< 3.9	< 4	< 4.2	NA
Fluoranthene	< 0.39	< 0.4	< 0.42	NA
Fluorene	< 0.39	< 0.4	< 0.42	NA
Hexachlorobenzene	< 0.39	< 0.4	< 0.42	NA
Hexachlorobutadiene	< 0.39	< 0.4	< 0.42	NA
Hexachlorocyclopentadiene	< 1.9	< 1.9	< 2	NA
Hexachloroethane	< 0.39	< 0.4	< 0.42	NA
Hexachlorophene	<	< 1.9	<	NA
Hexachloropropene	< 3.9	<	< 4.2	NA
Indeno(1,2,3-Cd)Pyrene	< 0.39	< 0.4	< 0.42	NA
Isodrin	< 0.39	< 0.4	< 0.42	NA
Isosafrole	< 0.79	< 0.8	< 0.83	NA
Kepone	< 3.9	< 4	< 4.2	NA
M-Dichlorobenzene	< 0.39	< 0.4	< 0.42	NA
Methapyrilene	< 1.9	< 1.9	< 2	NA
Methyl Methanesulfonate	< 0.39	< 0.4	< 0.42	NA
Methyl Parathion	< 1.9	< 1.9	< 2	NA
Naphthalene	< 0.39	< 0.4	< 0.42	NA
Nitrobenzene	< 0.39	< 0.4	< 0.42	NA
N-Nitrosodiethylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosodimethylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosodi-N-Butylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitroso-Di-N-Propylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosodiphenylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.39	< 0.4	< 0.42	NA

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Table 4-15

SWMU No. 22 (Former Scrap Yard)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID Sample Depth (ft-bgs) Parameter	S22-TB01-1.5-2.0 1.5-2.0	S22-TB02-3.5-4.0 3.5-4.0	S22-TB03-0.5-1.0 0.5-1.0	SWMU#1 TP-14 2
N-Nitrosomethylethylamine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosomorpholine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosopiperidine	< 0.39	< 0.4	< 0.42	NA
N-Nitrosopyrrolidine	< 0.39	< 0.4	< 0.42	NA
O,O,O-Triethyl Phosphorothioate	< 1.9	< 1.9	< 2	NA
O-Toluidine	< 0.79	< 0.8	< 0.83	NA
Parathion	< 1.9	< 1.9	< 2	NA
P-Dimethylaminoazobenzene	< 0.79	< 0.8	< 0.83	NA
Pentachlorobenzene	< 0.39	< 0.4	< 0.42	NA
Pentachloroethane	< 1.9	< 1.9	< 2	NA
Pentachloronitrobenzene	< 1.9	< 1.9	< 2	NA
Pentachlorophenol	< 1.9	< 1.9	< 2	NA
Phenacetin	< 0.79	< 0.8	< 0.83	NA
Phenanthrene	< 0.39	< 0.4	< 0.42	NA
Phenol	< 0.39	< 0.4	< 0.42	NA
Phorate	< 1.9	< 1.9	< 2	NA
P-Nitroaniline	< 1.9	< 1.9	< 2	NA
P-Phenylene Diamine	< 3.9	< 4	< 4.2	NA
Pronamide	< 0.79	< 0.8	< 0.83	NA
Pyrene	< 0.39	< 0.4	< 0.42	NA
Pyridine	< 0.79	< 0.8	< 0.83	NA
Safrole	< 0.79	< 0.8	< 0.83	NA
Tetraethyldithiopyrophosphate	< 1.9	< 1.9	< 2	NA
Thionazin	< 1.9	< 1.9	< 2	NA

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Table 4-16

Soil Screening Table
SWMU No. 22

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b]DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	mg/kg [d]	3	3	6.3	11.9	3.8	0.43	29	29	✓	✓		
Barium	mg/kg	2	3	32	81.4	140000	5500	1600	1648				
Chromium	mg/kg	3	3	14.4	31.2	6100	230	38	38				
Lead	mg/kg	3	3	7.6	15.9	1000	400	NA	267				
Selenium	mg/kg	1	3	1.3	1.3	10000	390	5	5				
Other													
Cyanide (amenable)	mg/kg	1	1	0.65	0.65	41000	1600	40	31				
Cyanide (dissociated)	mg/kg	1	3	0.72	0.72	41000	1600	40	31				
Cyanide (total)	mg/kg	4	4	1.2	4.3	41000	1600	40	31				
Fluoride	mg/kg	4	4	130	493	120000	4700	NA	NA				
Pesticides/Herbicides													
None Detected													
PCBs [e]													
None Detected													
SVOCs [f]													
None Detected													
VOCs [g]													
None Detected													

Notes:

[a] RBC = Risk-Based Concentration
[b] SSL = Soil Screening Level
[c] DAF = Diluation Attenuation Factor
[d] mg/kg = milligrams per kilogram
[e] PCBs = Polychlorinated Biphenyls
[f] SVOCs = Semi-Volatile Organic Compounds
[g] VOCs = Volatile Organic Compounds
✓ = Maximum concentration of constituent exceeds screening value
All arsenic concentrations are less than background concentrations.

Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB01-0.0-0.5 0-0.5	S35-TB01-0406 4-6	S35-TB02-0.0-0.5 0-0.5	S35-TB02-0406 4-6	S35-TB02-1418R 14-18
Inorganics (mg/kg)[b]					
Fluoride	45.2	98.5	50	594	NA
Cyanide, Dissociable	0.83	1.2	< 0.56	< 0.63[d]	NA
Cyanide, Amenable	NA[c]	NA	NA	NA	NA
Cyanide, Total	4.7	2.8	7.7	43.8	NA
Arsenic	16.2	9	7.9	11.4	NA
Barium	213	69.7	47.4	216	NA
Cadmium	0.99	0.31	< 0.22	0.73	NA
Chromium	26.5	15.2	21	17.6	NA
Lead	270	84.5	94	83.3	NA
Selenium	0.63	< 0.58	< 0.56	1.4	NA
PCBs[e] (mg/kg)					
Aroclor 1016	< 7.8	< 0.039	< 0.37	< 0.83	< 0.041
Aroclor 1221	< 7.8	< 0.039	< 0.37	< 0.83	< 0.041
Aroclor 1232	< 7.8	< 0.039	< 0.37	< 0.83	< 0.041
Aroclor 1242	< 7.8	< 0.039	< 0.37	< 0.83	< 0.041
Aroclor 1248	110	0.065	2.9	9	< 0.041
Aroclor 1254	< 7.8	< 0.039	< 0.37	< 0.83	< 0.041
Aroclor 1260	< 7.8	< 0.039	< 0.37	< 0.83	0.086
VOCs[f] (mg/kg)					
1,1,1,2-Tetrachloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,1,1-Trichloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,1,2,2-Tetrachloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,1,2-Trichloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,1-Dichloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,1-Dichloroethene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,2,3-Trichloropropane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,2-Dibromo-3-Chloropropane	< 0.012	< 0.012	< 0.011	< 0.013	NA
1,2-Dibromoethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,2-Dichloroethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,2-Dichloropropane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
1,4-Dioxane	< 0.59	< 0.58	< 0.56	< 0.63	NA
2-Butanone	0.031	< 0.023	0.042	0.058	NA
2-Hexanone	< 0.024	< 0.023	< 0.022	< 0.025	NA
4-Bromofluorobenzene	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	< 0.024	< 0.023	< 0.022	< 0.025	NA
Acetone	0.19	0.037	0.14	0.34	NA
Acetonitrile	< 0.12	< 0.12	< 0.11	0.14	NA
Acrolein	< 0.12	< 0.12	< 0.11	< 0.13	NA
Acrylonitrile	< 0.12	< 0.12	< 0.11	< 0.13	NA
Allyl Chloride	< 0.012	< 0.012	< 0.011	< 0.013	NA
Benzene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Bromodichloromethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Bromoform	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Bromomethane	< 0.012	< 0.012	< 0.011	0.021	NA
Carbon Disulfide	< 0.0059	< 0.0058	< 0.0056	0.019	NA
Carbon Tetrachloride	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB01-0.0-0.5 0-0.5	S35-TB01-0406 4-6	S35-TB02-0.0-0.5 0-0.5	S35-TB02-0406 4-6	S35-TB02-1418R 14-18
Chlorobenzene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Chloroethane	< 0.012	< 0.012	< 0.011	< 0.013	NA
Chloroform	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Chloromethane	< 0.012	< 0.012	< 0.011	0.15	NA
Chloroprene	< 0.012	< 0.012	< 0.011	< 0.013	NA
Cis-1,3-Dichloropropene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Dibromochloromethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Dibromofluoromethane	NA	NA	NA	NA	NA
Dibromomethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Dichlorodifluoromethane	< 0.012	< 0.012	< 0.011	< 0.013	NA
Dichloromethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Ethyl Methacrylate	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Ethylbenzene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Iodomethane	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Isobutyl Alcohol	< 0.24	< 0.23	< 0.22	< 0.25	NA
Methacrylonitrile	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Methyl Methacrylate	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Propionitrile	< 0.024	< 0.023	< 0.022	< 0.025	NA
Styrene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Tetrachloroethene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Toluene	< 0.0059	< 0.0058	< 0.0056	0.0086	NA
Trans-1,2-Dichloroethene	< 0.0029	< 0.0029	< 0.0028	< 0.0031	NA
Trans-1,3-Dichloropropene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Trans-1,4-Dichloro-2-Butene	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Trichloroethene	< 0.0059	< 0.0058	< 0.0056	0.025	NA
Trichlorofluoromethane	< 0.012	< 0.012	< 0.011	< 0.013	NA
Vinyl Acetate	< 0.012	< 0.012	< 0.011	< 0.013	NA
Vinyl Chloride	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
Xylene (Total)	< 0.0059	< 0.0058	< 0.0056	< 0.0063	NA
SVOCs[g] (mg/kg)					
1,2,4,5-Tetrachlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,2,4-Trichlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,2-Dichlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,3,5-Trinitrobenzene	< 9.4	< 19	< 9	< 2	NA
1,3-Dichlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,3-Dinitrobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,4-Dichlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
1,4-Naphthoquinone	< 9.4	< 19	< 9	< 2	NA
1-Naphthylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,3,4,6-Tetrachlorophenol	< 9.4	< 19	< 9	< 2	NA
2,4,5-Trichlorophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,4,6-Tribromophenol	NA	NA	NA	NA	4.1
2,4,6-Trichlorophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,4-Dichlorophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,4-Dimethylphenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,4-Dinitrophenol	< 9.4	< 19	< 9	< 2	NA
2,4-Dinitrotoluene	< 1.9	< 3.9	< 1.9	< 0.41	NA
2,6-Dichlorophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA

Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB01-0.0-0.5 0-0.5	S35-TB01-0406 4-6	S35-TB02-0.0-0.5 0-0.5	S35-TB02-0406 4-6	S35-TB02-1418R 14-18
2,6-Dinitrotoluene	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Acetylaminofluorene	< 19	< 39	< 19	< 4.1	NA
2-Chloronaphthalene	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Chlorophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Methylnaphthalene	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Methylphenol (O-Cresol)	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Naphthylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Nitroaniline	< 9.4	< 19	< 9	< 2	NA
2-Nitrophenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
2-Picoline	< 3.9	< 7.7	< 3.7	< 0.83	NA
2-Sec-Butyl-4,6-Dinitrophenol	< 3.9	< 7.7	< 3.7	< 0.83	NA
3,3'-Dichlorobenzidine	< 9.4	< 19	< 9	< 2	NA
3,3'-Dimethylbenzidine	< 9.4	< 19	< 9	< 2	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 1.9	< 3.9	< 1.9	< 0.41	NA
3-Methylcholanthrene	< 3.9	< 7.7	< 3.7	< 0.83	NA
3-Nitroaniline	< 9.4	< 19	< 9	< 2	NA
4,6-Dinitro-2-Methylphenol	< 9.4	< 19	< 9	< 2	NA
4-Aminobiphenyl	< 9.4	< 19	< 9	< 2	NA
4-Bromophenyl Phenyl Ether	< 1.9	< 3.9	< 1.9	< 0.41	NA
4-Chloro-3-Methylphenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
4-Chloroaniline	< 1.9	< 3.9	< 1.9	< 0.41	NA
4-Chlorophenyl Phenyl Ether	< 1.9	< 3.9	< 1.9	< 0.41	NA
4-Methylphenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
4-Nitroaniline	< 9.4	< 19	< 9	< 2	NA
4-Nitrophenol	< 9.4	< 19	< 9	< 2	NA
4-Nitroquinoline-1-Oxide	< 19	< 39	< 19	< 4.1	NA
5-Nitro-O-Toluidine	< 3.9	< 7.7	< 3.7	< 0.83	NA
7,12-Dimethylbenz(A)Anthracene	< 3.9	< 7.7	< 3.7	< 0.83	NA
A,A-Dimethylphenethylamine	< 9.4	< 19	< 9	< 2	NA
Acenaphthene	< 1.9	< 3.9	< 1.9	< 0.41	2.9
Acenaphthylene	< 1.9	< 3.9	< 1.9	< 0.41	< 0.41
Acetophenone	< 1.9	< 3.9	< 1.9	< 0.41	NA
Aniline	< 1.9	< 3.9	< 1.9	< 0.41	NA
Anthracene	< 1.9	< 3.9	< 1.9	< 0.41	< 0.41
Aramite	< 3.9	< 7.7	< 3.7	< 0.83	NA
Benzo(b)fluoranthene	7.1	8	3.9	6	0.55
Benzo(a)anthracene	4	7.5	3.1	3.7	< 0.41
Benzo(a)pyrene	4.1	5.6	3.1	4	0.49
Benzo(g,h,i)perylene	3.7	4.4	2.4	3	1
Benzo(k)fluoranthene	4.2	7.5	3.2	3.1	< 0.41
Benzyl Alcohol	< 1.9	< 3.9	< 1.9	< 0.41	NA
Benzyl Butyl Phthalate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Bis(2-Chloroethoxy)Methane	< 1.9	< 3.9	< 1.9	< 0.41	NA
Bis(2-Chloroethyl)Ether	< 1.9	< 3.9	< 1.9	< 0.41	NA
Bis(2-Chloroisopropyl)Ether	< 1.9	< 3.9	< 1.9	< 0.41	NA
Bis(2-Ethylhexyl)Phthalate	< 1.9	< 3.9	< 1.9	0.5	NA
Chlorobenzilate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Chrysene	5.8	8.1	4	4.5	< 0.41

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB01-0.0-0.5 0-0.5	S35-TB01-0406 4-6	S35-TB02-0.0-0.5 0-0.5	S35-TB02-0406 4-6	S35-TB02-1418R 14-18
Diallate	< 3.9	< 7.7	< 3.7	< 0.83	NA
Dibenzo(a,h)anthracene	< 1.9	< 3.9	< 1.9	0.99	< 0.41
Dibenzofuran	< 1.9	< 3.9	< 1.9	< 0.41	NA
Diethyl Phthalate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Dimethoate	< 3.9	< 7.7	< 3.7	< 0.83	NA
Dimethyl Phthalate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Di-N-Butyl Phthalate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Di-N-Octylphthalate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Disulfoton	< 9.4	< 19	< 9	< 2	NA
Ethyl Methanesulfonate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Famphur	< 19	< 39	< 19	< 4.1	NA
Fluoranthene	6.2	11	5.9	5.9	< 0.41
Fluorene	< 1.9	< 3.9	< 1.9	< 0.41	< 0.41
Hexachlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
Hexachlorobutadiene	< 1.9	< 3.9	< 1.9	< 0.41	NA
Hexachlorocyclopentadiene	< 9.4	< 19	< 9	< 2	NA
Hexachloroethane	< 1.9	< 3.9	< 1.9	< 0.41	NA
Hexachlorophene	<	< 19	<	<	NA
Hexachloropropene	< 19	< 39	< 19	< 4.1	NA
Indeno(1,2,3-Cd)Pyrene	3.3	3.9	2.1	2.7	0.52
Isodrin	< 1.9	< 3.9	< 1.9	< 0.41	NA
Isosafrole	< 3.9	< 7.7	< 3.7	< 0.83	NA
Kepone	< 19	< 39	< 19	< 4.1	NA
Methapyrilene	< 9.4	< 19	< 9	< 2	NA

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB01-0.0-0.5 0-0.5	S35-TB01-0406 4-6	S35-TB02-0.0-0.5 0-0.5	S35-TB02-0406 4-6	S35-TB02-1418R 14-18
Methyl Methanesulfonate	< 1.9	< 3.9	< 1.9	< 0.41	NA
Methyl Parathion	< 9.4	< 19	< 9	< 2	NA
Naphthalene	< 1.9	< 3.9	< 1.9	< 0.41	< 0.41
Nitrobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosodiethylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosodimethylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosodi-N-Butylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitroso-Di-N-Propylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosodiphenylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosodiphenylamine/Diphenylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosomethylethylamine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosomorpholine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosopiperidine	< 1.9	< 3.9	< 1.9	< 0.41	NA
N-Nitrosopyrrolidine	< 1.9	< 3.9	< 1.9	< 0.41	NA
O,O,O-Triethyl Phosphorothioate	< 9.4	< 19	< 9	< 2	NA
O-Toluidine	< 3.9	< 7.7	< 3.7	< 0.83	NA
Parathion	< 9.4	< 19	< 9	< 2	NA
P-Dimethylaminoazobenzene	< 3.9	< 7.7	< 3.7	< 0.83	NA
Pentachlorobenzene	< 1.9	< 3.9	< 1.9	< 0.41	NA
Pentachloroethane	< 9.4	< 19	< 9	< 2	NA
Pentachloronitrobenzene	< 9.4	< 19	< 9	< 2	NA
Pentachlorophenol	< 9.4	< 19	< 9	< 2	NA
Phenacetin	< 3.9	< 7.7	< 3.7	< 0.83	NA
Phenanthrene	2.7	7.1	3.7	2.3	< 0.41
Phenol	< 1.9	< 3.9	< 1.9	< 0.41	NA
Phorate	< 9.4	< 19	< 9	< 2	NA
P-Phenylene Diamine	< 19	< 39	< 19	< 4.1	NA
Pronamide	< 3.9	< 7.7	< 3.7	< 0.83	NA
Pyrene	4.9	8.8	4.5	5.2	3.5
Pyridine	< 3.9	< 7.7	< 3.7	< 0.83	NA
Safrole	< 3.9	< 7.7	< 3.7	< 0.83	NA
Tetraethyldithiopyrophosphate	< 9.4	< 19	< 9	< 2	2.5
Thionazin	< 9.4	< 19	< 9	< 2	NA
Miscellaneous (mg/kg)					
Diesel Range Organics	NA	NA	NA	NA	230
Dotriacontane	NA	NA	NA	NA	<

Notes:

[a] ft-bgs = feet below ground surface
[b] mg/kg = milligram per kilogram.
[c] NA = Not Analyzed.
[d] < = not detected at indicated detection limit.
[e] PCBs = Polychlorinated Biphenyls.
[f] VOCs = Volatile Organic Compounds.
[g] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB03-0.0-0.5R 0.0-0.5	S35-TB03-0408R 0.0-0.5	S35-TB03-0408RD 4-8	SWMU#1 TP-10 3.5	SWMU#1 TP-11 5.5	SWMU#1 TP-15 3.3
Inorganics (mg/kg)[b]						
Fluoride	7	4070	7370	4600	5200	140
Cyanide, Dissociable	< 0.71	54.2	49	26	1.9	1.1
Cyanide, Amenable	NA	NA	NA	4.1	0.6	< 0.25
Cyanide, Total	< 0.71	179	331	NA	NA	NA
Arsenic	7.1	9.6	11.4	NA	NA	NA
Barium	34.5	107	107	NA	NA	NA
Cadmium	< 0.28	< 0.24	< 0.26	NA	NA	NA
Chromium	17.4	6.8	7	NA	NA	NA
Lead	20.4	24.6	28.2	NA	NA	NA
Selenium	0.9	< 0.6	< 0.66	NA	NA	NA
PCBs[c] (mg/kg)						
Aroclor 1016	< 0.047	NA	NA	NA	NA	NA
Aroclor 1221	< 0.047	NA	NA	NA	NA	NA
Aroclor 1232	< 0.047	NA	NA	NA	NA	NA
Aroclor 1242	< 0.047	NA	NA	NA	NA	NA
Aroclor 1248	< 0.047	NA	NA	NA	NA	NA
Aroclor 1254	< 0.047	NA	NA	NA	NA	NA
Aroclor 1260	< 0.047	NA	NA	NA	NA	NA
VOCs[f] (mg/kg)						
1,1,1,2-Tetrachloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,1,1-Trichloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,1,2,2-Tetrachloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,1,2-Trichloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,1-Dichloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,1-Dichloroethene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,2,3-Trichloropropane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,2-Dibromo-3-Chloropropane	< 0.014	< 0.012	< 0.013	NA	NA	NA
1,2-Dibromoethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,2-Dichloroethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,2-Dichloropropane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
1,4-Dioxane	< 0.71	< 0.6	< 0.66	NA	NA	NA
2-Butanone	< 0.028	< 0.024	< 0.026	NA	NA	NA
2-Hexanone	< 0.028	< 0.024	< 0.026	NA	NA	NA
4-Bromofluorobenzene	0.066	0.087	0.097	NA	NA	NA
4-Methyl-2-Pentanone	< 0.028	< 0.024	< 0.026	NA	NA	NA
Acetone	0.11	< 0.024	< 0.026	NA	NA	NA
Acetonitrile	< 0.14	< 0.12	< 0.13	NA	NA	NA
Acrolein	< 0.14	< 0.12	< 0.13	NA	NA	NA
Acrylonitrile	< 0.14	< 0.12	< 0.13	NA	NA	NA
Allyl Chloride	< 0.014	< 0.012	< 0.013	NA	NA	NA
Benzene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Bromodichloromethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Bromoform	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Bromomethane	< 0.014	< 0.012	< 0.013	NA	NA	NA
Carbon Disulfide	< 0.0071	0.12	0.031	NA	NA	NA
Carbon Tetrachloride	< 0.0071	< 0.006	< 0.0066	NA	NA	NA

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB03-0.0-0.5R 0.0-0.5	S35-TB03-0408R 0.0-0.5	S35-TB03-0408RD 4-8	SWMU#1 TP-10 3.5	SWMU#1 TP-11 5.5	SWMU#1 TP-15 3.3
Chlorobenzene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Chloroethane	< 0.014	< 0.012	< 0.013	NA	NA	NA
Chloroform	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Chloromethane	< 0.014	< 0.012	< 0.013	NA	NA	NA
Chloroprene	< 0.014	< 0.012	< 0.013	NA	NA	NA
Cis-1,3-Dichloropropene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Dibromochloromethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Dibromofluoromethane	0.062	0.099	0.09	NA	NA	NA
Dibromomethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Dichlorodifluoromethane	< 0.014	< 0.012	< 0.013	NA	NA	NA
Dichloromethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Ethyl Methacrylate	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Ethylbenzene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Iodomethane	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Isobutyl Alcohol	< 0.28	< 0.24	< 0.26	NA	NA	NA
Methacrylonitrile	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Methyl Methacrylate	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Propionitrile	< 0.028	< 0.024	< 0.026	NA	NA	NA
Styrene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Tetrachloroethene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Toluene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Trans-1,2-Dichloroethene	< 0.0035	< 0.003	< 0.0033	NA	NA	NA
Trans-1,3-Dichloropropene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Trichloroethene	< 0.0071	0.014	< 0.0066	NA	NA	NA
Trichlorofluoromethane	< 0.014	< 0.012	< 0.013	NA	NA	NA
Vinyl Acetate	< 0.014	< 0.012	< 0.013	NA	NA	NA
Vinyl Chloride	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
Xylene (Total)	< 0.0071	< 0.006	< 0.0066	NA	NA	NA
SVOCs[c] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,2,4-Trichlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,2-Dichlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,3,5-Trinitrobenzene	< 2.3	< 1.9	< 2.1	NA	NA	NA
1,3-Dichlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,3-Dinitrobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,4-Dichlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
1,4-Naphthoquinone	< 2.3	< 1.9	< 2.1	NA	NA	NA
1-Naphthylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,3,4,6-Tetrachlorophenol	< 2.3	< 1.9	< 2.1	NA	NA	NA
2,4,5-Trichlorophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,4,6-Tribromophenol	4.4	1.2	1.9	NA	NA	NA
2,4,6-Trichlorophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,4-Dichlorophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,4-Dimethylphenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,4-Dinitrophenol	< 2.3	< 1.9	< 2.1	NA	NA	NA
2,4-Dinitrotoluene	< 0.47	< 0.4	< 0.44	NA	NA	NA
2,6-Dichlorophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB03-0.0-0.5R 0.0-0.5	S35-TB03-0408R 0.0-0.5	S35-TB03-0408RD 4-8	SWMU#1 TP-10 3.5	SWMU#1 TP-11 5.5	SWMU#1 TP-15 3.3
2,6-Dinitrotoluene	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Acetylaminofluorene	< 4.7	< 4	< 4.4	NA	NA	NA
2-Chloronaphthalene	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Chlorophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Methylnaphthalene	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Methylphenol (O-Cresol)	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Naphthylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Nitroaniline	< 2.3	< 1.9	< 2.1	NA	NA	NA
2-Nitrophenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
2-Picoline	< 0.93	< 0.8	< 0.87	NA	NA	NA
2-Sec-Butyl-4,6-Dinitrophenol	< 0.93	< 0.8	< 0.87	NA	NA	NA
3,3'-Dichlorobenzidine	< 2.3	< 1.9	< 2.1	NA	NA	NA
3,3'-Dimethylbenzidine	< 2.3	< 1.9	< 2.1	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.47	< 0.4	< 0.44	NA	NA	NA
3-Methylcholanthrene	< 0.93	< 0.8	< 0.87	NA	NA	NA
3-Nitroaniline	< 2.3	< 1.9	< 2.1	NA	NA	NA
4,6-Dinitro-2-Methylphenol	< 2.3	< 1.9	< 2.1	NA	NA	NA
4-Aminobiphenyl	< 2.3	< 1.9	< 2.1	NA	NA	NA
4-Bromophenyl Phenyl Ether	< 0.47	< 0.4	< 0.44	NA	NA	NA
4-Chloro-3-Methylphenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
4-Chloroaniline	< 0.47	< 0.4	< 0.44	NA	NA	NA
4-Chlorophenyl Phenyl Ether	< 0.47	< 0.4	< 0.44	NA	NA	NA
4-Methylphenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
4-Nitroaniline	< 2.3	< 1.9	< 2.1	NA	NA	NA
4-Nitrophenol	< 2.3	< 1.9	< 2.1	NA	NA	NA
4-Nitroquinoline-1-Oxide	< 4.7	< 4	< 4.4	NA	NA	NA
5-Nitro-O-Toluidine	< 0.93	< 0.8	< 0.87	NA	NA	NA
7,12-Dimethylbenz(A)Anthracene	< 0.93	< 0.8	< 0.87	NA	NA	NA
A,A-Dimethylphenethylamine	< 2.3	< 1.9	< 2.1	NA	NA	NA
Acenaphthene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Acenaphthylene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Acetophenone	< 0.47	< 0.4	< 0.44	NA	NA	NA
Aniline	< 0.47	< 0.4	< 0.44	NA	NA	NA
Anthracene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Aramite	< 0.93	< 0.8	< 0.87	NA	NA	NA
Benzo(b)fluoranthene	0.64	< 0.4	< 0.44	NA	NA	NA
Benzo(a)anthracene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Benzo(a)pyrene	0.58	< 0.4	< 0.44	NA	NA	NA
Benzo(g,h,i)perylene	1.2	< 0.4	< 0.44	NA	NA	NA
Benzo(k)fluoranthene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Benzyl Alcohol	< 0.47	< 0.4	< 0.44	NA	NA	NA
Benzyl Butyl Phthalate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Bis(2-Chloroethoxy)Methane	< 0.47	< 0.4	< 0.44	NA	NA	NA
Bis(2-Chloroethyl)Ether	< 0.47	< 0.4	< 0.44	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	< 0.47	< 0.4	< 0.44	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	< 0.47	< 0.4	6.6	NA	NA	NA
Chlorobenzilate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Chrysene	< 0.47	< 0.4	< 0.44	NA	NA	NA

Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB03-0.0-0.5R 0.0-0.5	S35-TB03-0408R 0.0-0.5	S35-TB03-0408RD 4-8	SWMU#1 TP-10 3.5	SWMU#1 TP-11 5.5	SWMU#1 TP-15 3.3
Diallate	< 0.93	< 0.8	< 0.87	NA	NA	NA
Dibenzo(a,h)anthracene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Dibenzofuran	< 0.47	< 0.4	< 0.44	NA	NA	NA
Diethyl Phthalate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Dimethoate	< 0.93	< 0.8	< 0.87	NA	NA	NA
Dimethyl Phthalate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Di-N-Butyl Phthalate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Di-N-Octylphthalate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Disulfoton	< 2.3	< 1.9	< 2.1	NA	NA	NA
Ethyl Methanesulfonate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Famphur	< 4.7	< 4	< 4.4	NA	NA	NA
Fluoranthene	< 0.47	0.71	< 0.44	NA	NA	NA
Fluorene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Hexachlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Hexachlorobutadiene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Hexachlorocyclopentadiene	< 2.3	< 1.9	< 2.1	NA	NA	NA
Hexachloroethane	< 0.47	< 0.4	< 0.44	NA	NA	NA
Hexachlorophene	< 2.3	< 1.9	< 2.1	NA	NA	NA
Hexachloropropene	< 4.7	< 4	< 4.4	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	0.62	< 0.4	< 0.44	NA	NA	NA
Isodrin	< 0.47	< 0.4	< 0.44	NA	NA	NA
Isosafrole	< 0.93	< 0.8	< 0.87	NA	NA	NA
Kepone	< 4.7	< 4	< 4.4	NA	NA	NA
Methapyrilene	< 2.3	< 1.9	< 2.1	NA	NA	NA

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Table 4-17

SWMU No. 35 (Old Waste Oil Storage Area)
Accelerated and Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S35-TB03-0.0-0.5R 0.0-0.5	S35-TB03-0408R 0.0-0.5	S35-TB03-0408RD 4-8	SWMU#1 TP-10 3.5	SWMU#1 TP-11 5.5	SWMU#1 TP-15 3.3
Methyl Methanesulfonate	< 0.47	< 0.4	< 0.44	NA	NA	NA
Methyl Parathion	< 2.3	< 1.9	< 2.1	NA	NA	NA
Naphthalene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Nitrobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosodiethylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosodimethylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosodi-N-Butylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitroso-Di-N-Propylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosodiphenylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosomethylethylamine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosomorpholine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosopiperidine	< 0.47	< 0.4	< 0.44	NA	NA	NA
N-Nitrosopyrrolidine	< 0.47	< 0.4	< 0.44	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	< 2.3	< 1.9	< 2.1	NA	NA	NA
O-Toluidine	< 0.93	< 0.8	< 0.87	NA	NA	NA
Parathion	< 2.3	< 1.9	< 2.1	NA	NA	NA
P-Dimethylaminoazobenzene	< 0.93	< 0.8	< 0.87	NA	NA	NA
Pentachlorobenzene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Pentachloroethane	< 2.3	< 1.9	< 2.1	NA	NA	NA
Pentachloronitrobenzene	< 2.3	< 1.9	< 2.1	NA	NA	NA
Pentachlorophenol	< 2.3	< 1.9	< 2.1	NA	NA	NA
Phenacetin	< 0.93	< 0.8	< 0.87	NA	NA	NA
Phenanthrene	< 0.47	0.41	< 0.44	NA	NA	NA
Phenol	< 0.47	< 0.4	< 0.44	NA	NA	NA
Phorate	< 2.3	< 1.9	< 2.1	NA	NA	NA
P-Phenylene Diamine	< 4.7	< 4	< 4.4	NA	NA	NA
Pronamide	< 0.93	< 0.8	< 0.87	NA	NA	NA
Pyrene	< 0.47	< 0.4	< 0.44	NA	NA	NA
Pyridine	< 0.93	< 0.8	< 0.87	NA	NA	NA
Safrole	< 0.93	< 0.8	< 0.87	NA	NA	NA
Tetraethyldithiopyrophosphate	< 2.3	< 1.9	< 2.1	NA	NA	NA
Thionazin	< 2.3	< 1.9	< 2.1	NA	NA	NA
Miscellaneous (mg/kg)						
Diesel Range Organics	NA	NA	NA	NA	NA	NA
Dotriacontane	NA	NA	NA	NA	NA	NA

Notes:

[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligram per kilogram.
[c] NA = Not Analyzed.
[d] < = not detected at indicated detection limit.
[e] PCBs = Polychlorinated Biphenyls.
[f] VOCs = Volatile Organic Compounds.
[g] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-18

SWMU No. 35 (Old Waste Oil Storage Area)
Phase II Soil PCB Field Screening Results

Alcoa Badin, NC Works RFI

Boring	Interval (ft-bgs)[a]	Photometer Reading	Standard Reading	Comments
TB04	0 - 2	1.03	-0.11	Confirmed by Laboratory.
	2 - 4	0.65	-0.11	
TB05	0 - 2	0.57	-0.11	
	2 - 4	0.97	-0.11	
	4 - 6	1.32	-0.11	
	6 - 8	1.55	-0.11	
TB06	0 - 2	-0.28	-0.11	PCBs > 2 ppm[b]. Confirmed by Laboratory.
	2 - 4	0.28	-0.11	
	4 - 6	1.08	-0.11	
	6 - 8	0.67	-0.11	
TB07	0 - 2	0.17	-0.17	Confirmed by Laboratory.
	2 - 4	0.40	-0.17	
	4 - 6	0.32	-0.17	
	6 - 8	0.40	-0.17	
TB08	0 - 2	-0.26	-0.17	PCBs > 2 ppm
	2 - 4	-0.11	-0.17	
TB09	0 - 2	-0.12	-0.70	PCBs > 2 ppm
	2 - 4	0.03	-0.70	
	4 - 6	0.08	-0.70	
	6 - 8	0.28	-0.70	
TB10	0 - 2	-1.06	-0.70	PCBs > 2 ppm. Confirmed by Laboratory.
	2 - 4	-1.04	-0.70	PCBs > 2 ppm
	4 - 6	-1.09	-0.70	PCBs > 2 ppm. Confirmed by Laboratory.
	6 - 8	-1.02	-0.70	PCBs > 2 ppm
TB11	0 - 2	0.33	-0.20	Confirmed by Laboratory.
	2 - 4	0.55	-0.20	
	4 - 6	0.41	-0.20	
	6 - 8	0.51	-0.20	
TB-12	0 - 2	0.48	-0.50	

Notes

[a] ft-bgs = feet below ground surface

[b] ppm = parts per million

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Table 4-19

SWMU No. 35 (Old Waste Oil Storage Area)
Phase II Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation	S35-TB04-0002	S35-TB06-0002	S35-TB07-0002	S35-TB10-0002	S35-TB10-0406	S35-TB11-0002	S35-TB11-0002D
Sample Date	8/26/00	8/26/00	8/26/00	8/27/00	8/27/00	8/27/00	8/27/00
Sample Depth (ft-bgs)[a]	0.0-2.0	0.0-2.0	0.0-2.0	0.0-2.0	4.0-6.0	0.0-2.0	0.0-2.0
Parameter							
Miscellaneous							
Percent Solids	73	77.8	88.1	84.8	76.7	91.4	89.7
Inorganics (mg/kg)[b]							
Cyanide, Total	0.89	2.4	3	< 0.59 [c]	10.6	< 0.55	< 0.56
Cyanide, Weak Acid Dissociable	< 0.69	< 0.64	< 0.57	< 0.59	2.1	< 0.55	< 0.56
Fluoride	60	170	320	110	4500	91	89
PCBs[d] (mg/kg)							
Aroclor 1016	< 0.045	< 2.1	< 0.037	< 3.9	< 0.86	< 0.036	< 0.037
Aroclor 1221	< 0.045	< 2.1	< 0.037	< 3.9	< 0.86	< 0.036	< 0.037
Aroclor 1232	< 0.045	< 2.1	< 0.037	< 3.9	< 0.86	< 0.036	< 0.037
Aroclor 1242	< 0.045	< 2.1	< 0.037	< 3.9	< 0.86	< 0.036	< 0.037
Aroclor 1248	< 0.045	17	< 0.037	44	13	< 0.036	< 0.037
Aroclor 1254	< 0.045	6.9	< 0.037	16	4.6	< 0.036	< 0.037
Aroclor 1260	0.12	2.4	0.052	4.1	1.2	< 0.036	< 0.037
SVOCs[e] (mgkg)							
Acenaphthene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	< 0.72	< 0.74
Acenaphthylene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	< 0.72	< 0.74
Anthracene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	< 0.72	< 0.74
Benzo(a)anthracene	4.1	0.86	2.1	0.58	< 0.43	4.3	5.9
Benzo(a)pyrene	5.1	1.1	2.6	0.67	< 0.43	5.1	7.2
Benzo(b)fluoranthene	5.9	1.7	4.4	1	< 0.43	6.8	9.6
Benzo(ghi)perylene	4.5	0.75	1.5	0.44	< 0.43	2.7	3.2
Benzo(k)fluoranthene	3.2	0.85	1.7	0.69	< 0.43	2.4	3.5
Chrysene	5.6	1.3	3	0.94	< 0.43	5.9	8.2
Dibenz(a,h)anthracene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	1.1	1.4
Fluoranthene	6.5	1.5	3.5	1.1	0.6	7.3	10
Fluorene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	< 0.72	< 0.74
Indeno(1,2,3-cd)pyrene	4.3	0.76	1.6	0.43	< 0.43	3.1	3.9
Naphthalene	< 2.3	< 0.42	< 0.75	< 0.39	< 0.43	< 0.72	< 0.74
Phenanthrene	2.6	0.7	1.8	0.51	< 0.43	3	3.9
Pyrene	5.2	0.96	2.4	0.79	< 0.43	5.8	7.8

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] < = not detected at indicated detection limit.

[d] PCBs = Polychlorinated Biphenyls.

[e] SVOCs - Semi-Volatile Organic Compounds.

Table 4-20

Soil Screening Table SWMU No. 35 (Cold Waste Oil Storage Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	USEPA Region III Industrial Soil RBC[a]	USEPA Region III Residential Soil RBC[a]	USEPA SSL[b] DAF[c]=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	7	7	mg/kg[d]	7.1	16.2	3.8	0.43	29	29	✓	✓		
Barium	7	7	mg/kg	34.5	216	140000	5500	1600	1648				
Cadmium	3	7	mg/kg	0.31	0.99	2000	78	8	8				
Chromium	7	7	mg/kg	6.8	26.5	6100	230	38	38				
Lead	7	7	mg/kg	20.4	270	400	400	NA	267				✓
Selenium	3	7	mg/kg	0.63	1.4	10000	390	5	5				
Other													
Cyanide, Weak Acid Dissociable	5	14	mg/kg	0.83	54.2	41000	1600	40	31			✓	✓
Cyanide, Total	13	17	mg/kg	0.89	331	41000	1600	40	31			✓	✓
Fluoride	17	17	mg/kg	7	7370	120000	4700	NA	NA				✓
PCBs[e]													
Aroclor 1248	7	13	mg/kg	0.065	110	2.9	0.32	NA	NA	✓	✓		
Aroclor 1254	3	13	mg/kg	4.6	16	2.9	0.32	NA	NA	✓	✓		
Aroclor 1260	6	13	mg/kg	0.052	4.1	2.9	0.32	NA	NA	✓	✓		
SVOCs[f]													
Acenaphthene	1	15	mg/kg	2.9	2.9	120000	4700	570	11.6				
Acetonitrile	1	7	mg/kg	0.14	0.14	NA	NA	NA	NA				
Benzo(a)anthracene	10	15	mg/kg	0.58	7.5	7.8	0.87	2	0.4		✓	✓	✓
Benzo(a)pyrene	12	15	mg/kg	0.49	7.2	0.78	0.087	8	0.1	✓	✓		✓
Benzo(b)fluoranthene	12	15	mg/kg	0.55	9.6	7.8	0.87	5	1.2	✓	✓	✓	✓
Benzo(ghi)perylene[g]	12	15	mg/kg	0.44	4.5	61000	2300	4200	6720				
Benzo(k)fluoranthene	10	15	mg/kg	0.69	7.5	78	8.7	49	11.6				
Bis(2-Ethylhexyl)phthalate	2	7	mg/kg	0.5	6.6	410	46	3600	906				
Chrysene	10	15	mg/kg	0.94	8.2	780	87	160	39.8				
Dibenz(a,h)anthracene	3	15	mg/kg	0.99	1.4	0.78	0.087	2	0.4	✓	✓		✓
Fluoranthene	12	15	mg/kg	0.6	11	82000	3100	4300	600				
Indeno(1,2,3-Cd)pyrene	12	15	mg/kg	0.43	4.3	7.8	0.87	14	3.3		✓		✓
Phenanthrene[g]	11	15	mg/kg	0.41	7.1	61000	2300	4200	59.6				
Pyrene	11	15	mg/kg	0.79	8.8	61000	2300	4200	442				
VOCs[h]													
2-Butanone	3	7	mg/kg	0.031	0.058	1200000	47000	NA	0.8				
Acetone	5	7	mg/kg	0.037	0.34	200000	7800	16	2.8				
Bromomethane	1	7	mg/kg	0.021	0.021	2900	110	0.2	NA				

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Table 4-20

Soil Screening Table SWMU No. 35 (Cold Waste Oil Storage Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	USEPA Region III Industrial Soil RBC[a]	USEPA Region III Residential Soil RBC[a]	USEPA SSL[b] DAF[c]=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Carbon Disulfide	3	7	mg/kg	0.019	0.12	200000	7800	32	4.9				
Chloromethane	1	7	mg/kg	0.15	0.15	440	49	NA	0.01				✓
Toluene	1	7	mg/kg	0.0086	0.0086	410000	16000	12	8.1				
Trichloroethene	2	7	mg/kg	0.014	0.025	520	58	0.06	0.02				✓

Notes:

[a]RBC = Risk-Based Concentration (USEPA, 2000)
[b]SSL = Soil Screening Level (USEPA, 1996)
[c]DAF = Dilution Attenuation Factor
[d]mg/kg = milligrams per kilogram
[e]PCBs = Polychlorinated Biphenyls
[f]SVOCs = Semi-Volatile Organic Compounds
[g]RBC for Pyrene as a Surrogate
[h]VOCs = Volatile Organic Compounds
✓ Maximum concentration of constituent exceeds screening value.
All arsenic concentrations are less than background concentrations.

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Table 4-21

Exposure Point Concentrations
SWMU No. 35 - Soils

Alcoa Badin, NC Works RFI

Potential Exposure Medium	Constituent of Interest	Maximum Detection (mg/kg)[a]	Data Distribution	95% UCL[b] (mg/kg)	EPC[c] (mg/kg)
Surface Soil	Benzo(a)anthracene	5.9	normal	3.9	3.9
	Benzo(a)pyrene	7.2	normal	4.5	4.5
	Benzo(b)fluoranthene	9.6	normal	6.2	6.2
	Dibenz(a,h)anthracene	1.4	lognormal	0.9	0.9
	Indeno(1,2,3-Cd)pyrene	4.3	normal	3.0	3.0
	Aroclor 1248	110.0	non-parametric	42	42
	Aroclor 1254	16.0	non-parametric	6.1	6.1
	Aroclor 1260	4.1	lognormal	3.4	3.4
Surface/Subsurface Soil	Benzo(a)pyrene	7.2	normal	3.9	3.9
	Benzo(b)fluoranthene	9.6	normal	5.4	5.4
	Dibenz(a,h)anthracene	1.4	lognormal	0.9	0.9
	Aroclor 1248	110.0	non-parametric	33	33
	Aroclor 1254	16.0	non-parametric	4.9	4.9
	Aroclor 1260	4.1	lognormal	3.2	3.2

Notes:

[a] mg/kg = milligrams per kilogram

[b] UCL = upper confidence limit

[c] EPC = exposure point concentration

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Table 4-22
SWMU No. 35 Risk Characterization

Alcoa Badin, NC Works RFI

CURRENT/FUTURE INFREQUENT INDUSTRIAL WORKER - SURFACE SOIL

SUMMED THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Benzo(a)pyrene	1.16E-06	3.41E-08	1.49E-10	1.2E-06
Benzo(b)fluoranthene	1.59E-07	4.69E-09	NA	1.6E-07
Dibenz(a,h)anthracene	2.42E-07	7.14E-09	NA	2.5E-07
Aroclor 1248	2.96E-06	5.34E-07	8.98E-10	3.5E-06
Aroclor 1254	4.23E-07	7.64E-08	1.29E-10	5.0E-07
Aroclor 1260	2.36E-07	4.27E-08	7.18E-11	2.8E-07
TOTAL	5.2E-06	7.0E-07	1.2E-09	6E-06

SUMMED HAZARD INDICES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Aroclor 1248	2.07E-01	3.86E-02	NA	0.25
Aroclor 1254	2.96E-02	5.50E-03	NA	0.035
Aroclor 1260	1.65E-02	3.10E-03	NA	0.02
TOTAL	0.3	0.05	NA	0.3

CURRENT/FUTURE OFF-SITE RESIDENT - ADULT [a]
SURFACE SOIL GENERATED PARTICULATES

SUMMED THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	NA	NA	9.04E-10	9.0E-10
Aroclor 1248	NA	NA	5.43E-09	5.4E-09
Aroclor 1254	NA	NA	7.77E-10	7.8E-10
Aroclor 1260	NA	NA	4.34E-10	4.3E-10
TOTAL	NA	NA	7.55E-09	8E-09

CURRENT/FUTURE OFF-SITE RESIDENT - CHILD [a]
SURFACE SOIL GENERATED PARTICULATES

SUMMED THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	NA	NA	4.22E-10	4.2E-10
Aroclor 1248	NA	NA	2.53E-09	2.5E-09
Aroclor 1254	NA	NA	3.63E-10	3.6E-10
Aroclor 1260	NA	NA	2.03E-10	2.0E-10
TOTAL	NA	NA	3.52E-09	4E-09

[a] Although additional carcinogenic PAHs were also identified as COIs for off-site residential scenario, only benzo(a)pyrene has an inhalation CSF (NCEA).

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Table 4-22
SWMU No. 35 Risk Characterization

Alcoa Badin, NC Works RFI

FUTURE CONSTRUCTION WORKER
ALL SOIL (TO 10 FEET BGS)

SUMMED THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	7.11E-08	7.18E-09	1.83E-11	7.8E-08
Benzo(b)fluoranthene	9.93E-09	1.00E-09	NA	1.1E-08
Dibenz(a,h)anthracene	1.65E-08	1.66E-09	NA	1.8E-08
Aroclor 1248	1.66E-07	1.03E-07	1.01E-10	2.7E-07
Aroclor 1254	2.46E-08	1.52E-08	1.49E-11	4.0E-08
Aroclor 1260	1.63E-08	1.01E-08	9.92E-12	2.6E-08
TOTAL	3.0E-07	1.4E-07	1.4E-10	4E-07

SUMMED HAZARD INDICES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Aroclor 1248	1.16E-01	7.40E-02	NA	0.019
Aroclor 1254	1.72E-02	1.10E-02	NA	0.028
Aroclor 1260	1.14E-02	7.30E-03	NA	0.019
TOTAL	0.1	0.09	NA	0.2

FUTURE FULL-TIME INDUSTRIAL WORKER
SURFACE SOIL

SUMMED THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	5.79E-06	1.71E-07	7.47E-10	6.0E-06
Benzo(b)fluoranthene	7.96E-07	2.35E-08	NA	8.2E-07
Dibenz(a,h)anthracene	1.21E-06	3.57E-08	NA	1.2E-06
Aroclor 1248	1.48E-05	2.67E-06	4.49E-09	1.7E-05
Aroclor 1254	2.11E-06	3.82E-07	6.43E-10	2.5E-06
Aroclor 1260	1.18E-06	2.13E-07	3.59E-10	1.4E-06
TOTAL	2.6E-05	3.5E-06	6.2E-09	3E-05

SUMMED HAZARD INDICES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Aroclor 1248	1.03E+00	1.90E-01	NA	1.22
Aroclor 1254	1.48E-01	2.80E-02	NA	0.176
Aroclor 1260	8.27E-02	1.50E-02	NA	0.098
TOTAL	1	0.2	NA	1

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Table 4-23

SWMU No. 44 (Pine Tree Grove Area)
Pre-RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Destination / Sample Location / Sample Depth (ft-bgs)[a] / Parameter	SB-1 PTG-SB-1 18.0	SB-2 PTG-SB-2 15.0	SB-3 PTG-SB-3 15.0	SB-4 PTG-SB-4 28.0	SB-5 PTG-SB-5 5.0	SB-6 PTG-SB-6 20.0	SB-7 PTG-SB-7 15.0
Inorganics (mg/kg)[b]							
Cyanide, Amenable	0.19	< 0.25[c]	10.7	< 0.25	< 0.25	< 0.25	< 0.25
Cyanide, Total	0.52	1.1	10.9	1.5	0.57	6	2.6
Fluoride	7400	670	14600	570	6900	2000	3300

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

Table 4-24

SWMU No. 44 (Pine Tree Grove Area)
Phase II RFI Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5
Sample Date	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
Parameter						
Miscellaneous						
Percent Solids	86.6	83.3	82.7	83.6	87	84.6
Inorganics (mg/kg)[b]						
Cyanide, Total	1.1	< 0.6[c]	< 0.6	< 0.6	< 0.57	< 0.59
Cyanide, Weak Acid Dissociable	< 0.58	< 0.6	< 0.6	< 0.6	< 0.57	< 0.59
Fluoride	36	21	22	16	36	40
Arsenic	9.9	9.5	10.4	8.8	7	11.6
Barium	< 46.2	24.4	26.3	57.3	30.6	40.8
Cadmium	< 1.2	< 0.6	< 0.6	< 0.6	< 0.58	< 0.59
Chromium	14.4	11.8	13.2	21.7	13.6	14.6
Lead	35.8	23.1	23.9	45.2	26.8	27.5
Selenium	< 1.2	1.4	1.4	1.5	1.8	1.7
VOCs[d] (mg/kg)						
1,1,1,2-Tetrachloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,1,1-Trichloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,1,2,2-Tetrachloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075 J[e]	< 0.0057	< 0.0059
1,1,2-Trichloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,1-Dichloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,1-Dichloroethene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,2,3-Trichloropropane	< 0.0077	< 0.006	< 0.0079	< 0.0075 J	< 0.0057	< 0.0059
1,2-Dibromo-3-chloropropane (DBCP)	< 0.015	< 0.012	< 0.016	< 0.015 J	< 0.011	< 0.012
1,2-Dibromoethane (EDB)	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,2-Dichloroethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,2-Dichloropropane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
1,4-Dioxane	< 0.77 R[f]	< 0.6 R	< 0.79 R	< 0.75 R	< 0.57 R	< 0.59 R
2-Butanone (MEK)	< 0.031	< 0.024	< 0.032	< 0.03	< 0.023	< 0.024
2-Hexanone	< 0.031	< 0.024	< 0.032	< 0.03	< 0.023	< 0.024
4-Methyl-2-pentanone	< 0.031	< 0.024	< 0.032	< 0.03	< 0.023	< 0.024
Acetone	0.16 J	< 0.024 J	< 0.032 J	0.27 J	< 0.023 J	0.24 J
Acetonitrile	< 0.15 R	< 0.12 R	< 0.16 R	< 0.15 R	< 0.11 R	< 0.12 R
Acrolein	< 0.15 R	< 0.12 R	< 0.16 R	< 0.15 R	< 0.11 R	< 0.12 R
Acrylonitrile	< 0.15	< 0.12	< 0.16	< 0.15	< 0.11	< 0.12
Allyl chloride	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Benzene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Bromodichloromethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Bromoform	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Bromomethane	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Carbon disulfide	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Carbon tetrachloride	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Chlorobenzene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059

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Table 4-24

SWMU No. 44 (Pine Tree Grove Area)
Phase II RFI Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5
Sample Date	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
Parameter						
Chloroethane	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Chloroform	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Chloromethane	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Chloroprene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
cis-1,2-Dichloroethene	< 0.0039	< 0.003	< 0.004	< 0.0038	< 0.0029	< 0.003
cis-1,3-Dichloropropene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Dibromochloromethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Dibromomethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Dichlorodifluoromethane	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Ethyl methacrylate	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Ethylbenzene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Iodomethane	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Isobutyl alcohol	< 0.31 R	< 0.24 R	< 0.32 R	< 0.3 R	< 0.23 R	< 0.24 R
Methacrylonitrile	< 0.077	< 0.06	< 0.079	< 0.075	< 0.057	< 0.059
Methyl methacrylate	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Methylene chloride	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Propionitrile	< 0.031	< 0.024	< 0.032	< 0.03	< 0.023	< 0.024
Styrene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Tetrachloroethene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Toluene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
trans-1,2-Dichloroethene	< 0.0039	< 0.003	< 0.004	< 0.0038	< 0.0029	< 0.003
trans-1,3-Dichloropropene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
trans-1,4-Dichloro-2-butene	< 0.0077	< 0.006	< 0.0079	< 0.0075 J	< 0.0057	< 0.0059
Trichloroethene	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
Trichlorotrifluoroethane	< 0.031	< 0.024	< 0.032	< 0.03	< 0.023	< 0.024
Vinyl acetate	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Vinyl chloride	< 0.015	< 0.012	< 0.016	< 0.015	< 0.011	< 0.012
Xylenes (total)	< 0.0077	< 0.006	< 0.0079	< 0.0075	< 0.0057	< 0.0059
SVOCs[g] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,2,4-Trichlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,2-Dichlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,3,5-Trinitrobenzene	< 1.8 R	< 1.9 R	< 1.9 R	< 1.9 R	< 1.8 R	< 1.9 R
1,3-Dichlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,3-Dinitrobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,4-Dichlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
1,4-Naphthoquinone	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
1-Naphthylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,3,4,6-Tetrachlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,4,5-Trichlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,4,6-Trichlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39

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Table 4-24

SWMU No. 44 (Pine Tree Grove Area)
Phase II RFI Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5
Sample Date	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
Parameter						
2,4-Dichlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,4-Dimethylphenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,4-Dinitrophenol	< 1.8 R	< 1.9 R	< 1.9 R	< 1.9 R	< 1.8 R	< 1.9 R
2,4-Dinitrotoluene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,6-Dichlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2,6-Dinitrotoluene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Acetylaminofluorene	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
2-Chloronaphthalene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Chlorophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Methylnaphthalene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Methylphenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Naphthylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Nitroaniline	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
2-Nitrophenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
2-Picoline	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
3&4 Methylphenol total	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
3,3'-Dichlorobenzidine	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
3,3'-Dimethylbenzidine	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
3-Methylcholanthrene	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
3-Methylphenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
3-Nitroaniline	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
4,6-Dinitro-2-methylphenol	< 1.8 R	< 1.9 R	< 1.9 R	< 1.9 R	< 1.8 R	< 1.9 R
4-Aminobiphenyl	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
4-Bromophenyl phenyl ether	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
4-Chloro-3-methylphenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
4-Chloroaniline	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
4-Chlorophenyl phenyl ether	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
4-Nitroaniline	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
4-Nitrophenol	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
4-Nitroquinoline-1-oxide	< 3.8 R	< 4 R	< 4 R	< 3.9 R	< 3.8 R	< 3.9 R
5-Nitro-o-toluidine	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
7,12-Dimethylbenz(a)anthracene	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
a,a-Dimethylphenethylamine	< 1.8	< 1.9	< 1.9 J	< 1.9	< 1.8	< 1.9
Acenaphthene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Acenaphthylene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Acetophenone	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Aniline	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Anthracene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Aramite	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Benzo(a)anthracene	1.1	0.51	0.48	1.2	0.42	0.66
Benzo(a)pyrene	1.3	0.62	0.6	1.6	0.53	0.79

Table 4-24

SWMU No. 44 (Pine Tree Grove Area)
Phase II RFI Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5
Sample Date	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00	8/30/00
Sample Depth (ft-bgs)[a]	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
Benzo(b)fluoranthene	2	0.96	1.1	3.5	0.85	1.5
Benzo(ghi)perylene	0.67	< 0.4	< 0.4	0.61	< 0.38	< 0.39
Benzo(k)fluoranthene	1.1 J	0.62 J	0.65	1.6 J	0.6 J	0.9 J
Benzyl alcohol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
bis(2-Chloroethoxy)methane	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
bis(2-Chloroethyl) ether	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
bis(2-Chloroisopropyl) ether	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
bis(2-Ethylhexyl) phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Butyl benzyl phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Chrysene	1.4	0.69	0.65	1.9	0.56	0.92
Dibenz(a,h)anthracene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Dibenzofuran	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Diethyl phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Dimethoate	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Dimethyl phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Di-n-butyl phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Di-n-octyl phthalate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Dinoseb	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Diphenylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Disulfoton	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Ethyl methanesulfonate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Famphur	< 3.8	< 4	< 4	< 3.9	< 3.8	< 3.9
Fluoranthene	1.7	0.77	0.73	1.9	0.73	1.1
Fluorene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Hexachlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Hexachlorobutadiene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Hexachlorocyclopentadiene	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Hexachloroethane	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Hexachloropropene	< 3.8	< 4	< 4	< 3.9	< 3.8	< 3.9
Indeno(1,2,3-cd)pyrene	0.7	< 0.4	< 0.4	0.66	< 0.38	< 0.39
Isodrin	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Isophorone	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Isosafrole	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Methapyrilene	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Methyl methanesulfonate	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Methyl parathion	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Naphthalene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Nitrobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosodiethylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosodimethylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosodi-n-butylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39

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Table 4-24

SWMU No. 44 (Pine Tree Grove Area)
Phase II RFI Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Date / Sample Depth (ft-bgs)[a] / Parameter	S44-SS01-0.0-0.5 8/30/00 0.0-0.5	S44-SS02-0.0-0.5 8/30/00 0.0-0.5	S44-SS02-0.0-0.5D 8/30/00 0.0-0.5	S44-SS03-0.0-0.5 8/30/00 0.0-0.5	S44-SS04-0.0-0.5 8/30/00 0.0-0.5	S44-SS05-0.0-0.5 8/30/00 0.0-0.5
N-Nitrosodi-n-propylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosodiphenylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosomethylethylamine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosomorpholine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosopiperidine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
N-Nitrosopyrrolidine	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
O,O,O-Triethyl phosphorothioate	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
o-Toluidine	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Parathion	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
p-Dimethylaminoazobenzene	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Pentachlorobenzene	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Pentachloroethane	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Pentachloronitrobenzene	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Pentachlorophenol	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Phenacetin	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Phenanthrene	0.71	< 0.4	< 0.4	0.79	< 0.38	< 0.39
Phenol	< 0.38	< 0.4	< 0.4	< 0.39	< 0.38	< 0.39
Phorate	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
p-Phenylene diamine	< 3.8	< 4	< 4	< 3.9	< 3.8	< 3.9
Pronamide	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Pyrene	1.1	0.55	0.48	1.2	0.4	0.64
Pyridine	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Safrole	< 0.76	< 0.79	< 0.8	< 0.79	< 0.76	< 0.78
Sulfotepp	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9
Thionazin	< 1.8	< 1.9	< 1.9	< 1.9	< 1.8	< 1.9

Notes:

[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligram per kilogram.
[c] < = not detected at indicated detection limit.
[d] VOCs = Volatile Organic Compounds.
[e] J = estimated value.
[f] R = rejected value.
[g] SVOCs - Semi-Volatile Organic Compounds.

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Table 4-25

Soil Screening Table (All Depths)
SWMU No. 44 (Pine Tree Grove Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	USEPA Region III Industrial Soil RBC[a]	USEPA Region III Residential Soil RBC[a]	USEPA SSL[b] DAF[c]=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	6	6	mg/kg[d]	7	11.6	3.8	0.43	29	29	✓	✓		
Barium	5	6	mg/kg	24.4	57.3	140000	5500	1600	1648				
Chromium	6	6	mg/kg	11.8	21.7	6100	230	38	38				
Lead	6	6	mg/kg	23.1	45.2	400	400	NA	267				
Selenium	5	6	mg/kg	1.4	1.8	10000	390	5	5				
Other													
Cyanide, Amenable	2	7	mg/kg	0.19	10.7	41000	1600	40	31				
Cyanide, Total	8	13	mg/kg	0.52	10.9	41000	1600	40	31				
Fluoride	13	13	mg/kg	16	14600	120000	4700	NA	NA		✓		
SVOCs[e]													
Benzo(a)anthracene	6	6	mg/kg	0.42	1.2	7.8	0.87	2	0.4		✓		✓
Benzo(a)pyrene	6	6	mg/kg	0.53	1.6	0.78	0.087	8	0.1	✓	✓		✓
Benzo(b)fluoranthene	6	6	mg/kg	0.85	3.5	7.8	0.87	5	1.2		✓		✓
Benzo(ghi)perylene[f]	2	6	mg/kg	0.61	0.67	61000	2300	4200	6720				
Benzo(k)fluoranthene	6	6	mg/kg	0.6	1.6	78	8.7	49	11.6				
Chrysene	6	6	mg/kg	0.56	1.9	780	87	160	39.8				
Fluoranthene	6	6	mg/kg	0.73	1.9	82000	3100	4300	600				
Indeno(1,2,3-cd)pyrene	2	6	mg/kg	0.66	0.7	7.8	0.87	14	3.3				
Phenanthrene[f]	2	6	mg/kg	0.71	0.79	61000	2300	4200	59.6				
Pyrene	6	6	mg/kg	0.4	1.2	61000	2300	4200	442				
VOCs[g]													
Acetone	3	6	mg/kg	0.16	0.27	200000	7800	16	2.8				

Notes:

[a] RBC = Risk-Based Concentration (USEPA, 2000)

[b] SSL = Soil Screening Level (USEPA, 1996)

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] RBC for Pyrene as a Surrogate

[g] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentration of 34 mg/kg.

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Table 4-26

Surface Soil Screening Table
SWMU No. 44 (Pine Tree Grove Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	Minimum Detection Limit	Maximum Detection Limit	USEPA Region III Industrial Soil RBC[a]	USEPA Region III Residential Soil RBC[a]	USEPA SSL[b] DAF[c]=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals															
Arsenic	6	6	mg/kg[d]	7	11.6	NA	NA	3.8	0.43	29	29	✓	✓		
Barium	5	6	mg/kg	24.4	57.3	0.031	0.031	140000	5500	1600	1648				
Chromium	6	6	mg/kg	11.8	21.7	NA	NA	6100	230	38	38				
Lead	6	6	mg/kg	23.1	45.2	NA	NA	1000	400	NA	267				
Selenium	5	6	mg/kg	1.4	1.8	0.209	0.209	10000	390	5	5				
Other															
Cyanide, Dissociable	0	6	mg/kg	NA	NA	0.057	0.06	41000	1600	40	31				
Cyanide, Total	1	6	mg/kg	1.1	1.1	0.057	0.06	41000	1600	40	31				
Fluoride	6	6	mg/kg	16	40	NA	NA	120000	4700	NA	NA				
SVOCs[e]															
Benzo(a)anthracene	6	6	mg/kg	0.42	1.2	NA	NA	7.8	0.87	2	0.4		✓		✓
Benzo(a)pyrene	6	6	mg/kg	0.53	1.6	NA	NA	0.78	0.087	8	0.1	✓	✓		✓
Benzo(b)fluoranthene	6	6	mg/kg	0.85	3.5	NA	NA	7.8	0.87	5	1.2		✓		✓
Benzo(ghi)perylene[f]	2	6	mg/kg	0.61	0.67	0.0067	0.007	61000	2300	4200	6720				
Benzo(k)fluoranthene	6	6	mg/kg	0.6	1.6	NA	NA	78	8.7	49	11.6				
Chrysene	6	6	mg/kg	0.56	1.9	NA	NA	780	87	160	39.8				
Fluoranthene	6	6	mg/kg	0.73	1.9	NA	NA	82000	3100	4300	600				
Indeno(1,2,3-cd)pyrene	2	6	mg/kg	0.66	0.7	0.0057	0.006	7.8	0.87	14	3.3				
Phenanthrene[f]	2	6	mg/kg	0.71	0.79	0.013	0.014	61000	2300	4200	59.6				
Pyrene	6	6	mg/kg	0.4	1.2	NA	NA	61000	2300	4200	442				
VOCs[g]															
Acetone	3	6	mg/kg	0.16	0.27	0.0039	0.0054	200000	7800	16	2.8				

Notes:

[a] RBC = Risk-Based Concentration (USEPA, 2000)
[b] SSL = Soil Screening Level (USEPA, 1996)
[c] DAF = Dilution Attenuation Factor
[d] mg/kg = milligrams per kilogram
[e] SVOCs = Semi-Volatile Organic Compounds
[f] RBC for Pyrene as a Surrogate
[g] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value
All arsenic concentrations are less than background concentration of 34 mg/kg.

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Table 4-27

Exposure Point Concentrations
SWMU No. 44 - Soils (Pine Tree Grove Area)

Alcoa Badin, NC Works RFI

Potential Exposure Medium	Constituent of Interest	Maximum Detection (mg/kg)[a]	Data Distribution	95% UCL[b] (mg/kg)	EPC[c] (mg/kg)
Surface Soil	Benzo(a)anthracene	1.2	normal	1.0	1.0
	Benzo(a)pyrene	1.6	normal	1.2	1.2
	Benzo(b)fluoranthene	3.5	normal	2.3	2.3
Surface/Subsurface Soil	Benzo(a)pyrene	1.6	normal	1.2	1.2

Notes:

[a] mg/kg = milligrams per kilogram

[b] UCL = upper confidence limit

[c] EPC = exposure point concentration

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Table 4-28

SWMU No. 44 Risk Characterization (Pine Tree Grove Area)
Summed Theoretical Excess Lifetime Cancer Risks [a]

CURRENT/FUTURE YOUTH TRESPASSER SURFACE SOIL

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Benzo(a)anthracene	3.43E-09	1.62E-10	NA	3.6E-09
Benzo(a)pyrene	4.31E-08	2.04E-09	3.34E-13	4.5E-08
Benzo(b)fluoranthene	8.33E-09	3.95E-10	NA	8.7E-09
TOTAL	5.5E-08	2.6E-09	3.3E-13	6E-08

[a] No Hazard Indices were calculated because carcinogenic PAHs do not have EPA-derived RfDs.

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
Inorganics (mg/l)[a]								
Cyanide, Total	4.4	52.4 J	0.21 J	0.014 J[b]	4.3	NA[c]	0.24	0.19
Cyanide, Microdiffusion	0.0564	0.0749 J	< 0.005[d]	< 0.005 J	0.0267 J	NA	0.309	0.36
Cyanide, Weak Acid Dissociable	1.2	3.9	0.15	< 0.01	0.48	NA	0.49	0.52
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	< 0.1	216	1	3.2	81.5	NA	NA	NA
Total Sulfide	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	< 0.005	0.051	0.0088	< 0.005	0.0092	NA	NA	NA
Arsenic, Dissolved	< 0.005	0.051	0.0067	< 0.005	0.007	NA	NA	NA
Barium, Total	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	< 0.1
Barium, Dissolved	0.34	0.52	0.4	0.56	0.48	NA	NA	NA
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	NA	NA	NA
Cadmium, Dissolved	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	NA	NA	NA
Chromium, Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA
Chromium, Dissolved	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Total	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	NA	NA	NA
Lead, Dissolved	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	NA	NA	NA
Mercury, Total	NA	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	< 0.005	0.0091	< 0.005	< 0.005	< 0.005	NA	NA	NA
Selenium, Dissolved	< 0.005	0.008	< 0.005	< 0.005	< 0.005	NA	NA	NA
Silver, Total	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)								
Total Suspended Solids	< 4	19	17	13	< 4	NA	NA	NA
PCBs[(f)]/Pesticides								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
VOCs[(e)] (mg/l)								
1,1,1,2-Tetrachloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,1,1-Trichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
1,1,2,2-Tetrachloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,1,2-Trichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,1-Dichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,1-Dichloroethene	< 0.001	< 0.001	< 0.001	< 0.001	0.0012	NA	NA	NA
1,2,3-Trichloropropane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,2-Dibromo-3-Chloropropane	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	NA	NA	NA
1,2-Dibromoethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,2-Dichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,2-Dichloropropane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
1,4-Dioxane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA
2-Butanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Hexanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
4-Methyl-2-Pentanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acetone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acetonitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acrolein	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acrylonitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Allyl Chloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Benzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Bromodichloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Bromoform	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Bromomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Carbon Disulfide	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Carbon Tetrachloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Chlorobenzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Chloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Chloroform	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Chloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Chloroprene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Dibromochloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Dibromomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Dichlorodifluoromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Dichloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Ethyl Methacrylate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Ethylbenzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Iodomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Isobutyl Alcohol	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
Methacrylonitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Methyl Methacrylate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
Propionitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Styrene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Tetrachloroethene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Toluene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Trans-1,2-Dichloroethene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Trans-1,3-Dichloropropene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Trichloroethylene	< 0.001	< 0.001	< 0.001	< 0.001	0.024	NA	NA	NA
Trichlorofluoromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Vinyl Acetate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Vinyl Chloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
Xylene (Total)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	NA	NA
SVOCs[b](mg/l)								
1,2,4,5-Tetrachlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,2,4-Trichlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,2-Dichlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,3,5-Trinitrobenzene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
1,3-Dinitrobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,3-Dichlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,4-Dichlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
1,4-Naphthoquinone	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
1-Naphthylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,3,4,6-Tetrachlorophenol	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
2,4,5-Trichlorophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,4,6-Trichlorophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,4-Dichlorophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,4-Dimethylphenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,4-Dinitrophenol	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
2,4-Dinitrotoluene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,6-Dichlorophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2,6-Dinitrotoluene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Acetylaminofluorene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
2-Chloronaphthalene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Chlorophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
2-Methylnaphthalene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Methylphenol (O-Cresol)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Naphthylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Nitroaniline	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
2-Nitrophenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
2-Picoline	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
3,3'-Dichlorobenzidine	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
3,3'-Dimethylbenzidine	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
3-Methylcholanthrene	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
3-Methylphenol & 4-Methylphenol	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
3-Methylphenol/4-Methylphenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
3-Nitroaniline	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
4-Aminobiphenyl	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
4-Bromophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
4-Chloro-3-Methylphenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
4-Chloroaniline	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
4-Chlorophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
4-Nitrophenol	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
4-Nitroquinoline-1-Oxide	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
5-Nitro-o-Toluidine	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
7,12-Dimethylbenz(a)Anthracene	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
A,A-Dimethylphenethylamine	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Acenaphthene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acenaphthylene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Acetophenone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Aniline	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Anthracene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Aramite	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Benz(b)Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzo(a)Anthracene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzo(a)Pyrene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzo(g,h,i)Perylene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzo(k)Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzyl Alcohol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Benzyl Butyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Bis(2-Chloroethoxy)Methane	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Bis(2-Chloroethyl)Ether	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Chrysene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Dibenzo(a,h)Anthracene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Dibenzofuran	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Diethyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Dimethoate	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Dimethyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Di-n-Butyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA

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Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
Di-n-Octylphthalate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Dinoseb	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Disulfoton	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Ethyl Methanesulfonate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Famphur	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Fluorene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Hexachlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Hexachlorobutadiene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Hexachlorocyclopentadiene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Hexachloroethane	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Hexachlorophene	<	<	<	<	<	NA	NA	NA
Hexachloropropene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Isosafrole	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Methapyrilene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Methyl Methanesulfonate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Methyl Parathion	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Naphthalene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Nitrobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosodiethylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosodimethylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosodi-n-Butylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitroso-Di-n-Propylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosodiphenylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosomethylethylamine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosomorpholine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosopiperidine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
N-Nitrosopyrrolidine	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
O-Toluidine	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Parathion	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
P-Dimethylaminoazobenzene	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Pentachlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Pentachloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Pentachloronitrobenzene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Pentachlorophenol	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Phenacetin	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Phenanthrene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Phenol	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-1-2589	MW-2-2609	MW-2A-2619	MW-3-2609	MW-4-2639	MW-4-2669	MW-4-0080DR	MW-4-0080R
Phorate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
P-Nitroaniline	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
P-Phenylene Diamine	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA
Pronamide	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Pyrene	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Pyridine	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Safrole	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA
Tetraethyldithiopyrophosphate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA
Thionazin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NA	NA	NA

Notes:

[a] mg/l = milligrams per liter.
[b] J = Estimated Value
[c] NA = Not analyzed
[d] < = not detected at indicated detection limit
[e] R = Rejected Value
[f] PCBs = Polychlorinated Biphenyls
[g] VOCs = Volatile Organic Compounds
[h] SVOCs - Semi-Volatile Organic Compounds

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
Inorganics (mg/l)[a]								
Cyanide, Total	NA	NA	NA	NA	NA	0.2	< 0.01	0.092
Cyanide, Microdiffusion	NA	NA	NA	NA	NA	0.0415 J	0.018	0.019
Cyanide, Weak Acid Dissociable	NA	NA	NA	NA	NA	0.054 J	0.034	0.039
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA	NA	2.6	NA	NA
Total Sulfide	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	NA	NA	NA	NA	NA	< 0.01	NA	NA
Arsenic, Dissolved	NA	NA	NA	NA	NA	< 0.005	NA	NA
Barium, Total	NA	NA	< 0.1	NA	NA	< 0.2	NA	NA
Barium, Dissolved	0.37	< 0.1	NA	0.25	< 0.1	< 0.2	NA	NA
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	NA	NA	NA	NA	NA	< 0.002	NA	NA
Cadmium, Dissolved	NA	NA	NA	NA	NA	< 0.002	NA	NA
Chromium, Total	NA	NA	NA	NA	NA	< 0.005	NA	NA
Chromium, Dissolved	NA	NA	NA	NA	NA	< 0.005	NA	NA
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Total	NA	NA	NA	NA	NA	< 0.003	NA	NA
Lead, Dissolved	NA	NA	NA	NA	NA	< 0.003	NA	NA
Mercury, Total	NA	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	NA	NA	NA	NA	NA	< 0.005	NA	NA
Selenium, Dissolved	NA	NA	NA	NA	NA	< 0.005	NA	NA
Silver, Total	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA	NA

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)								
Total Suspended Solids	NA	NA	71	NA	NA	< 4	NA	NA
PCBs[d]/Pesticides								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
VOCs[e] (mg/l)								
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	< 0.005	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	< 0.5	NA	NA
2-Butanone	NA	NA	NA	NA	NA	< 0.02	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	< 0.02	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	< 0.02	NA	NA
Acetone	NA	NA	NA	NA	NA	< 0.02	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	< 0.1	NA	NA
Acrolein	NA	NA	NA	NA	NA	< 0.1	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	< 0.1	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
Bromoform	NA	NA	NA	NA	NA	< 0.005	NA	NA
Bromomethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	< 0.005	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	< 0.005	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Chloroethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Chloroform	NA	NA	NA	NA	NA	< 0.005	NA	NA
Chloromethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Chloroprene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 0.0025	NA	NA
Cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Dichloromethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
Ethyl Methacrylate	NA	NA	NA	NA	NA	< 0.005	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Iodomethane	NA	NA	NA	NA	NA	< 0.005	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA	< 0.2	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	< 0.005	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA	< 0.005	NA	NA

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Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
Propionitrile	NA	NA	NA	NA	NA	< 0.02	NA	NA
Styrene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Toluene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 0.0025	NA	NA
Trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Trichloroethylene	NA	NA	NA	NA	NA	< 0.005	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	< 0.01	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	< 0.005	NA	NA
SVOCs[h](mg/l)								
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	< 0.05	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	< 0.05	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	< 0.05	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	< 0.05	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	< 0.1	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	NA	NA	< 0.05	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Methylphenol (O-Cresol)	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	< 0.05	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
2-Picoline	NA	NA	NA	NA	NA	< 0.02	NA	NA

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Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	< 0.05	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	< 0.05	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	NA	NA	< 0.01	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	< 0.02	NA	NA
3-Methylphenol & 4-Methylphenol	NA	NA	NA	NA	NA	< 0.02	NA	NA
3-Methylphenol/4-Methylphenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	< 0.05	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	< 0.05	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	< 0.01	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	< 0.01	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	< 0.01	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	< 0.01	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	< 0.05	NA	NA
4-Nitroquinoline-1-Oxide	NA	NA	NA	NA	NA	< 0.1	NA	NA
5-Nitro-o-Toluidine	NA	NA	NA	NA	NA	< 0.02	NA	NA
7,12-Dimethylbenz(a)Anthracene	NA	NA	NA	NA	NA	< 0.02	NA	NA
A,A-Dimethylphenethylamine	NA	NA	NA	NA	NA	< 0.05	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Acetophenone	NA	NA	NA	NA	NA	< 0.01	NA	NA
Aniline	NA	NA	NA	NA	NA	< 0.01	NA	NA
Anthracene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Aramite	NA	NA	NA	NA	NA	< 0.02	NA	NA
Benz(b)Fluoranthene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzo(a)Anthracene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzo(a)Pyrene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzo(g,h,i)Perylene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzo(k)Fluoranthene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzyl Alcohol	NA	NA	NA	NA	NA	< 0.01	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA	NA	< 0.01	NA	NA
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	NA	NA	< 0.01	NA	NA
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Chrysene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Dibenzo(a,h)Anthracene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	< 0.01	NA	NA
Diethyl Phthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Dimethoate	NA	NA	NA	NA	NA	< 0.02	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Di-n-Butyl Phthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
Di-n-Octylphthalate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Dinoseb	NA	NA	NA	NA	NA	< 0.02	NA	NA
Disulfoton	NA	NA	NA	NA	NA	< 0.05	NA	NA
Ethyl Methanesulfonate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Famphur	NA	NA	NA	NA	NA	< 0.1	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Fluorene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	< 0.05	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	< 0.01	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	<	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	< 0.1	NA	NA
Indeno(1,2,3-cd)Pyrene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Isosafrole	NA	NA	NA	NA	NA	< 0.02	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	< 0.05	NA	NA
Methyl Methanesulfonate	NA	NA	NA	NA	NA	< 0.01	NA	NA
Methyl Parathion	NA	NA	NA	NA	NA	< 0.05	NA	NA
Naphthalene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodi-n-Butylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitroso-Di-n-Propylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	< 0.01	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	< 0.01	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA	NA	< 0.05	NA	NA
O-Toluidine	NA	NA	NA	NA	NA	< 0.02	NA	NA
Parathion	NA	NA	NA	NA	NA	< 0.05	NA	NA
P-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	< 0.02	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	< 0.05	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	< 0.05	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	< 0.05	NA	NA
Phenacetin	NA	NA	NA	NA	NA	< 0.02	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Phenol	NA	NA	NA	NA	NA	< 0.01	NA	NA

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North End
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Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-4-0080RE	MW-4-0080RQ	NE4-0080R	NE4-0080RE	NE4-0080RQ	MW-5-2649	MW-5-0040DR	MW-5-0040R
Phorate	NA	NA	NA	NA	NA	< 0.05	NA	NA
P-Nitroaniline	NA	NA	NA	NA	NA	< 0.05	NA	NA
P-Phenylene Diamine	NA	NA	NA	NA	NA	< 0.1	NA	NA
Pronamide	NA	NA	NA	NA	NA	< 0.02	NA	NA
Pyrene	NA	NA	NA	NA	NA	< 0.01	NA	NA
Pyridine	NA	NA	NA	NA	NA	< 0.02	NA	NA
Safrole	NA	NA	NA	NA	NA	< 0.02	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	NA	< 0.05	NA	NA
Thionazin	NA	NA	NA	NA	NA	< 0.05	NA	NA

Notes:

[a] mg/l = milligrams per liter.
[b] J = Estimated Value
[c] NA = Not analyzed
[d] < = not detected at indicated detection limit
[e] R = Rejected Value
[f] PCBs = Polychlorinated Biphenyls
[g] VOCs = Volatile Organic Compounds
[h] SVOCs - Semi-Volatile Organic Compounds

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North End
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Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
Inorganics (mg/l)[a]									
Cyanide, Total	23.2	23.3	0.02 J	< 0.01	0.86	0.56	5.5	4	< 0.01 J
Cyanide, Microdiffusion	0.0824 J	0.09 J	< 0.005 J	< 0.005	0.291 J	0.0747	0.494 J	0.42	< 0.005
Cyanide, Weak Acid Dissociable	2.7	4.5	0.062	< 0.01	0.24 J	0.1	0.081 J	0.91	< 0.01
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	3700	3660	0.28	< 0.1	15.7	NA	45	NA	0.64
Total Sulfide	< 5 R	< 5 R[c]	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	0.0085	< 0.006	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	0.012	0.012	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	0.14	0.13	< 0.005	< 0.005	< 0.01	NA	< 0.01	NA	< 0.005
Arsenic, Dissolved	0.13	0.14	< 0.005	< 0.005	< 0.005	NA	0.01	NA	< 0.005
Barium, Total	0.48	0.46	< 0.1	< 0.1	< 0.2	NA	< 0.2	NA	< 0.1
Barium, Dissolved	0.79	0.69	0.24	0.36	0.53	NA	0.65	NA	0.35
Beryllium, Total	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	NA	< 0.002	NA	< 0.002
Cadmium, Dissolved	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	NA	< 0.002	NA	< 0.002
Chromium, Total	0.0067	0.0054	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005
Chromium, Dissolved	0.0056	0.0058	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005
Cobalt, Total	0.2	0.19	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	0.19	0.2	NA	NA	NA	NA	NA	NA	NA
Copper, Total	0.22	0.21	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	0.19	0.22	NA	NA	NA	NA	NA	NA	NA
Lead, Total	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	< 0.003
Lead, Dissolved	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	< 0.003
Mercury, Total	< 0.0002	< 0.0002	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	< 0.0002	0.00024	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	< 0.04	< 0.04	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	< 0.04	< 0.04	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	0.008	0.0066	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005
Selenium, Dissolved	0.006	0.0066	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005
Silver, Total	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	0.012	< 0.01	NA	NA	NA	NA	NA	NA	NA
Tin, Total	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	0.13	0.13	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	0.12	0.13	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	< 0.02	< 0.02	NA	NA	NA	NA	NA	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
Zinc, Dissolved	< 0.02	< 0.02	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)									
Total Suspended Solids	26	29	5	4	< 4	NA	< 4	NA	< 4
PCBs[f]/Pesticides									
4,4'-DDD	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	< 0.0001	< 0.0001	NA	NA	NA	NA	NA	NA	NA
Aldrin	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Chlordane	< 0.0005	< 0.0005	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	< 0.0001 R	< 0.0001 J	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	0.00018	0.00019	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Diallate	< 0.001 R	< 0.001 R	NA	NA	NA	NA	NA	NA	NA
Dieldrin	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Endrin	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Heptachlor	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	< 0.00005	< 0.00005	NA	NA	NA	NA	NA	NA	NA
Isodrin	< 0.0001 R	< 0.0001 R	NA	NA	NA	NA	NA	NA	NA
Kepone	< 0.001 J	< 0.001	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	< 0.0001	< 0.0001	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	0.00014	0.00014	NA	NA	NA	NA	NA	NA	NA
Toxaphene	< 0.002	< 0.002	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	< 0.001	< 0.001	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	< 0.001 J	< 0.001 J	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	< 0.001 J	< 0.001 J	NA	NA	NA	NA	NA	NA	NA
2,4-D	< 0.004 J	< 0.004 J	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	0.00069	0.00033	NA	NA	NA	NA	NA	NA	NA
VOCs[g] (mg/l)									
1,1,1,2-Tetrachloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,1,1-Trichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
1,1,2,2-Tetrachloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,1,2-Trichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,1-Dichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,1-Dichloroethene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,2,3-Trichloropropane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,2-Dibromo-3-Chloropropane	< 0.002	< 0.002	< 0.002	< 0.002	< 0.01	NA	< 0.01	NA	< 0.002
1,2-Dibromoethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,2-Dichloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,2-Dichloropropane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
1,4-Dioxane	< 0.5	< 0.5 R	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5
2-Butanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.01
2-Hexanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.01
4-Methyl-2-Pentanone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.01
Acetone	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.01
Acetonitrile	< 0.01	< 0.01 R	< 0.01	< 0.01	< 0.1	NA	< 0.1	NA	< 0.01
Acrolein	< 0.01	< 0.01 R	< 0.01	< 0.01	< 0.1	NA	< 0.1	NA	< 0.01
Acrylonitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	NA	< 0.1	NA	< 0.01
Allyl Chloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Benzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Bromodichloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Bromoform	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Bromomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Carbon Disulfide	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Carbon Tetrachloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Chlorobenzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Chloroethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Chloroform	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Chloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Chloroprene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Cis-1,2-Dichloroethene	NA	NA	NA	NA	< 0.0025	NA	< 0.0025	NA	NA
Cis-1,3-Dichloropropene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Dibromochloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Dibromomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Dichlorodifluoromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Dichloromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Ethyl Methacrylate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	NA	< 0.005	NA	< 0.01
Ethylbenzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Iodomethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Isobutyl Alcohol	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	NA	< 0.2 R	NA	< 0.1
Methacrylonitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	NA	< 0.005	NA	< 0.01
Methyl Methacrylate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
Propionitrile	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	NA	< 0.02 R	NA	< 0.01
Styrene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Tetrachloroethene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Toluene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Trans-1,2-Dichloroethene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0025	NA	< 0.0025	NA	< 0.001
Trans-1,3-Dichloropropene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Trans-1,4-Dichloro-2-Butene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
Trichloroethylene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	0.19	NA	< 0.001
Trichlorofluoromethane	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Vinyl Acetate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Vinyl Chloride	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.001
Xylene (Total)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.001
SVOCs[(h)](mg/l)									
1,2,4,5-Tetrachlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05 R	NA	< 0.05
1,3-Dinitrobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,3-Dichlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
1,4-Naphthoquinone	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
1-Naphthylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dichlorophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dimethylphenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dinitrophenol	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05 J	NA	< 0.05
2,4-Dinitrotoluene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,6-Dichlorophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Acetylaminofluorene	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1
2-Chloronaphthalene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Chlorophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
2-Methylnaphthalene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Methylphenol (O-Cresol)	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Naphthylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Nitroaniline	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
2-Nitrophenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
2-Picoline	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
3,3'-Dichlorobenzidine	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
3-Methylcholanthrene	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
3-Nitroaniline	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
4-Aminobiphenyl	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
4-Chloroaniline	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
4-Nitrophenol	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
4-Nitroquinoline-1-Oxide	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.1 R	NA	< 0.1
5-Nitro-o-Toluidine	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
7,12-Dimethylbenz(a)Anthracene	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
A,A-Dimethylphenethylamine	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Acenaphthene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Acenaphthylene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Acetophenone	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Aniline	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Anthracene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Aramite	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Benz(b)Fluoranthene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(a)Anthracene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(a)Pyrene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(g,h,i)Perylene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(k)Fluoranthene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzyl Alcohol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Chrysene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Dibenzo(a,h)Anthracene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Dibenzofuran	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Diethyl Phthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Dimethoate	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Dimethyl Phthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Di-n-Butyl Phthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
Di-n-Octylphthalate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Dinoseb	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Disulfoton	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Ethyl Methanesulfonate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Famphur	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.1 R	NA	< 0.1
Fluoranthene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Fluorene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorobutadiene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05 J	NA	< 0.05
Hexachloroethane	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorophene	<	<	<	<	<	NA	<	NA	<
Hexachloropropene	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1
Indeno(1,2,3-cd)Pyrene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Isosafrole	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Methapyrilene	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Methyl Methanesulfonate	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01 J	NA	< 0.01
Methyl Parathion	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Naphthalene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Nitrobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodimethylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodi-n-Butylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitroso-Di-n-Propylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosomorpholine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosopiperidine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
O,O,O-Triethyl Phosphorothioate	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
O-Toluidine	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Parathion	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
P-Dimethylaminoazobenzene	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Pentachlorobenzene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Pentachloroethane	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Pentachloronitrobenzene	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Pentachlorophenol	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Phenacetin	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Phenanthrene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Phenol	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-6-2639	MW-6-2639D	MW-6A-2619	MW-7-2579	MW-8-2649	MW-8-0040R	MW-9-2649	MW-9-0040R	MW-11-2609
Phorate	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
P-Nitroaniline	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
P-Phenylene Diamine	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1
Pronamide	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Pyrene	< 0.016	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01
Pyridine	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Safrole	< 0.032	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05
Thionazin	< 0.08	< 0.05	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05

Notes:

[a] mg/l = milligrams per liter.
[b] J = Estimated Value
[c] NA = Not analyzed
[d] < = not detected at indicated detection limit
[e] R = Rejected Value
[f] PCBs = Polychlorinated Biphenyls
[g] VOCs = Volatile Organic Compounds
[h] SVOCs - Semi-Volatile Organic Compounds

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
Inorganics (mg/l)[a]									
Cyanide, Total	0.49 J	< 0.01	2.3	2.2	< 0.01 R	< 0.01	NA	< 0.01 J	< 0.01
Cyanide, Microdiffusion	0.0082	< 0.005	0.57 J	0.369	< 0.005 J	< 0.005	NA	< 0.005 J	< 0.005
Cyanide, Weak Acid Dissociable	0.14	< 0.01	0.42 J	0.49	< 0.01 J	< 0.01	NA	< 0.01 R	< 0.01
Manganese	NA	NA	NA	NA	NA	NA	< 0.01	NA	NA
Fluoride	20	< 0.1	15.5	NA	< 0.1	NA	0.1	NA	NA
Total Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	< 0.005	< 0.005	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Arsenic, Dissolved	< 0.005	< 0.005	0.0057	NA	< 0.005	NA	< 0.005	NA	NA
Barium, Total	< 0.1	< 0.1	< 0.2	NA	< 0.2	NA	< 0.2	NA	NA
Barium, Dissolved	0.43	0.26	0.61	NA	0.33	NA	0.46	NA	NA
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	< 0.002	< 0.002	< 0.002	NA	< 0.002	NA	< 0.002	NA	NA
Cadmium, Dissolved	< 0.002	< 0.002	< 0.002	NA	< 0.002	NA	< 0.002	NA	NA
Chromium, Total	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Chromium, Dissolved	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Total	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	< 0.003	NA	NA
Lead, Dissolved	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	< 0.003	NA	NA
Mercury, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	< 0.005	< 0.005	< 0.005	NA	0.005	NA	< 0.005	NA	NA
Selenium, Dissolved	< 0.005	< 0.005	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Silver, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)									
Total Suspended Solids	< 4	< 4	< 4	NA	< 4	NA	8	NA	NA
PCBs[(f)]/Pesticides									
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs[(g)] (mg/l)									
1,1,1,2-Tetrachloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,1,1-Trichloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
1,1,2,2-Tetrachloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,1,2-Trichloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,1-Dichloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,1-Dichloroethene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,2,3-Trichloropropane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,2-Dibromo-3-Chloropropane	< 0.002	< 0.002	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,2-Dibromoethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,2-Dichloroethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,2-Dichloropropane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
1,4-Dioxane	< 0.5	< 0.5	< 0.5	NA	< 0.5 R	NA	< 0.5	NA	NA
2-Butanone	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
2-Hexanone	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
4-Methyl-2-Pentanone	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Acetone	< 0.01	< 0.01	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Acetonitrile	< 0.01	< 0.01	< 0.1	NA	< 0.1 R	NA	< 0.1	NA	NA
Acrolein	< 0.01	< 0.01	< 0.1	NA	< 0.1 R	NA	< 0.1	NA	NA
Acrylonitrile	< 0.01	< 0.01	< 0.1	NA	< 0.1	NA	< 0.1	NA	NA
Allyl Chloride	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Bromodichloromethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Bromoform	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Bromomethane	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Carbon Disulfide	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Carbon Tetrachloride	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Chlorobenzene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Chloroethane	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Chloroform	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Chloromethane	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Chloroprene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Cis-1,2-Dichloroethene	NA	NA	< 0.0025	NA	< 0.0025	NA	< 0.0025	NA	NA
Cis-1,3-Dichloropropene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Dibromochloromethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Dibromomethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Dichlorodifluoromethane	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Dichloromethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Ethyl Methacrylate	< 0.01	< 0.01	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Ethylbenzene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Iodomethane	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Isobutyl Alcohol	< 0.1	< 0.1	< 0.2	NA	< 0.2 R	NA	< 0.2	NA	NA
Methacrylonitrile	< 0.01	< 0.01	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Methyl Methacrylate	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
Propionitrile	< 0.01	< 0.01	< 0.02	NA	< 0.02 R	NA	< 0.02	NA	NA
Styrene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Tetrachloroethene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Toluene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Trans-1,2-Dichloroethene	< 0.001	< 0.001	< 0.0025	NA	< 0.0025	NA	< 0.0025	NA	NA
Trans-1,3-Dichloropropene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Trans-1,4-Dichloro-2-Butene	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
Trichloroethylene	< 0.001	< 0.001	0.026	NA	< 0.005	NA	< 0.005	NA	NA
Trichlorofluoromethane	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Vinyl Acetate	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Vinyl Chloride	< 0.001	< 0.001	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Xylene (Total)	< 0.001	< 0.001	< 0.005	NA	< 0.005	NA	< 0.005	NA	NA
SVOCs[b](mg/l)									
1,2,4,5-Tetrachlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,2,4-Trichlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,2-Dichlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,3,5-Trinitrobenzene	< 0.05	< 0.05	< 0.05	NA	< 0.05 R	NA	< 0.05	NA	NA
1,3-Dinitrobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,3-Dichlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,4-Dichlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
1,4-Naphthoquinone	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
1-Naphthylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,3,4,6-Tetrachlorophenol	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
2,4,5-Trichlorophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,4,6-Trichlorophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,4-Dichlorophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,4-Dimethylphenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,4-Dinitrophenol	< 0.05	< 0.05	< 0.05	NA	< 0.05 J	NA	< 0.05	NA	NA
2,4-Dinitrotoluene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,6-Dichlorophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2,6-Dinitrotoluene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Acetylaminofluorene	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1	NA	NA
2-Chloronaphthalene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Chlorophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Methyl-4,6-Dinitrophenol	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
2-Methylnaphthalene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Methylphenol (O-Cresol)	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Naphthylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Nitroaniline	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
2-Nitrophenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
2-Picoline	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
3,3'-Dichlorobenzidine	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
3,3'-Dimethylbenzidine	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
3-Methylcholanthrene	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
3-Methylphenol & 4-Methylphenol	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
3-Methylphenol/4-Methylphenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
3-Nitroaniline	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
4-Aminobiphenyl	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
4-Bromophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
4-Chloro-3-Methylphenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
4-Chloroaniline	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
4-Chlorophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
4-Nitrophenol	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
4-Nitroquinoline-1-Oxide	< 0.1	< 0.1	< 0.1	NA	< 0.1 R	NA	< 0.1	NA	NA
5-Nitro-o-Toluidine	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
7,12-Dimethylbenz(a)Anthracene	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
A,A-Dimethylphenethylamine	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Acenaphthene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Acenaphthylene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Acetophenone	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Aniline	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Anthracene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Aramite	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Benz(b)Fluoranthene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzo(a)Anthracene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzo(a)Pyrene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzo(g,h,i)Perylene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzo(k)Fluoranthene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzyl Alcohol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Benzyl Butyl Phthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Bis(2-Chloroethoxy)Methane	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Bis(2-Chloroethyl)Ether	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Bis(2-Chloroisopropyl)Ether	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Bis(2-Ethylhexyl)Phthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Chrysene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Dibenzo(a,h)Anthracene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Dibenzofuran	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Diethyl Phthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Dimethoate	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Dimethyl Phthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Di-n-Butyl Phthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
Di-n-Octylphthalate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Dinoseb	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Disulfoton	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Ethyl Methanesulfonate	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Famphur	< 0.1	< 0.1	< 0.1	NA	< 0.1 R	NA	< 0.1	NA	NA
Fluoranthene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Fluorene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Hexachlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Hexachlorobutadiene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Hexachlorocyclopentadiene	< 0.05	< 0.05	< 0.05	NA	< 0.05 J	NA	< 0.05	NA	NA
Hexachloroethane	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Hexachlorophene	<	<	<	NA	<	NA	<	NA	NA
Hexachloropropene	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1	NA	NA
Indeno(1,2,3-cd)Pyrene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Isosafrole	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Methapyrilene	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Methyl Methanesulfonate	< 0.01	< 0.01	< 0.01	NA	< 0.01 J	NA	< 0.01	NA	NA
Methyl Parathion	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Naphthalene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Nitrobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosodiethylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosodimethylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosodi-n-Butylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitroso-Di-n-Propylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosodiphenylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosomethylethylamine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosomorpholine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosopiperidine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
N-Nitrosopyrrolidine	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
O,O,O-Triethyl Phosphorothioate	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
O-Toluidine	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Parathion	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
P-Dimethylaminoazobenzene	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Pentachlorobenzene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Pentachloroethane	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Pentachloronitrobenzene	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Pentachlorophenol	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Phenacetin	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Phenanthrene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Phenol	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA

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Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-12-2609	MW-13-2579	MW-16-2649	MW-16-0050R	MW-17-2659	MW-17-0050R	MW-18-2649	MW-18-2679	MW-18-0040R
Phorate	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
P-Nitroaniline	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
P-Phenylene Diamine	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	< 0.1	NA	NA
Pronamide	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Pyrene	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	< 0.01	NA	NA
Pyridine	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Safrole	< 0.02	< 0.02	< 0.02	NA	< 0.02	NA	< 0.02	NA	NA
Tetraethyldithiopyrophosphate	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA
Thionazin	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.05	NA	NA

Notes:

(a) mg/l = milligrams per liter.
(b) J = Estimated Value
(c) NA = Not analyzed
(d) < = not detected at indicated detection limit
(e) R = Rejected Value
(f) PCBs = Polychlorinated Biphenyls
(g) VOCs = Volatile Organic Compounds
(h) SVOCs - Semi-Volatile Organic Compounds

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
Inorganics (mg/l)[a]								
Cyanide, Total	NA	< 0.01 J	< 0.01	0.29 J	16.8 J	16.2 J	24.2 J	1.1 J
Cyanide, Microdiffusion	NA	< 0.005 J	< 0.005	0.0053	0.111 J	0.0847 J	0.0234	0.0626 J
Cyanide, Weak Acid Dissociable	NA	< 0.01 R	< 0.01	0.078	0.14	0.93	0.76	0.091 J
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	< 0.1	NA	NA	0.58	1710	2340	1250	88.3
Total Sulfide	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	< 0.01	NA	NA	< 0.005	< 0.025	0.11	0.02	< 0.01
Arsenic, Dissolved	< 0.005	NA	NA	< 0.005	0.067	0.11	0.021	0.0056
Barium, Total	< 0.2	NA	NA	< 0.1	< 0.5	< 0.1	< 0.1	< 0.2
Barium, Dissolved	0.32	NA	NA	0.4	0.62	0.45	0.56	0.46
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	< 0.002	NA	NA	< 0.002	< 0.01	< 0.002	< 0.002	< 0.002
Cadmium, Dissolved	< 0.002	NA	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium, Total	< 0.005	NA	NA	< 0.005	< 0.025	< 0.005	< 0.005	< 0.005
Chromium, Dissolved	< 0.005	NA	NA	< 0.005	0.011	< 0.005	0.0052	< 0.005
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Total	< 0.003	NA	NA	< 0.003	< 0.015	0.0034	< 0.003	< 0.003
Lead, Dissolved	< 0.003	NA	NA	< 0.003	0.0032	< 0.003	< 0.003	< 0.003
Mercury, Total	NA	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	< 0.005	NA	NA	< 0.005	< 0.025	< 0.005	< 0.005	< 0.005
Selenium, Dissolved	< 0.005	NA	NA	< 0.005	0.0055	0.0053	< 0.005	< 0.005
Silver, Total	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA	NA

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)								
Total Suspended Solids	< 4	NA	NA	20	19	12	9	< 4
PCBs[f]/Pesticides								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
VOCs[g] (mg/l)								
1,1,1,2-Tetrachloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,1,1-Trichloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005

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Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
1,1,2,2-Tetrachloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,1,2-Trichloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,1-Dichloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,1-Dichloroethene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,2,3-Trichloropropane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,2-Dibromo-3-Chloropropane	< 0.01	NA	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.01
1,2-Dibromoethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,2-Dichloroethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,2-Dichloropropane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
1,4-Dioxane	< 0.5	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 R
2-Butanone	< 0.02	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02
2-Hexanone	< 0.02	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02
4-Methyl-2-Pentanone	< 0.02	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02
Acetone	< 0.02	NA	NA	0.037	< 0.01	< 0.01	< 0.01	< 0.02
Acetonitrile	< 0.1	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1 R
Acrolein	< 0.1	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1 R
Acrylonitrile	< 0.1	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1
Allyl Chloride	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Benzene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Bromodichloromethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Bromoform	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Bromomethane	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Carbon Disulfide	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Carbon Tetrachloride	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Chlorobenzene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Chloroethane	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Chloroform	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Chloromethane	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Chloroprene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Cis-1,2-Dichloroethene	< 0.0025	NA	NA	NA	NA	NA	NA	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Dibromochloromethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Dibromomethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Dichlorodifluoromethane	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Dichloromethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Ethyl Methacrylate	< 0.005	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005
Ethylbenzene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Iodomethane	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Isobutyl Alcohol	< 0.2	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2 R
Methacrylonitrile	< 0.005	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005
Methyl Methacrylate	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005

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Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
Propionitrile	< 0.02	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02 R
Styrene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Tetrachloroethene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Toluene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Trans-1,2-Dichloroethene	< 0.0025	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0025
Trans-1,3-Dichloropropene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Trans-1,4-Dichloro-2-Butene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Trichloroethylene	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
Trichlorofluoromethane	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Vinyl Acetate	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Vinyl Chloride	< 0.01	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01
Xylene (Total)	< 0.005	NA	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
SVOCs[(b)](mg/l)								
1,2,4,5-Tetrachlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-Trichlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trinitrobenzene	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 R
1,3-Dinitrobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Naphthoquinone	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1-Naphthylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrophenol	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 J
2,4-Dinitrotoluene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dinitrotoluene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Acetylaminofluorene	< 0.1	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Naphthylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
3,3'-Dichlorobenzidine	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3,3'-Dimethylbenzidine	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3-Methylcholanthrene	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Aminobiphenyl	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-Methylphenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloroaniline	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitrophenol	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroquinoline-1-Oxide	< 0.1	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 R
5-Nitro-o-Toluidine	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
7,12-Dimethylbenz(a)Anthracene	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
A,A-Dimethylphenethylamine	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acetophenone	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aniline	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aramite	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Benz(b)Fluoranthene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Anthracene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Pyrene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)Perylene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)Fluoranthene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Butyl Phthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)Anthracene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Diethyl Phthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dimethoate	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Dimethyl Phthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Di-n-Butyl Phthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
Di-n-Octylphthalate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dinoseb	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Disulfoton	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethyl Methanesulfonate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Famphur	< 0.1	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 R
Fluoranthene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorocyclopentadiene	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 J
Hexachloroethane	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorophene	<	NA	NA	<	<	<	<	<
Hexachloropropene	< 0.1	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)Pyrene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Isosafrole	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Methapyrilene	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl Methanesulfonate	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01 J
Methyl Parathion	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiethylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodimethylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodi-n-Butylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitroso-Di-n-Propylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiphenylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosomethylethylamine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosomorpholine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosopiperidine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosopyrrolidine	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
O,O,O-Triethyl Phosphorothioate	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
O-Toluidine	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Parathion	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
P-Dimethylaminoazobenzene	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Pentachlorobenzene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pentachloroethane	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pentachloronitrobenzene	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pentachlorophenol	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenacetin	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenanthrene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenol	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-19-2649	MW-19-2679	MW-19-0040R	MW-20A-2609	MW-21-2599	MW-22-2609	MW-24-2599	MW-25-2659
Phorate	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
P-Nitroaniline	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
P-Phenylene Diamine	< 0.1	NA	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pronamide	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Pyrene	< 0.01	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyridine	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Safrole	< 0.02	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Thionazin	< 0.05	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Notes:

[a] mg/l = milligrams per liter.
[b] J = Estimated Value
[c] NA = Not analyzed
[d] < = not detected at indicated detection limit
[e] R = Rejected Value
[f] PCBs = Polychlorinated Biphenyls
[g] VOCs = Volatile Organic Compounds
[h] SVOCs - Semi-Volatile Organic Compounds

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
Inorganics (mg/l)[a]							
Cyanide, Total	0.76	0.42 J	0.53	0.1 J	0.1 J	0.042	5.8
Cyanide, Microdiffusion	0.0309	0.0639 J	0.0629	0.0764 J	0.0761 J	0.0134	0.046
Cyanide, Weak Acid Dissociable	0.068	0.13 J	0.11	< 0.01 J	< 0.01 J	0.024	0.11 J
Manganese	NA	NA	NA	NA	NA	NA	NA
Fluoride	NA	6.5	NA	12.2	12.5	NA	439
Total Sulfide	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	NA	< 0.01	NA	< 0.01	< 0.01	NA	0.042
Arsenic, Dissolved	NA	< 0.005	NA	< 0.005	< 0.005	NA	0.041
Barium, Total	NA	< 0.2	NA	< 0.2	< 0.2	NA	NA
Barium, Dissolved	NA	0.32	NA	0.46	0.34	NA	NA
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Cadmium, Total	NA	< 0.002	NA	< 0.002	< 0.002	NA	< 0.002
Cadmium, Dissolved	NA	< 0.002	NA	< 0.002	< 0.002	NA	< 0.002
Chromium, Total	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Chromium, Dissolved	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA
Lead, Total	NA	< 0.003	NA	0.0037	< 0.003	NA	< 0.003
Lead, Dissolved	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003
Mercury, Total	NA	NA	NA	NA	NA	NA	NA
Mercury, Dissolved	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA
Selenium, Total	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Selenium, Dissolved	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Silver, Total	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/l)							
Total Suspended Solids	NA	< 4	NA	< 4	4	NA	14
PCBs[(1)]/Pesticides							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1221	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1232	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1242	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1248	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1254	NA	NA	NA	NA	NA	NA	< 0.001
Aroclor 1260	NA	NA	NA	NA	NA	NA	< 0.001
2,4,5-T	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA
VOCs[(2)] (mg/l)							
1,1,1,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,1,1-Trichloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
1,1,2,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,1,2-Trichloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,1-Dichloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,1-Dichloroethene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,2,3-Trichloropropane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,2-Dibromo-3-Chloropropane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,2-Dibromoethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,2-Dichloroethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,2-Dichloropropane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
1,4-Dioxane	NA	< 0.5 R	NA	< 0.5 R	< 0.5 R	NA	< 0.5
2-Butanone	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
2-Hexanone	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
4-Methyl-2-Pentanone	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Acetone	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Acetonitrile	NA	< 0.1 R	NA	< 0.1 R	< 0.1 R	NA	< 0.1
Acrolein	NA	< 0.1 R	NA	< 0.1 R	< 0.1 R	NA	< 0.1
Acrylonitrile	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1
Allyl Chloride	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Bromodichloromethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Bromoform	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Bromomethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Carbon Disulfide	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Carbon Tetrachloride	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Chlorobenzene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Chloroethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Chloroform	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Chloromethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Chloroprene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Cis-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025	< 0.0025	NA	< 0.0025
Cis-1,3-Dichloropropene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Dibromochloromethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Dibromomethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Dichlorodifluoromethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Dichloromethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Ethyl Methacrylate	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Ethylbenzene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Iodomethane	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Isobutyl Alcohol	NA	< 0.2 R	NA	< 0.2 R	< 0.2 R	NA	< 0.2
Methacrylonitrile	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Methyl Methacrylate	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
Propionitrile	NA	< 0.02 R	NA	< 0.02 R	< 0.02 R	NA	< 0.02
Styrene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Tetrachloroethene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Toluene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Trans-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025	< 0.0025	NA	< 0.0025
Trans-1,3-Dichloropropene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Trans-1,4-Dichloro-2-Butene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Trichloroethylene	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
Trichlorofluoromethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Vinyl Acetate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Vinyl Chloride	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Xylene (Total)	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005
SVOCs[h](mg/l)							
1,2,4,5-Tetrachlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	NA	< 0.05 R	NA	< 0.05 R	< 0.05 R	NA	< 0.05
1,3-Dinitrobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,3-Dichlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
1,4-Naphthoquinone	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
1-Naphthylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,4-Dichlorophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,4-Dimethylphenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,4-Dinitrophenol	NA	< 0.05 J	NA	< 0.05 J	< 0.05 J	NA	< 0.05
2,4-Dinitrotoluene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,6-Dichlorophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Acetylaminofluorene	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1
2-Chloronaphthalene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Chlorophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
2-Methylnaphthalene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Methylphenol (O-Cresol)	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Naphthylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Nitroaniline	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
2-Nitrophenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
2-Picoline	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
3,3'-Dichlorobenzidine	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
3-Methylcholanthrene	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
3-Nitroaniline	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
4-Aminobiphenyl	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
4-Chloroaniline	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
4-Nitrophenol	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
4-Nitroquinoline-1-Oxide	NA	< 0.1 R	NA	< 0.1 R	< 0.1 R	NA	< 0.1
5-Nitro-o-Toluidine	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
7,12-Dimethylbenz(a)Anthracene	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
A,A-Dimethylphenethylamine	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Acenaphthene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Acenaphthylene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Acetophenone	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Aniline	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Anthracene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Aramite	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Benz(b)Fluoranthene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzo(a)Anthracene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzo(a)Pyrene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzo(g,h,i)Perylene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzo(k)Fluoranthene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzyl Alcohol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Chrysene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Dibenzo(a,h)Anthracene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Dibenzofuran	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Diethyl Phthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Dimethoate	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Dimethyl Phthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Di-n-Butyl Phthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01

Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
Di-n-Octylphthalate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Dinoseb	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Disulfoton	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Ethyl Methanesulfonate	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Famphur	NA	< 0.1 R	NA	< 0.1 R	< 0.1 R	NA	< 0.1
Fluoranthene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Fluorene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Hexachlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Hexachlorobutadiene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	NA	< 0.05 J	NA	< 0.05 J	< 0.05 J	NA	< 0.05
Hexachloroethane	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Hexachlorophene	NA	<	NA	<	<	NA	<
Hexachloropropene	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1
Indeno(1,2,3-cd)Pyrene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Isosafrole	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Methapyrilene	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Methyl Methanesulfonate	NA	< 0.01 J	NA	< 0.01 J	< 0.01 J	NA	< 0.01
Methyl Parathion	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Naphthalene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Nitrobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodimethylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodi-n-Butylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitroso-Di-n-Propylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosomorpholine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosopiperidine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
O,O,O-Triethyl Phosphorothioate	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
O-Toluidine	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Parathion	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
P-Dimethylaminoazobenzene	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Pentachlorobenzene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Pentachloroethane	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Pentachloronitrobenzene	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Pentachlorophenol	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Phenacetin	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Phenanthrene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Phenol	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01

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Table 4-29

North End
Phase I Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-25-0050R	MW-25A-2659	MW-25A-0050R	MW-26-2659	MW-26-2659D	MW-26-0050R	MW-27-2779
Phorate	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
P-Nitroaniline	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
P-Phenylene Diamine	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1
Pronamide	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Pyrene	NA	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01
Pyridine	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Safrole	NA	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05
Thionazin	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05

Notes:

[a] mg/l = milligrams per liter.
[b] J = Estimated Value
[c] NA = Not analyzed
[d] < = not detected at indicated detection limit
[e] R = Rejected Value
[f] PCBs = Polychlorinated Biphenyls
[g] VOCs = Volatile Organic Compounds
[h] SVOCs - Semi-Volatile Organic Compounds

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Table 4-30

North End Phase II Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Date	MW-6-2520 9/7/00	MW-7-2520 9/7/00	MW-7-2520D 9/7/00	MW-16-2520 9/7/00	MW-25-2520 9/7/00
Inorganics (mg/l)[a]					
Total Suspended Solids	24.8	8.8	8	22.4	< 4[c]
Antimony, Total	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Antimony, Dissolved	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Thallium, Total	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Thallium, Dissolved	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Notes:

[a] mg/l = milligrams per liter.

[b] < = not detected at indicated detection limit

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Table 4-31

Groundwater Screening Table
North End of Plant
Alcoa Badin, NC Works

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina 2L Standard	USEPA MCL	NC 2L Standard	USEPA MCL
Metals									
Antimony, Dissolved	2	7	mg/l [(a)]	0.012	0.012	NA	0.006		✓
Antimony, Total	1	7	mg/l	0.0085	0.0085	NA	0.006		✓
Arsenic, Dissolved	12	28	mg/l	0.0056	0.14	0.05	0.05	✓	✓
Arsenic, Total	8	28	mg/l	0.0088	0.14	0.05	0.05	✓	✓
Barium, Dissolved	28	31	mg/l	0.24	0.79	2	2		
Barium, Total	2	29	mg/l	0.46	0.48	2	2		
Chromium, Dissolved	4	28	mg/l	0.0052	0.011	0.05	NA		
Chromium, Total	2	28	mg/l	0.0054	0.0067	0.05	NA		
Cobalt, Dissolved	2	2	mg/l	0.19	0.2	NA	NA		
Cobalt, Total	2	2	mg/l	0.19	0.2	NA	NA		
Copper, Dissolved	2	2	mg/l	0.19	0.22	1	NA		
Copper, Total	2	2	mg/l	0.21	0.22	1	NA		
Lead, Dissolved	1	28	mg/l	0.0032	0.0032	1.015	NA		
Lead, Total	2	28	mg/l	0.0034	0.0037	0.015	NA		
Mercury, Dissolved	1	2	mg/l	0.00024	0.00024	0.0011	0.002		
Selenium, Total	4	28	mg/l	0.005	0.0091	0.05	0.05		
Selenuim, Dissolved	5	28	mg/l	0.0053	0.008	NA	NA		
Thallium, Dissolved	1	7	mg/l	0.012	0.012	NA	0.002		✓
Vanadium, Dissolved	2	7	mg/l	0.12	0.13	NA	NA		
Vanadium, Total	2	2	mg/l	0.13	0.13	NA	NA		

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Table 4-31

Groundwater Screening Table
North End of Plant
Alcoa Badin, NC Works

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina 2L Standard	USEPA MCL	NC 2L Standard	USEPA MCL
Other Parameters									
Diesel Range Organics	1	1	mg/l	0.089	0.089	NA	NA		
Fluoride	23	28	mg/l	0.1	3700	2	4	✓	✓
Cyanide, Free	29	41	mg/l	0.0053	0.57	0.154	0.2	✓	✓
Cyanide, Total	31	41	mg/l	0.014	52.4	0.154	0.2	✓	✓
Cyanide, Weak Acid Dissociable	30	41	mg/l	0.024	4.5	0.154	0.2	✓	✓
SVOCs [b]									
Non Detected									
VOCs [c]									
1,1-Dichloroethene	1	28	mg/l	0.0012	0.0012	0.007	0.007		
Acetone	1	28	mg/l	0.037	0.037	0.7	NA		
Trichloroethene	3	28	mg/l	0.024	0.19	0.0028	0.005	✓	✓

[a] mg/l = milligrams per liter

[b] SVOCs = Semi-Volatile Organic Compounds

[c] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
Inorganics (mg/kg)[b]						
Fluoride	28.8	NA[c]	158	NA	9.2	NA
Cyanide, Weak Acid Dissociable	< 2.9[d]	NA	< 2.6	NA	< 3	NA
Cyanide, Total	< 2.9	NA	< 2.6	NA	< 3	NA
Arsenic	10.8	NA	9.7	NA	13.1	NA
Barium	52.5	NA	43.8	NA	67.5	NA
Cadmium	0.4	NA	0.24	NA	< 0.24	NA
Chromium	17.9	NA	26.8	NA	24.1	NA
Lead	48.2	NA	31.1	NA	61.2	NA
Selenium	< 0.57	NA	< 0.52	NA	< 0.59	NA
Mercury	< 0.11	NA	< 0.1	NA	< 0.12	NA
VOCs[e] (mg/kg)						
1,1,1,2-Tetrachloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,1,1-Trichloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,1,2,2-Tetrachloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,1,2-Trichloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,1-Dichloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,1-Dichloroethene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,2,3-Trichloropropane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,2-Dibromo-3-chloropropane	NA	< 0.012	NA	< 0.011	NA	< 0.012
1,2-Dibromomethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,2-Dichloroethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,2-Dichloropropane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
1,4-Dioxane	NA	< 0.58	NA	< 0.53	NA	< 0.59
2-Butanone (MEK)	NA	< 0.023	NA	< 0.021	NA	< 0.024
2-Hexanone	NA	< 0.023	NA	< 0.021	NA	< 0.024
4-Methyl-2-pentanone (MIBK)	NA	< 0.023	NA	< 0.021	NA	< 0.024
Acetone	NA	< 1.2	NA	< 1.1	NA	0.05
Acetonitrile	NA	< 0.12	NA	< 0.11	NA	< 0.12
Acrolein	NA	< 0.12	NA	< 0.11	NA	< 0.12
Acrylonitrile	NA	< 0.12	NA	< 0.11	NA	< 0.12
Allyl chloride	NA	< 0.012	NA	< 0.011	NA	< 0.012
Benzene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
Bromodichloromethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Bromoform	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Bromomethane	NA	< 0.012	NA	< 0.011	NA	< 0.012
Carbon Disulfide	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Carbon Tetrachloride	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Chlorobenzene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Chloroethane	NA	< 0.012	NA	< 0.011	NA	< 0.012
Chloroform	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Chloromethane	NA	< 0.012	NA	< 0.011	NA	< 0.012
Chloroprene	NA	< 0.012	NA	< 0.011	NA	< 0.012
Cis-1,3-Dichloropropene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Dibromomethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Dichlorodifluromethane	NA	< 0.012	NA	< 0.011	NA	< 0.012
Dichloromethane	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Ethyl methacrylate	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Ethylbenzene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Iodomethane	NA	< 0.0058	NA	0.0088	NA	< 0.0059
Isobutyl alcohol	NA	< 0.23	NA	< 0.21	NA	< 0.24
Methacrylonitrile	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Methyl methacrylate	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Propionitrile	NA	< 0.023	NA	< 0.021	NA	< 0.024
Styrene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Tetrachloroethene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Toluene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
trans-1,2-Dichloroethene	NA	< 0.0029	NA	< 0.0026	NA	< 0.0029
trans-1,3-Dichloropropene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
trans-1,4-Dichloro-2-butene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Trichloroethene	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Trichlorofluoromethane	NA	< 0.012	NA	< 0.011	NA	< 0.012
Vinyl acetate	NA	< 0.012	NA	< 0.011	NA	< 0.012
Vinyl chloride	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
Xylenes (total)	NA	< 0.0058	NA	< 0.0053	NA	< 0.0059
SVOCs[f] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
1,2,4-Trichlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
1,2-Dichlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
1,3,5-Trinitrobenzene	< 1.8	NA	< 1.7	NA	< 1.9	NA
1,3-Dichlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
1,3-Dinitrobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
1,4-Dichlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
1,4-Naphthoquinone	< 1.8	NA	< 1.7	NA	< 1.9	NA
1-Naphthylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,3,4,6-Tetrachlorophenol	< 1.8	NA	< 1.7	NA	< 1.9	NA
2,4,5-Trichlorophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,4,6-Trichlorophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,4-Dichlorophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,4-Dimethylphenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,4-Dinitrophenol	< 1.8	NA	< 1.7	NA	< 1.9	NA
2,4-Dinitrotoluene	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,6-Dichlorophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2,6-Dinitrotoluene	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Acetylaminofluorene	< 3.8	NA	< 3.5	NA	< 3.9	NA
2-Chloronaphthalene	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Chlorophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Methylnaphthalene	0.5	NA	< 0.35	NA	< 0.39	NA
2-Methylphenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Naphthylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Nitroaniline	< 1.8	NA	< 1.7	NA	< 1.9	NA
2-Nitrophenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
2-Picoline	< 0.76	NA	< 0.69	NA	< 0.78	NA
2-sec-Butyl-4,6-dinitrophenol	< 0.76	NA	< 0.69	NA	< 0.78	NA
3,3'-Dichlorobenzidine	< 1.8	NA	< 1.7	NA	< 1.9	NA
3,3'-Dimethylbenzidine	< 1.8	NA	< 1.7	NA	< 1.9	NA
3-Methylcholanthrene	< 0.76	NA	< 0.69	NA	< 0.78	NA
3-Nitroaniline	< 1.8	NA	< 1.7	NA	< 1.9	NA
4,6-Dinitro-2-methylphenol	< 1.8	NA	< 1.7	NA	< 1.9	NA
4-Aminobiphenyl	< 1.8	NA	< 1.7	NA	< 1.9	NA
4-Bromophenyl phenyl ether	< 0.38	NA	< 0.35	NA	< 0.39	NA

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
4-Chloro-3-methylphenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
4-Chloroaniline	< 0.38	NA	< 0.35	NA	< 0.39	NA
4-Chlorophenyl phenyl ether	< 0.38	NA	< 0.35	NA	< 0.39	NA
4-Methylphenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
4-Nitroaniline	< 1.8	NA	< 1.7	NA	< 1.9	NA
4-Nitrophenol	< 1.8	NA	< 1.7	NA	< 1.9	NA
4-Nitroquinoline-1-oxide	< 3.8	NA	< 3.5	NA	< 3.9	NA
5-Nitro-o-toluidine	< 0.76	NA	< 0.69	NA	< 0.78	NA
7,12-Dimethylbenz(a)anthracene	< 0.76	NA	< 0.69	NA	< 0.78	NA
a,a-Dimethylphenethylamine	< 1.8	NA	< 1.7	NA	< 1.9	NA
Acenaphthene	< 0.38	NA	0.74	NA	< 0.39	NA
Acenaphthylene	< 0.38	NA	< 0.35	NA	< 0.39	NA
Acetophenone	< 0.38	NA	< 0.35	NA	< 0.39	NA
Aniline	< 0.38	NA	< 0.35	NA	< 0.39	NA
Anthracene	0.63	NA	1.2	NA	0.68	NA
Aramite	< 0.76	NA	< 0.69	NA	< 0.78	NA
Benzo(a)anthracene	4.6	NA	5	NA	4.2	NA
Benzo(a)pyrene	4.4	NA	5.7	NA	3.9	NA
Benzo(b)fluoranthene	6.6	NA	6.8	NA	7.5	NA
Benzo(ghi)perylene	3.6	NA	4.2	NA	3.4	NA
Benzo(k)fluoranthene	5.3	NA	4.4	NA	4.2	NA
Benzyl alcohol	< 0.38	NA	< 0.35	NA	< 0.39	NA
bis(2-Chloro-1-methylethyl) ether	< 0.38	NA	< 0.35	NA	< 0.39	NA
bis(2-Chloroethoxy)methane	< 0.38	NA	< 0.35	NA	< 0.39	NA
bis(2-Chloroethyl) ether	< 0.38	NA	< 0.35	NA	< 0.39	NA
bis(2-Ethylhexyl) phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Butyl benzyl phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Chlorobenzilate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Chrysene	6	NA	4.9	NA	6.9	NA
Diallate	< 0.76	NA	< 0.69	NA	< 0.78	NA
Dibenz(a,h)anthracene	1.5	NA	1.9	NA	1.4	NA
Dibenzofuran	< 0.38	NA	< 0.35	NA	< 0.39	NA
Diethyl phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Dimethoate	< 0.76	NA	< 0.69	NA	< 0.78	NA

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
Dimethyl phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Di-n-butyl phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Di-n-octyl phthalate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Diphenylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
Disulfoton	< 1.8	NA	< 1.7	NA	< 1.9	NA
Ethyl methanesulfonate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Famphur	< 3.8	NA	< 3.5	NA	< 3.9	NA
Fluoranthene	5.5	NA	7.5	NA	9.1	NA
Fluorene	< 0.38	NA	0.44	NA	< 0.39	NA
Hexachlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
Hexachlorobutadiene	< 0.38	NA	< 0.35	NA	< 0.39	NA
Hexachlorocyclopentadiene	< 1.8	NA	< 1.7	NA	< 1.9	NA
Hexachloroethane	< 0.38	NA	< 0.35	NA	< 0.39	NA
Hexachlorophene	<	NA	<	NA	< 1.9	NA
Hexachloropropene	< 3.8	NA	< 3.5	NA	< 3.9	NA
Indeno(1,2,3-cd)pyrene	3.1	NA	4	NA	2.9	NA
Isodrin	< 0.38	NA	< 0.35	NA	< 0.39	NA
Isophorone	< 0.38	NA	< 0.35	NA	< 0.39	NA
Isosafrole	< 0.76	NA	< 0.69	NA	< 0.78	NA
Kepone	< 3.8	NA	< 3.5	NA	< 3.9	NA
Methapyrilene	< 1.8	NA	< 1.7	NA	< 1.9	NA
Methyl methanesulfonate	< 0.38	NA	< 0.35	NA	< 0.39	NA
Methyl parathion	< 1.8	NA	< 1.7	NA	< 1.9	NA
Naphthalene	0.42	NA	0.56	NA	< 0.39	NA
Nitrobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosodiethylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosodimethylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosodi-n-butylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosodi-n-propylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosodiphenylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosomethylethylamine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosomorpholine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosopiperidine	< 0.38	NA	< 0.35	NA	< 0.39	NA
N-Nitrosopyrrolidine	< 0.38	NA	< 0.35	NA	< 0.39	NA

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS01-0.0-0.5 0-0.5	S11-SS01-0.0-0.5R 0-0.5	S11-SS02-0.0-0.5 0-0.5	S11-SS02-0.0-0.5R 0-0.5	S11-SS03-0.0-0.5 0-0.5	S11-SS03-0.0-0.5R 0-0.5
O,O,O-Triethyl phosphorothioate	< 1.8	NA	< 1.7	NA	< 1.9	NA
o-Toluidine	< 0.76	NA	< 0.69	NA	< 0.78	NA
Parathion	< 1.8	NA	< 1.7	NA	< 1.9	NA
p-Dimethylaminoazobenzene	< 0.76	NA	< 0.69	NA	< 0.78	NA
Pentachlorobenzene	< 0.38	NA	< 0.35	NA	< 0.39	NA
Pentachloroethane	< 1.8	NA	< 1.7	NA	< 1.9	NA
Pentachloronitrobenzene	< 1.8	NA	< 1.7	NA	< 1.9	NA
Pentachlorophenol	< 1.8	NA	< 1.7	NA	< 1.9	NA
Phenacetin	< 0.76	NA	< 0.69	NA	< 0.78	NA
Phenanthrene	3.1	NA	4.4	NA	3.8	NA
Phenol	< 0.38	NA	< 0.35	NA	< 0.39	NA
Phorate	< 1.8	NA	< 1.7	NA	< 1.9	NA
p-Phenylene diamine	< 3.8	NA	< 3.5	NA	< 3.9	NA
Pronamide	< 0.76	NA	< 0.69	NA	< 0.78	NA
Pyrene	4.2	NA	6.9	NA	7.2	NA
Pyridine	< 0.76	NA	< 0.69	NA	< 0.78	NA
Safrole	< 0.76	NA	< 0.69	NA	< 0.78	NA
Tetraethyldithiopyrophosphate	< 1.8	NA	< 1.7	NA	< 1.9	NA
Thionazin	< 1.8	NA	< 1.7	NA	< 1.9	NA

Notes:

[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligram per kilogram.
[c] NA = Not Analyzed
[d] < = not detected at indicated detection limit
[e] VOCs = Volatile Organic Compounds
[f] SVOCs - Semi-Volatile Organic Compounds

Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05-.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
Inorganics (mg/kg)[b]						
Fluoride	34.3	NA	16	12.5	NA	18.3
Cyanide, Weak Acid Dissociable	< 2.8	NA	< 3	< 2.9	NA	< 0.57
Cyanide, Total	< 2.8	NA	< 3	< 2.9	NA	< 0.57
Arsenic	10.9	NA	12.8	18.7	NA	13.9
Barium	71.2	NA	89.7	118	NA	79
Cadmium	< 0.22	NA	< 0.24	< 0.23	NA	0.88
Chromium	22.2	NA	26.3	30.5	NA	14.1
Lead	59.4	NA	28.3	47.9	NA	48.1
Selenium	< 0.56	NA	1.2	0.93	NA	1.5
Mercury	< 0.11	NA	< 0.12	< 0.12	NA	< 0.11
VOCs[e] (mg/kg)						
1,1,1,2-Tetrachloroethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,1,1-Trichloroethane	NA	0.011	NA	NA	< 0.0058	0.0082
1,1,2,2-Tetrachloroethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,1,2-Trichloroethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,1-Dichloroethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,1-Dichloroethene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,2,3-Trichloropropane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,2-Dibromo-3-chloropropane	NA	< 0.011	NA	NA	< 0.012	< 0.011
1,2-Dibromomethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,2-Dichloroethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,2-Dichloropropane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
1,4-Dioxane	NA	< 0.56	NA	NA	< 0.58	< 0.56
2-Butanone (MEK)	NA	< 0.022	NA	NA	< 0.023	< 0.023
2-Hexanone	NA	< 0.022	NA	NA	< 0.023	< 0.023
4-Methyl-2-pentanone (MIBK)	NA	< 0.022	NA	NA	< 0.023	< 0.023
Acetone	NA	1.2	NA	NA	< 1.2	0.075
Acetonitrile	NA	< 0.11	NA	NA	< 0.12	< 0.11
Acrolein	NA	< 0.11	NA	NA	< 0.12	< 0.11
Acrylonitrile	NA	< 0.11	NA	NA	< 0.12	< 0.11
Allyl chloride	NA	< 0.011	NA	NA	< 0.012	< 0.011
Benzene	NA	< 0.0056	NA	NA	< 0.0058	0.15

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SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05--.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
Bromodichloromethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Bromoform	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Bromomethane	NA	< 0.011	NA	NA	< 0.012	< 0.011
Carbon Disulfide	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Carbon Tetrachloride	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Chlorobenzene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Chloroethane	NA	< 0.011	NA	NA	< 0.012	< 0.011
Chloroform	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Chloromethane	NA	< 0.011	NA	NA	< 0.012	< 0.011
Chloroprene	NA	< 0.011	NA	NA	< 0.012	< 0.011
Cis-1,3-Dichloropropene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Dibromomethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Dichlorodifluromethane	NA	< 0.011	NA	NA	< 0.012	< 0.011
Dichloromethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Ethyl methacrylate	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Ethylbenzene	NA	< 0.0056	NA	NA	< 0.0058	0.0078
Iodomethane	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Isobutyl alcohol	NA	< 0.22	NA	NA	< 0.23	< 0.23
Methacrylonitrile	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Methyl methacrylate	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Propionitrile	NA	< 0.022	NA	NA	< 0.023	< 0.023
Styrene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Tetrachloroethene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Toluene	NA	< 0.0056	NA	NA	< 0.0058	0.038
trans-1,2-Dichloroethene	NA	< 0.0028	NA	NA	< 0.0029	< 0.0028
trans-1,3-Dichloropropene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
trans-1,4-Dichloro-2-butene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Trichloroethene	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Trichlorofluoromethane	NA	< 0.011	NA	NA	< 0.012	< 0.011
Vinyl acetate	NA	< 0.011	NA	NA	< 0.012	< 0.011
Vinyl chloride	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
Xylenes (total)	NA	< 0.0056	NA	NA	< 0.0058	< 0.0056
SVOCs[f] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7

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SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05--.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
1,2,4-Trichlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
1,2-Dichlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
1,3,5-Trinitrobenzene	< 1.8	NA	< 1.9	< 1.9	NA	< 18
1,3-Dichlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
1,3-Dinitrobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
1,4-Dichlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
1,4-Naphthoquinone	< 1.8	NA	< 1.9	< 1.9	NA	< 18
1-Naphthylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,3,4,6-Tetrachlorophenol	< 1.8	NA	< 1.9	< 1.9	NA	< 18
2,4,5-Trichlorophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,4,6-Trichlorophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,4-Dichlorophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,4-Dimethylphenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,4-Dinitrophenol	< 1.8	NA	< 1.9	< 1.9	NA	< 18
2,4-Dinitrotoluene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,6-Dichlorophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2,6-Dinitrotoluene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Acetylaminofluorene	< 3.7	NA	< 3.9	< 3.8	NA	< 37
2-Chloronaphthalene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Chlorophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Methylnaphthalene	0.64	NA	< 0.39	< 0.38	NA	< 3.7
2-Methylphenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Naphthylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Nitroaniline	< 1.8	NA	< 1.9	< 1.9	NA	< 18
2-Nitrophenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
2-Picoline	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
2-sec-Butyl-4,6-dinitrophenol	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
3,3'-Dichlorobenzidine	< 1.8	NA	< 1.9	< 1.9	NA	< 18
3,3'-Dimethylbenzidine	< 1.8	NA	< 1.9	< 1.9	NA	< 18
3-Methylcholanthrene	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
3-Nitroaniline	< 1.8	NA	< 1.9	< 1.9	NA	< 18
4,6-Dinitro-2-methylphenol	< 1.8	NA	< 1.9	< 1.9	NA	< 18
4-Aminobiphenyl	< 1.8	NA	< 1.9	< 1.9	NA	< 18
4-Bromophenyl phenyl ether	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7

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SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Depth (ft-bgs)[a]	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05--.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
4-Chloro-3-methylphenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
4-Chloroaniline	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
4-Chlorophenyl phenyl ether	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
4-Methylphenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
4-Nitroaniline	< 1.8	NA	< 1.9	< 1.9	NA	< 18
4-Nitrophenol	< 1.8	NA	< 1.9	< 1.9	NA	< 18
4-Nitroquinoline-1-oxide	< 3.7	NA	< 3.9	< 3.8	NA	< 37
5-Nitro-o-toluidine	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
7,12-Dimethylbenz(a)anthracene	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
a,a-Dimethylphenethylamine	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Acenaphthene	1.1	NA	< 0.39	< 0.38	NA	< 3.7
Acenaphthylene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Acetophenone	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Aniline	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Anthracene	2	NA	< 0.39	0.44	NA	< 3.7
Aramite	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Benzo(a)anthracene	9	NA	0.94	2.3	NA	8.1
Benzo(a)pyrene	11	NA	0.88	2.4	NA	< 3.7
Benzo(b)fluoranthene	12	NA	1.2	3.3	NA	18
Benzo(ghi)perylene	8.7	NA	0.77	2.3	NA	5.9
Benzo(k)fluoranthene	9.3	NA	1	2.7	NA	10
Benzyl alcohol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
bis(2-Chloro-1-methylethyl) ether	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
bis(2-Chloroethoxy)methane	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
bis(2-Chloroethyl) ether	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
bis(2-Ethylhexyl) phthalate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Butyl benzyl phthalate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Chlorobenzilate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Chrysene	9.3	NA	1.2	3.6	NA	27
Diallate	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Dibenz(a,h)anthracene	3.8	NA	< 0.39	0.85	NA	< 3.7
Dibenzofuran	0.52	NA	< 0.39	< 0.38	NA	< 3.7
Diethyl phthalate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Dimethoate	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5

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SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05--.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
Dimethyl phthalate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Di-n-butyl phthalate	5.1	NA	< 0.39	< 0.38	NA	< 3.7
Di-n-octyl phthalate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Diphenylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Disulfoton	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Ethyl methanesulfonate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Famphur	< 3.7	NA	< 3.9	< 3.8	NA	< 37
Fluoranthene	15	NA	1.6	2.9	NA	12
Fluorene	0.76	NA	< 0.39	< 0.38	NA	< 3.7
Hexachlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Hexachlorobutadiene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Hexachlorocyclopentadiene	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Hexachloroethane	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Hexachlorophene	<	NA	<	<	NA	<
Hexachloropropene	< 3.7	NA	< 3.9	< 3.8	NA	< 37
Indeno(1,2,3-cd)pyrene	7.8	NA	0.67	1.9	NA	4.9
Isodrin	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Isophorone	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Isosafrole	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Kepone	< 3.7	NA	< 3.9	< 3.8	NA	< 37
Methapyrilene	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Methyl methanesulfonate	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Methyl parathion	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Naphthalene	0.81	NA	< 0.39	< 0.38	NA	< 3.7
Nitrobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosodiethylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosodimethylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosodi-n-butylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosodi-n-propylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosodiphenylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosomethylethylamine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosomorpholine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosopiperidine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
N-Nitrosopyrrolidine	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7

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SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Depth (ft-bgs)[a]	S11-SS04-0.0-0.5 0-0.5	S11-SS04-0.0-0.5R 0-0.5	S11-SS05-.0-0.5 0-0.5	S11-SS05-0.0-0.5D 0-0.5	S11-SS0-0.0-0.5R 0-0.5	BF-TP01-0506 5-6
O,O,O-Triethyl phosphorothioate	< 1.8	NA	< 1.9	< 1.9	NA	< 18
o-Toluidine	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Parathion	< 1.8	NA	< 1.9	< 1.9	NA	< 18
p-Dimethylaminoazobenzene	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Pentachlorobenzene	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Pentachloroethane	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Pentachloronitrobenzene	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Pentachlorophenol	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Phenacetin	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Phenanthrene	8.4	NA	1.2	1.9	NA	< 3.7
Phenol	< 0.37	NA	< 0.39	< 0.38	NA	< 3.7
Phorate	< 1.8	NA	< 1.9	< 1.9	NA	< 18
p-Phenylene diamine	< 3.7	NA	< 3.9	< 3.8	NA	< 37
Pronamide	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Pyrene	13	NA	1.1	2.5	NA	8
Pyridine	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Safrole	< 0.74	NA	< 0.78	< 0.77	NA	< 7.5
Tetraethyldithiopyrophosphate	< 1.8	NA	< 1.9	< 1.9	NA	< 18
Thionazin	< 1.8	NA	< 1.9	< 1.9	NA	< 18

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] NA = Not Analyzed

[d] < = not detected at indicated detection limit

[e] VOCs = Volatile Organic Compounds

[f] SVOCs - Semi-Volatile Organic Compounds

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Depth (ft-bgs)[a]	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
Inorganics (mg/kg)[b]				
Fluoride	1.6	19.2	< 0.62	1
Cyanide, Weak Acid Dissociable	< 0.62	< 0.6	< 0.62	< 0.63
Cyanide, Total	< 0.62	< 0.6	6.4	5.9
Arsenic	6.2	7.5	16.2	8.3
Barium	73.8	68.4	< 24.8	40.3
Cadmium	< 0.25	< 0.24	< 0.25	< 0.25
Chromium	12.3	12.4	14.6	10.1
Lead	8.5	10.4	6.7	7.9
Selenium	0.77	0.91	< 0.62	< 0.63
Mercury	< 0.12	< 0.12	< 0.12	< 0.13
VOCs[c] (mg/kg)				
1,1,1,2-Tetrachloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,1,1-Trichloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,1,2,2-Tetrachloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,1,2-Trichloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,1-Dichloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,1-Dichloroethene	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,2,3-Trichloropropane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,2-Dibromo-3-chloropropane	< 0.012	< 0.012	< 0.012	< 0.013
1,2-Dibromomethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,2-Dichloroethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,2-Dichloropropane	< 0.0062	< 0.006	< 0.0062	< 0.0063
1,4-Dioxane	< 0.62	< 0.6	< 0.62	< 0.63
2-Butanone (MEK)	< 0.025	< 0.024	< 0.025	< 0.025
2-Hexanone	< 0.025	< 0.024	< 0.025	< 0.025
4-Methyl-2-pentanone (MIBK)	< 0.025	< 0.024	< 0.025	< 0.025
Acetone	< 0.025	0.025	< 0.025	< 0.025
Acetonitrile	< 0.12	< 0.12	< 0.12	< 0.13
Acrolein	< 0.12	< 0.12	< 0.12	< 0.13
Acrylonitrile	< 0.12	< 0.12	< 0.12	< 0.13
Allyl chloride	< 0.012	< 0.012	< 0.012	< 0.013
Benzene	< 0.0062	< 0.006	< 0.0062	< 0.0063

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
Bromodichloromethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
Bromoform	< 0.0062	< 0.006	< 0.0062	< 0.0063
Bromomethane	< 0.012	< 0.012	< 0.012	< 0.013
Carbon Disulfide	0.17	< 0.006	< 0.0062	< 0.0063
Carbon Tetrachloride	< 0.0062	< 0.006	< 0.0062	< 0.0063
Chlorobenzene	< 0.0062	< 0.006	< 0.0062	< 0.0063
Chloroethane	< 0.012	< 0.012	< 0.012	< 0.013
Chloroform	< 0.0062	< 0.006	< 0.0062	< 0.0063
Chloromethane	< 0.012	< 0.012	< 0.012	< 0.013
Chloroprene	< 0.012	< 0.012	< 0.012	< 0.013
Cis-1,3-Dichloropropene	< 0.0062	< 0.006	< 0.0062	< 0.0063
Dibromomethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
Dichlorodifluromethane	< 0.012	< 0.012	< 0.012	< 0.013
Dichloromethane	0.012	< 0.006	< 0.0062	< 0.0063
Ethyl methacrylate	< 0.0062	< 0.006	< 0.0062	< 0.0063
Ethylbenzene	0.023	< 0.006	< 0.0062	< 0.0063
Iodomethane	< 0.0062	< 0.006	< 0.0062	< 0.0063
Isobutyl alcohol	< 0.25	< 0.24	< 0.25	< 0.25
Methacrylonitrile	< 0.0062	< 0.006	< 0.0062	< 0.0063
Methyl methacrylate	< 0.0062	< 0.006	< 0.0062	< 0.0063
Propionitrile	< 0.025	< 0.024	< 0.025	< 0.025
Styrene	0.033	< 0.006	< 0.0062	< 0.0063
Tetrachloroethene	< 0.0062	< 0.006	< 0.0062	< 0.0063
Toluene	0.031	< 0.006	< 0.0062	< 0.0063
trans-1,2-Dichloroethene	< 0.0031	< 0.003	< 0.0031	< 0.0031
trans-1,3-Dichloropropene	< 0.0062	< 0.006	< 0.0062	< 0.0063
trans-1,4-Dichloro-2-butene	< 0.0062	< 0.006	< 0.0062	< 0.0063
Trichloroethene	< 0.0062	< 0.006	< 0.0062	< 0.0063
Trichlorofluoromethane	< 0.012	< 0.012	< 0.012	< 0.013
Vinyl acetate	< 0.012	< 0.012	< 0.012	< 0.013
Vinyl chloride	< 0.0062	< 0.006	< 0.0062	< 0.0063
Xylenes (total)	0.072	< 0.006	< 0.0062	< 0.0063
SVOCs[f] (mg/kg)				
1,2,4,5-Tetrachlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
1,2,4-Trichlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
1,2-Dichlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
1,3,5-Trinitrobenzene	< 2	< 1.9	< 2	< 2
1,3-Dichlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
1,3-Dinitrobenzene	< 0.41	< 0.4	< 0.41	< 0.41
1,4-Dichlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
1,4-Naphthoquinone	< 2	< 1.9	< 2	< 2
1-Naphthylamine	< 0.41	< 0.4	< 0.41	< 0.41
2,3,4,6-Tetrachlorophenol	< 2	< 1.9	< 2	< 2
2,4,5-Trichlorophenol	< 0.41	< 0.4	< 0.41	< 0.41
2,4,6-Trichlorophenol	< 0.41	< 0.4	< 0.41	< 0.41
2,4-Dichlorophenol	< 0.41	< 0.4	< 0.41	< 0.41
2,4-Dimethylphenol	< 0.41	< 0.4	< 0.41	< 0.41
2,4-Dinitrophenol	< 2	< 1.9	< 2	< 2
2,4-Dinitrotoluene	< 0.41	< 0.4	< 0.41	< 0.41
2,6-Dichlorophenol	< 0.41	< 0.4	< 0.41	< 0.41
2,6-Dinitrotoluene	< 0.41	< 0.4	< 0.41	< 0.41
2-Acetylaminofluorene	< 4.1	< 4	< 4.1	< 4.1
2-Chloronaphthalene	< 0.41	< 0.4	< 0.41	< 0.41
2-Chlorophenol	< 0.41	< 0.4	< 0.41	< 0.41
2-Methylnaphthalene	< 0.41	< 0.4	< 0.41	< 0.41
2-Methylphenol	< 0.41	< 0.4	< 0.41	< 0.41
2-Naphthylamine	< 0.41	< 0.4	< 0.41	< 0.41
2-Nitroaniline	< 2	< 1.9	< 2	< 2
2-Nitrophenol	< 0.41	< 0.4	< 0.41	< 0.41
2-Picoline	< 0.82	< 0.79	< 0.82	< 0.83
2-sec-Butyl-4,6-dinitrophenol	< 0.82	< 0.79	< 0.82	< 0.83
3,3'-Dichlorobenzidine	< 2	< 1.9	< 2	< 2
3,3'-Dimethylbenzidine	< 2	< 1.9	< 2	< 2
3-Methylcholanthrene	< 0.82	< 0.79	< 0.82	< 0.83
3-Nitroaniline	< 2	< 1.9	< 2	< 2
4,6-Dinitro-2-methylphenol	< 2	< 1.9	< 2	< 2
4-Aminobiphenyl	< 2	< 1.9	< 2	< 2
4-Bromophenyl phenyl ether	< 0.41	< 0.4	< 0.41	< 0.41

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
4-Chloro-3-methylphenol	< 0.41	< 0.4	< 0.41	< 0.41
4-Chloroaniline	< 0.41	< 0.4	< 0.41	< 0.41
4-Chlorophenyl phenyl ether	< 0.41	< 0.4	< 0.41	< 0.41
4-Methylphenol	< 0.41	< 0.4	< 0.41	< 0.41
4-Nitroaniline	< 2	< 1.9	< 2	< 2
4-Nitrophenol	< 2	< 1.9	< 2	< 2
4-Nitroquinoline-1-oxide	< 4.1	< 4	< 4.1	< 4.1
5-Nitro-o-toluidine	< 0.82	< 0.79	< 0.82	< 0.83
7,12-Dimethylbenz(a)anthracene	< 0.82	< 0.79	< 0.82	< 0.83
a,a-Dimethylphenethylamine	< 2	< 1.9	< 2	< 2
Acenaphthene	< 0.41	< 0.4	< 0.41	< 0.41
Acenaphthylene	< 0.41	< 0.4	< 0.41	< 0.41
Acetophenone	< 0.41	< 0.4	< 0.41	< 0.41
Aniline	< 0.41	< 0.4	< 0.41	< 0.41
Anthracene	< 0.41	< 0.4	< 0.41	< 0.41
Aramite	< 0.82	< 0.79	< 0.82	< 0.83
Benzo(a)anthracene	1.5	2.1	< 0.41	< 0.41
Benzo(a)pyrene	1.6	0.88	< 0.41	< 0.41
Benzo(b)fluoranthene	3.4	4.6	< 0.41	< 0.41
Benzo(ghi)perylene	1.7	1.7	< 0.41	< 0.41
Benzo(k)fluoranthene	2	2.5	< 0.41	< 0.41
Benzyl alcohol	< 0.41	< 0.4	< 0.41	< 0.41
bis(2-Chloro-1-methylethyl) ether	< 0.41	< 0.4	< 0.41	< 0.41
bis(2-Chloroethoxy)methane	< 0.41	< 0.4	< 0.41	< 0.41
bis(2-Chloroethyl) ether	< 0.41	< 0.4	< 0.41	< 0.41
bis(2-Ethylhexyl) phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Butyl benzyl phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Chlorobenzilate	< 0.41	< 0.4	< 0.41	< 0.41
Chrysene	2.8	5.7	< 0.41	0.51
Diallate	< 0.82	< 0.79	< 0.82	< 0.83
Dibenz(a,h)anthracene	0.52	0.6	< 0.41	< 0.41
Dibenzofuran	< 0.41	< 0.4	< 0.41	< 0.41
Diethyl phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Dimethoate	< 0.82	< 0.79	< 0.82	< 0.83

Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
Dimethyl phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Di-n-butyl phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Di-n-octyl phthalate	< 0.41	< 0.4	< 0.41	< 0.41
Diphenylamine	< 0.41	< 0.4	< 0.41	< 0.41
Disulfoton	< 2	< 1.9	< 2	< 2
Ethyl methanesulfonate	< 0.41	< 0.4	< 0.41	< 0.41
Famphur	< 4.1	< 4	< 4.1	< 4.1
Fluoranthene	2	1.8	< 0.41	0.42
Fluorene	< 0.41	< 0.4	< 0.41	< 0.41
Hexachlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
Hexachlorobutadiene	< 0.41	< 0.4	< 0.41	< 0.41
Hexachlorocyclopentadiene	< 2	< 1.9	< 2	< 2
Hexachloroethane	< 0.41	< 0.4	< 0.41	< 0.41
Hexachlorophene.	<	<	<	<
Hexachloropropene	< 4.1	< 4	< 4.1	< 4.1
Indeno(1,2,3-cd)pyrene	1.4	1.3	< 0.41	< 0.41
Isodrin	< 0.41	< 0.4	< 0.41	< 0.41
Isophorone	< 0.41	< 0.4	< 0.41	< 0.41
Isosafrole	< 0.82	< 0.79	< 0.82	< 0.83
Kepone	< 4.1	< 4	< 4.1	< 4.1
Methapyrilene	< 2	< 1.9	< 2	< 2
Methyl methanesulfonate	< 0.41	< 0.4	< 0.41	< 0.41
Methyl parathion	< 2	< 1.9	< 2	< 2
Naphthalene	< 0.41	< 0.4	< 0.41	< 0.41
Nitrobenzene	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosodiethylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosodimethylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosodi-n-butylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosodi-n-propylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosodiphenylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosomethylethylamine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosomorpholine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosopiperidine	< 0.41	< 0.4	< 0.41	< 0.41
N-Nitrosopyrrolidine	< 0.41	< 0.4	< 0.41	< 0.41

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Table 4-32

SWMU No. 11
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	BF-TP02-3.5-4.2 3.5-4.2	BF-TP04-0203 2-3	BF-TP05-3.5-4.0 3.5-4	BF-TP05-3.5-4.0D 3.5-4
O,O,O-Triethyl phosphorothioate	< 2	< 1.9	< 2	< 2
o-Toluidine	< 0.82	< 0.79	< 0.82	< 0.83
Parathion	< 2	< 1.9	< 2	< 2
p-Dimethylaminoazobenzene	< 0.82	< 0.79	< 0.82	< 0.83
Pentachlorobenzene	< 0.41	< 0.4	< 0.41	< 0.41
Pentachloroethane	< 2	< 1.9	< 2	< 2
Pentachloronitrobenzene	< 2	< 1.9	< 2	< 2
Pentachlorophenol	< 2	< 1.9	< 2	< 2
Phenacetin	< 0.82	< 0.79	< 0.82	< 0.83
Phenanthrene	0.51	< 0.4	< 0.41	< 0.41
Phenol	< 0.41	< 0.4	< 0.41	< 0.41
Phorate	< 2	< 1.9	< 2	< 2
p-Phenylene diamine	< 4.1	< 4	< 4.1	< 4.1
Pronamide	< 0.82	< 0.79	< 0.82	< 0.83
Pyrene	1.7	1.8	< 0.41	< 0.41
Pyridine	< 0.82	< 0.79	< 0.82	< 0.83
Safrole	< 0.82	< 0.79	< 0.82	< 0.83
Tetraethyldithiopyrophosphate	< 2	< 1.9	< 2	< 2
Thionazin	< 2	< 1.9	< 2	< 2

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligram per kilogram.

[c] NA = Not Analyzed

[d] < = not detected at indicated detection limit

[e] VOCs = Volatile Organic Compounds

[f] SVOCs - Semi-Volatile Organic Compounds

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Table 4-33

SWMU No. 11 (Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-10-2649	MW-10-0040R	MW-14-2629
Miscellaneous			
Total Suspended Solids	< 4 [b]	NA	8
Inorganics (mg/l)[a]			
Cyanide, Total	< 0.01 J[c]	< 0.01	0.1
Cyanide, Microdiffusion	< 0.005 J	< 0.005	< 0.005 J
Cyanide, Weak Acid Dissociable	< 0.01 J	< 0.01	< 0.05
Fluoride	1.6	NA [d]	6.9
Arsenic, Dissolved	< 0.005	NA	< 0.005
Arsenic, Total	< 0.01	NA	< 0.005
Barium, Dissolved	0.52	NA	0.32
Barium, Total	< 0.2	NA	< 0.1
Cadmium, Dissolved	< 0.002	NA	0.0048
Cadmium, Total	< 0.002	NA	0.0052
Chromium, Dissolved	< 0.005	NA	< 0.005
Chromium, Total	< 0.005	NA	< 0.005
Lead, Dissolved	< 0.003	NA	< 0.003
Lead, Total	< 0.003	NA	< 0.003
Mercury, Dissolved	< 0.0002	NA	< 0.0002
Mercury, Total	< 0.0002	NA	< 0.0002
Selenium, Dissolved	< 0.005	NA	0.0073
Selenium, Total	< 0.005	NA	0.0052
VOCs[e] (mg/l)			
1,1,1,2-Tetrachloroethane	< 0.005	NA	< 0.001
1,1,1-Trichloroethane	< 0.005	NA	< 0.001
1,1,2,2-Tetrachloroethane	< 0.005	NA	< 0.001
1,1,2-Trichloroethane	< 0.005	NA	< 0.001
1,1-Dichloroethane	< 0.005	NA	< 0.001
1,1-Dichloroethene	< 0.005	NA	< 0.001
1,2,3-Trichloropropane	< 0.005	NA	< 0.001
1,2-Dibromo-3-Chloropropane	< 0.01	NA	< 0.002
1,2-Dibromoethane	< 0.005	NA	< 0.001
1,2-Dichloroethane	< 0.005	NA	< 0.001
1,2-Dichloropropane	< 0.005	NA	< 0.001
1,4-Dioxane	< 0.5 R [f]	NA	< 0.5 R
2-Butanone	< 0.02	NA	< 0.01
2-Hexanone	< 0.02	NA	< 0.01
4-Methyl-2-Pentanone	< 0.02	NA	< 0.01
Acetone	< 0.02	NA	< 0.01
Acetonitrile	< 0.1 R	NA	< 0.01 R
Acrolein	< 0.1 R	NA	< 0.01 R

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Table 4-33

SWMU No. 11 (Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-10-2649	MW-10-0040R	MW-14-2629
Acrylonitrile	< 0.1	NA	< 0.01
Allyl Chloride	< 0.01	NA	< 0.001
Benzene	< 0.005	NA	< 0.001
Bromodichloromethane	< 0.005	NA	< 0.001
Bromoform	< 0.005	NA	< 0.001
Bromomethane	< 0.01	NA	< 0.001
Carbon Disulfide	< 0.005	NA	< 0.001
Carbon Tetrachloride	< 0.005	NA	< 0.001
Chlorobenzene	< 0.005	NA	< 0.001
Chloroethane	< 0.01	NA	< 0.001
Chloroform	0.0059	NA	< 0.001
Chloromethane	< 0.01	NA	< 0.001
Chloroprene	< 0.005	NA	< 0.001
Cis-1,2-Dichloroethene	< 0.0025	NA	NA
Cis-1,3-Dichloropropene	< 0.005	NA	< 0.001
Dibromochloromethane	< 0.005	NA	< 0.001
Dibromomethane	< 0.005	NA	< 0.001
Dichlorodifluoromethane	< 0.01	NA	< 0.001
Dichloromethane	< 0.005	NA	< 0.001
Ethyl Methacrylate	< 0.005	NA	< 0.01
Ethylbenzene	< 0.005	NA	< 0.001
Iodomethane	< 0.005	NA	< 0.001
Isobutyl Alcohol	< 0.2 R	NA	< 0.1
Methacrylonitrile	< 0.005	NA	< 0.01
Methyl Methacrylate	< 0.005	NA	< 0.001
Propionitrile	< 0.02 R	NA	< 0.01
Styrene	< 0.005	NA	< 0.001
Tetrachloroethene	< 0.005	NA	< 0.001
Toluene	< 0.005	NA	< 0.001
Trans-1,2-Dichloroethene	< 0.0025	NA	< 0.001
Trans-1,3-Dichloropropene	< 0.005	NA	< 0.001
Trans-1,4-Dichloro-2-Butene	< 0.005	NA	< 0.001
Trichloroethylene	< 0.005	NA	< 0.001
Trichlorofluoromethane	< 0.01	NA	< 0.001
Vinyl Acetate	< 0.01	NA	< 0.001
Vinyl Chloride	< 0.01	NA	< 0.001
Xylene (Total)	< 0.005	NA	< 0.001
SVOCs[R] (mg/l)			
1,2,4,5-Tetrachlorobenzene	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	< 0.05 R	NA	< 0.05

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Table 4-33

SWMU No. 11 (Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-10-2649	MW-10-0040R	MW-14-2629
1,3-Dinitrobenzene	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	< 0.01	NA	< 0.01
1,4-Naphthoquinone	< 0.05	NA	< 0.05
1-Naphthylamine	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	< 0.01	NA	< 0.01
2,4-Dichlorophenol	< 0.01	NA	< 0.01
2,4-Dimethylphenol	< 0.01	NA	< 0.01
2,4-Dinitrophenol	< 0.05 J	NA	< 0.05
2,4-Dinitrotoluene	< 0.01	NA	< 0.01
2,6-Dichlorophenol	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	< 0.01	NA	< 0.01
2-Acetylaminofluorene	< 0.1	NA	< 0.1
2-Chloronaphthalene	< 0.01	NA	< 0.01
2-Chlorophenol	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	NA	< 0.05
2-Methylnaphthalene	< 0.01	NA	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	NA	< 0.01
2-Naphthylamine	< 0.01	NA	< 0.01
2-Nitroaniline	< 0.05	NA	< 0.05
2-Nitrophenol	< 0.01	NA	< 0.01
2-Picoline	< 0.02	NA	< 0.02
3,3'-Dichlorobenzidine	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	NA	< 0.01
3-Methylcholanthrene	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	NA	< 0.01
3-Nitroaniline	< 0.05	NA	< 0.05
4-Aminobiphenyl	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	< 0.01	NA	< 0.01
4-Chloroaniline	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	NA	< 0.01
4-Nitrophenol	< 0.05	NA	< 0.05
4-Nitroquinoline-1-Oxide	< 0.1 R	NA	< 0.1
5-Nitro-O-Toluidine	< 0.02	NA	< 0.02
7,12-Dimethylbenz(A)Anthracene	< 0.02	NA	< 0.02
A,A-Dimethylphenethylamine	< 0.05	NA	< 0.05
Acenaphthene	< 0.01	NA	< 0.01
Acenaphthylene	< 0.01	NA	< 0.01

Table 4-33

SWMU No. 11 (Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-10-2649	MW-10-0040R	MW-14-2629
Acetophenone	< 0.01	NA	< 0.01
Aniline	< 0.01	NA	< 0.01
Anthracene	< 0.01	NA	< 0.01
Aramite	< 0.02	NA	< 0.02
Benz(B)Fluoranthene	< 0.01	NA	< 0.01
Benzo(A)Anthracene	< 0.01	NA	< 0.01
Benzo(A)Pyrene	< 0.01	NA	< 0.01
Benzo(G,H,I)Perylene	< 0.01	NA	< 0.01
Benzo(K)Fluoranthene	< 0.01	NA	< 0.01
Benzyl Alcohol	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	NA	< 0.01
Chrysene	< 0.01	NA	< 0.01
Dibenzo(A,H)Anthracene	< 0.01	NA	< 0.01
Dibenzofuran	< 0.01	NA	< 0.01
Diethyl Phthalate	< 0.01	NA	< 0.01
Dimethoate	< 0.02	NA	< 0.02
Dimethyl Phthalate	< 0.01	NA	< 0.01
Di-N-Butyl Phthalate	< 0.01	NA	< 0.01
Di-N-Octylphthalate	< 0.01	NA	< 0.01
Dinoseb	< 0.02	NA	< 0.02
Disulfoton	< 0.05	NA	< 0.05
Ethyl Methanesulfonate	< 0.01 R	NA	< 0.01
Famphur	< 0.1	NA	< 0.1
Fluoranthene	< 0.01	NA	< 0.01
Fluorene	< 0.01	NA	< 0.01
Hexachlorobenzene	< 0.01	NA	< 0.01
Hexachlorobutadiene	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	< 0.05 J	NA	< 0.05
Hexachloroethane	< 0.01	NA	< 0.01
Hexachlorophene	<	NA	<
Hexachloropropene	< 0.1	NA	< 0.1
Indeno(1,2,3-Cd)Pyrene	< 0.01	NA	< 0.01
Isosafrole	< 0.02	NA	< 0.02
M-Dichlorobenzene	< 0.01	NA	< 0.01
Methapyrilene	< 0.05	NA	< 0.05
Methyl Methanesulfonate	< 0.01 J	NA	< 0.01
Methyl Parathion	< 0.05	NA	< 0.05
Naphthalene	< 0.01	NA	< 0.01

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Table 4-33

SWMU No. 11 (Waste Oil Accumulation Area/Miscellaneous Storage Area/Pot Pad Burning Area[2]/Old Bake Furnace Site)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-10-2649	MW-10-0040R	MW-14-2629
Nitrobenzene	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	< 0.01	NA	< 0.01
N-Nitrosodimethylamine	< 0.01	NA	< 0.01
N-Nitrosodi-N-Butylamine	< 0.01	NA	< 0.01
N-Nitroso-Di-N-Propylamine	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	< 0.01	NA	< 0.01
N-Nitrosomorpholine	< 0.01	NA	< 0.01
N-Nitrosopiperidine	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	< 0.01	NA	< 0.01
O,O,O-Triethyl Phosphorothioate	< 0.05	NA	< 0.05
O-Toluidine	< 0.02	NA	< 0.02
Parathion	< 0.05	NA	< 0.05
P-Dimethylaminoazobenzene	< 0.02	NA	< 0.02
Pentachlorobenzene	< 0.01	NA	< 0.01
Pentachloroethane	< 0.05	NA	< 0.05
Pentachloronitrobenzene	< 0.05	NA	< 0.05
Pentachlorophenol	< 0.05	NA	< 0.05
Phenacetin	< 0.02	NA	< 0.02
Phenanthrene	< 0.01	NA	< 0.01
Phenol	< 0.01	NA	< 0.01
Phenol-D5	0.13	NA	0.13
Phorate	< 0.05	NA	< 0.05
P-Nitroaniline	< 0.05	NA	< 0.05
P-Phenylene Diamine	< 0.1	NA	< 0.1
Pronamide	< 0.02	NA	< 0.02
Pyrene	< 0.01	NA	< 0.01
Pyridine	< 0.02	NA	< 0.02
Safrole	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	NA	< 0.05
Thionazin	< 0.05	NA	< 0.05

Notes:

[a] mg/l = milligrams per liter.

[b] < = not detected at indicated detection limit

[c] J = Estimated Value

[d] NA = Not analyzed

[e] VOCs = Volatile Organic Compounds

[f] R = Rejected value

[g] SVOCs - Semi-Volatile Organic Compounds

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Table 4-34

SWMU No. 11
Phase II RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Date / Parameter	MW-10-2520 9/7/00	MW-10-2520D 9/7/00
VOCs[a] (mg/l)[b]		
Trichloromethane	0.003	0.003

Notes

[a] VOCs = Volatile Organic Compounds

[b] mg/l = milligrams per liter

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Table 4-35

Soil Screening Table
SWMU No. 11

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b] DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	mg/kg[d]	11	11	6.2	18.7	3.8	0.43	29	29	✓	✓		
Barium	mg/kg	10	11	40.3	118	140000	5500	1600	1648				
Cadmium	mg/kg	3	11	0.24	0.88	2000	78	8	7.52				
Chromium	mg/kg	11	11	10.1	30.5	6100	230	38	38.4				
Lead	mg/kg	11	11	6.7	61.2	1000	400	NA	267				
Selenium	mg/kg	5	11	0.77	1.5	10000	390	5	5.2				
Other													
Cyanide (total)	mg/kg	2	11	5.9	6.4	41000	1600	40	31				
Fluoride	mg/kg	10	11	1	158	120000	4700	NA	NA				
Pesticides/Herbicides													
None Detected													
SVOCs[e]													
2-Methylnaphthalene	mg/kg	2	11	0.5	0.64	41000	1600	NA	4.56				
Acenaphthene	mg/kg	2	11	0.74	1.1	120000	4700	570	11.6				
Anthracene	mg/kg	5	11	0.44	2	610000	23000	12000	1250				
Benzo(a)anthracene	mg/kg	9	11	0.94	9	7.8	0.87	2	0.4	✓	✓	✓	✓
Benzo(a)pyrene	mg/kg	8	11	0.88	11	0.78	0.087	8	0.1	✓	✓	✓	✓
Benzo(b)fluoranthene	mg/kg	9	11	1.2	18	7.8	0.87	5	1.2	✓	✓	✓	✓
Benzo(g,h,i)perylene[f]	mg/kg	9	11	0.77	8.7	61000	2300	4200	6720				
Benzo(k)fluoranthene	mg/kg	9	11	1	10	78	8.7	49	11.6		✓		
Chrysene	mg/kg	10	11	0.51	27	780	87	160	39.8				
Dibenz(a,h)anthracene	mg/kg	7	11	0.52	3.8	0.78	0.087	2	0.357	✓	✓	✓	✓
Dibenzofuran	mg/kg	1	11	0.52	0.52	8200	310	NA	5.2				
Di-n-butyl phthalate	mg/kg	1	11	5.1	5.1	200000	7800	2300	477				
Fluoranthene	mg/kg	10	11	0.42	15	82000	3100	4300	600				
Fluorene	mg/kg	2	11	0.44	0.76	82000	3100	560	78.4				

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Table 4-35

Soil Screening Table
SWMU No. 11

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection		USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b] DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Indeno(1,2,3-cd)pyrene	mg/kg	9	11	0.67	7.8		7.8	0.87	14	3.26		✓		✓
Naphthalene	mg/kg	3	11	0.42	0.81		41000	1600	84	0.925				
Phenanthrene[f]	mg/kg	7	11	0.51	8.4		61000	2300	4200	59.6				
Pyrene	mg/kg	9	11	1.1	13		61000	2300	4200	442				
VOCs [g]														
Iodomethane[h]	mg/kg	1	10	0.0088	0.0088		2900	110	0.2	NA				
1,1,1-Trichloroethane	mg/kg	2	10	0.0082	0.011		41000	1600	2	1.48				
Acetone	mg/kg	4	10	0.025	1.2	D	200000	7800	16	2.81				
Benzene	mg/kg	1	10	0.15	0.15		100	12	0.03	0.006			✓	✓
Carbon disulfide	mg/kg	1	10	0.17	0.17		200000	7800	32	4.94				
Ethylbenzene	mg/kg	2	10	0.0078	0.023		200000	7800	13	0.34				
Methylene chloride	mg/kg	1	10	0.012	0.012		760	85	0.02	0.022				
Styrene	mg/kg	1	10	0.033	0.033		410000	16000	4	2.0				
Toluene	mg/kg	2	10	0.031	0.038		410000	16000	12	8.1				
Xylenes (total)	mg/kg	1	10	0.072	0.072		4100000	160000	NA	6.16				

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] RBC for Pyrene as a Surrogate

[g] VOCs = Volatile Organic Compounds

[h] RBC for Bromomethane as a Surrogate

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentrations.

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Table 4-36
Groundwater Screening Table
SWMU No. 11
Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina 2L Standard	USEPA MCL	NC Standard	USEPA MCL
Metals									
Barium, Dissolved	2	2	mg/l[a]	0.32	0.52	2	2		
Cadmium, Dissolved	1	2	mg/l	0.0048	0.0048	0.005	0.005		
Cadmium, Total	1	2	mg/l	0.0052	0.0052	0.005	0.005	✓	✓
Cyanide, Total	1	3	mg/l	0.1	0.1	0.154	0.2		
Selenium, Dissolved	1	2	mg/l	0.0073	0.0073	NA	NA		
Selenium, Total	1	2	mg/l	0.0052	0.0052	0.05	0.05		
Other Parameters									
Fluoride	2	2	mg/l	1.6	6.9	2	4	✓	✓
SVOCs[b]									
None Detected									
VOCs[c]									
Trichloromethane	1	2	mg/l	0.0059	0.0059	0.00019	0.1	✓	

[a] mg/l = milligrams per liter

[b] SVOCs = Semi-Volatile Organic Compounds

[c] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

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Table 4-37

Exposure Point Concentrations
SWMU No. 11 - Soils

Alcoa Badin, NC Works RFI

Potential Exposure Medium	Constituent of Interest	Maximum Detection (mg/kg)[a]	Data Distribution	95% UCL[b] (mg/kg)	EPC[c] (mg/kg)
Surface Soil	Benzo(a)anthracene	9.0	Normal	7.4	7.4
	Benzo(a)pyrene	11	Normal	8.6	8.6
	Benzo(b)fluoranthene	12	Normal	10.2	10.2
	Dibenz(a,h)anthracene	3.8	Normal	3.0	3.0
	Indeno(1,2,3-cd)pyrene	7.8	Normal	6.1	6.1
Surface/Subsurface Soil	Benzo(a)anthracene	9.0	Normal	5.9	5.9
	Benzo(a)pyrene	11	Normal	5.6	5.6
	Benzo(b)fluoranthene	18	Normal	10.2	10.2
	Dibenz(a,h)anthracene	3.8	Normal	2.1	2.1
	Indeno(1,2,3-cd)pyrene	7.8	Normal	4.5	4.5

Notes:

[a] mg/kg = milligrams per kilogram

[b] UCL = upper confidence limit

[c] EPC = exposure point concentration

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Table 4-38

SWMU 11 Risk Characterization Summary
Summed Theoretical Excess Lifetime Cancer Risks[a]

CURRENT/FUTURE INFREQUENT INDUSTRIAL WORKER
SURFACE SOIL

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)anthracene	1.89E-07	5.56E-09	NA	1.9E-07
Benzo(a)pyrene	2.22E-06	6.54E-08	5.73E-10	2.3E-06
Benzo(b)fluoranthene	2.55E-07	7.52E-09	NA	2.6E-07
Dibenz(a,h)anthracene	7.65E-07	2.26E-08	NA	7.9E-07
Indeno(1,2,3-cd)pyrene	1.56E-07	4.59E-09	NA	1.6E-07
TOTAL	3.6E-06	1.1E-07	5.73E-10	4E-06

CURRENT/FUTURE OFF-SITE RESIDENT - ADULT [b]
SURFACE SOIL GENERATED PARTICULATES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	NA	NA	3.46E-09	3.46E-09
TOTAL	NA	NA	3.46E-09	3E-09

CURRENT/FUTURE OFF-SITE RESIDENT - CHILD [b]
SURFACE SOIL GENERATED PARTICULATES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	NA	NA	1.62E-09	1.6E-09
TOTAL	NA	NA	1.62E-09	2E-09

FUTURE CONSTRUCTION WORKER
ALL SOIL (TO 10 FEET BGS)

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)anthracene	1.08E-08	1.10E-09	NA	1.2E-08
Benzo(a)pyrene	1.01E-07	1.02E-08	2.61E-11	1.1E-07
Benzo(b)fluoranthene	1.84E-08	1.86E-09	NA	2.0E-08
Dibenz(a,h)anthracene	3.86E-08	3.90E-09	NA	4.2E-08
Indeno(1,2,3-cd)pyrene	8.08E-09	8.17E-10	NA	8.9E-09
TOTAL	1.8E-07	1.8E-08	2.61E-11	2E-07

FUTURE FULL-TIME INDUSTRIAL WORKER
SURFACE SOIL

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)anthracene	9.44E-07	2.78E-08	NA	9.7E-07
Benzo(a)pyrene	1.11E-05	3.27E-07	2.86E-09	1.1E-05
Benzo(b)fluoranthene	1.28E-06	3.76E-08	NA	1.3E-06
Dibenz(a,h)anthracene	3.83E-06	1.13E-07	NA	3.9E-06
Indeno(1,2,3-cd)pyrene	7.78E-07	2.29E-08	NA	8.0E-07
TOTAL	1.8E-05	5.3E-07	2.86E-09	2E-05

[a] No Hazard Indices were calculated because carcinogenic PAHs do not have EPA-derived RfDs.

[b] Although additional COIs were identified for off-site residential scenario, only benzo(a)pyrene has an inhalation CSF (NCEA).

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Table 4-39

SWMU No. 38 (Old Rotary Station)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Depth (ft-bgs)[a]	S38-TB01-2.0-2.5R 2.0-2.5
PCBs[b](mg/kg)[c]	
Aroclor 1016	< 0.041[d]
Aroclor 1221	< 0.041
Aroclor 1232	< 0.041
Aroclor 1242	< 0.041
Aroclor 1248	< 0.041
Aroclor 1254	< 0.041
Aroclor 1260	< 0.041

Notes:

(a) ft-bgs = feet below ground surface.

(b) PCBs = polychlorinated biphenyls.

(c) mg/kg = milligrams per kilogram.

(d) < = not detected at indicated detection limit.

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Table 4-40

B016-MW-2 Free Product Analytical Results – October, 1998

Alcoa Badin, NC Works RFI

Compound Name	Chemical Class	Retention Time	Molecular Formula
Pentacosane	Hydrocarbon (Alkane)	25.53	C25H52
Hexacosane	Hydrocarbon (Alkane)	27.33	C26H54
1,2-Benzenedicarboxylic acid, dicyclohexyl ester	Phthalate	31.31	C20H26O4
Bis(2-butylpentyl)phthalate	Phthalate	31.39	C24H38O4
Di-n-nonyl phthalate	Phthalate	31.50	C26H42O4
1,2-Benzenedicarboxylic acid, decylhexyl ester	Phthalate	31.56	C24H3804
1,2-Beneznedicarboxylic acid, 4-methyloctyl ester	Phthalate	31.61	C26H42O4
1,2-Beneznedicarboxylic acid, isodecyl octyl ester	Phthalate	31.66	C26H42O4
1,2-Beneznedicarboxylic acid, bis(1-methyloctyl)ester	Phthalate	31.75	C26H42O4
1,2-Beneznedicarboxylic acid, butyl pentyl ester	Phthalate	31.85	C26H42O4
Decyl octyl phthalate	Phthalate	31.33	C26H42O4
1,2-Beneznedicarboxylic acid, bis(8-methylnonly)ester	Phthalate	31.44	C28H46O4
1,2-Beneznedicarboxylic acid, diisodecyl ester	Phthalate	31.61	C28H46O4
1,2-Beneznedicarboxylic acid, bis(6-methylnonyl)ester	Phthalate	31.93	C28H46O4
Didecyl phthalate	Phthalate	32.07	C28H46O4
Didodecyl phthalate	Phthalate	32.25	C32H5404
1,2-Beneznedicarboxylic acid, diisodocdecyl ester	Phthalate	32.37	C32H5404

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Table 4-41

Used Compressor Oil Analytical Results – October 1998

Alcoa Badin, NC Works RFI

Compound Name	Chemical Class	Retention Time	Molecular Formula
2,6-bis(1,1-dimethylethyl)phenol	Phenolic	18.43	
Pentacosane	Hydrocarbon (Alkane)	25.53	C25H52
Hexacosane	Hydrocarbon (Alkane)	27.33	C26H54
Octacosane	Hydrocarbon (Alkane)	28.98	C28H58
Cyclohexyl-1-docosene	Hydrocarbon (Alkane)	30.22	C28H56
1,2-Benzenedicarboxylic acid, dicyclohexyl ester	Phthalate	31.31	C20H26O4
Bis(2-butylpentyl)phthalate	Phthalate	31.39	C24H38O4
Di-n-nonyl phthalate	Phthalate	31.50	C26H42O4
1,2-Benzenedicarboxylic acid, decylhexyl ester	Phthalate	31.56	C24H3804
1,2-Beneznedicarboxylic acid, 4-methyloctyl ester	Phthalate	31.61	C26H42O4
1,2-Beneznedicarboxylic acid, isodecyl octyl ester	Phthalate	31.66	C26H42O4
1,2-Beneznedicarboxylic acid, bis(1-methyloctyl) ester	Phthalate	31.75	C26H42O4
1,2-Beneznedicarboxylic acid, butyl pentyl ester	Phthalate	31.85	C26H42O4
Decyl octyl phthalate	Phthalate	31.33	C26H42O4
1,2-Beneznedicarboxylic acid, bis(8-methylnonly) ester	Phthalate	31.44	C28H46O4
1,2-Beneznedicarboxylic acid, diisodecyl ester	Phthalate	31.61	C28H46O4
1,2-Beneznedicarboxylic acid, bis(6-methylnonyl) ester	Phthalate	31.93	C28H46O4
Didecyl phthalate	Phthalate	32.07	C28H46O4
Didodecyl phthalate	Phthalate	32.25	C32H5404
1,2-Beneznedicarboxylic acid, diisodocdecyl ester	Phthalate	32.37	C32H5404
Tetratricontane	Hydrocarbon (Alkane)	33.05	C34H70
Hexatricontane	Hydrocarbon (Alkane)	33.11	C36H74

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Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
VOCs[a] (mg/l)[b]			
1,1,1,2-Tetrachloroethane	< 0.005[c]	< 0.005	< 0.005
1,1,1-Trichloroethane	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.005	< 0.005
1,1,2-Trichloroethane	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane	< 0.005	< 0.005	< 0.005
1,2-Dibromo-3-chloropropane	< 0.01	< 0.01	< 0.01
1,2-Dibromoethane	< 0.005	< 0.005	< 0.005
1,2-Dichloroethane	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005	< 0.005
1,4-Dioxane	< 0.5	< 0.5	< 0.5
2-Butanone	< 0.02	< 20	< 0.02
2-Hexanone	< 0.02	< 0.02	< 0.02
4-Methyl-2-Pentanone	< 0.02	< 0.02	< 0.02
Acetone	< 0.02	< 0.02	< 0.02
Acetonitrile	< 0.1	< 0.1	< 0.1
Acrolein	< 0.1	< 0.1	< 0.1
Acrylonitrile	< 0.1	< 0.1	< 0.1
Allyl chloride	< 0.01	< 0.01	< 0.01
Benzene	< 0.005	< 0.005	< 0.005
Bromodichloromethane	< 0.005	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005	< 0.005
Bromomethane	< 0.01	< 0.01	< 0.01
Carbon Disulfide	< 0.005	< 0.005	< 0.005
Carbon Tetrachloride	< 0.005	< 0.005	< 0.005
Chlorobenzene	< 0.005	< 0.005	< 0.005
Chloroethane	< 0.01	< 0.01	< 0.01
Chloroform	< 0.005	< 0.005	< 0.005
Chloromethane	< 0.01	< 0.01	< 0.01

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Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
Chloroprene	< 0.005	< 0.005	< 0.005
Cis-1,2-Dichloroethene	< 0.0025	NA	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005
Dibromochloromethane	< 0.005	< 0.005	< 0.005
Dibromomethane	< 0.005	< 0.005	< 0.005
Dichlorodifluoromethane	< 0.01	< 0.01	< 0.01
Dichloromethane	< 0.005	0.7	< 0.005
Ethyl methacrylate	< 0.005	< 0.005	< 0.005
Ethylbenzene	< 0.005	< 0.005	< 0.005
Iodomethane	< 0.005	< 0.005	< 0.005
Isobutyl alcohol	< 0.2	< 0.2	< 0.2
Methacrylonitrile	< 0.005	< 0.005	< 0.005
Methyl methacrylate	< 0.005	< 0.005	< 0.005
Propionitrile	< 0.02	< 0.02	< 0.02
Styrene	< 0.005	< 0.005	< 0.005
Tetrachloroethene	< 0.005	< 0.005	< 0.005
Toluene	< 0.005	< 0.005	< 0.005
Trans-1,2-Dichloroethene	< 0.0025	< 0.0025	< 0.0025
Trans-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005
trans-1,4-Dichloro-2-butene	< 0.005	< 0.005	< 0.005
Trichloroethylene	< 0.005	< 0.005	< 0.005
Trichlorofluoromethane	< 0.01	< 0.01	< 0.01
Vinyl Acetate	< 0.01	< 0.01	< 0.01
Vinyl Chloride	< 0.01	< 0.01	< 0.01
Xylene (Total)	< 0.005	< 0.005	< 0.005
SVOCs[(d)] (mg/l)			
1,2,4,5-Tetrachlorobenzene	< 0.01	< 200	< 0.01
1,2,4-Trichlorobenzene	< 0.01	< 200	< 0.01
1,2-Dichlorobenzene	< 0.01	< 200	< 0.01
1,3,5-Trinitrobenzene	< 0.05	< 1000	< 0.05
1,3-Dinitrobenzene	< 0.01	< 200	< 0.01

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Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
1,4-Dichlorobenzene	< 0.01	< 200	< 0.01
1,4-Naphthoquinone	< 0.05	< 1000	< 0.05
1-Naphthylamine	< 0.01	< 200	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.05	< 1000	< 0.05
2,4,5-Trichlorophenol	< 0.01	< 200	< 0.01
2,4,6-Trichlorophenol	< 0.01	< 200	< 0.01
2,4-Dichlorophenol	< 0.01	< 200	< 0.01
2,4-Dimethylphenol	< 0.01	< 200	< 0.01
2,4-Dinitrophenol	< 0.05	< 1000	< 0.05
2,4-Dinitrotoluene	< 0.01	< 200	< 0.01
2,6-Dichlorophenol	< 0.01	< 200	< 0.01
2,6-Dinitrotoluene	< 0.01	< 200	< 0.01
2-Acetylaminofluorene	< 0.1	< 2000	< 0.1
2-Chloronaphthalene	< 0.01	< 200	< 0.01
2-Chlorophenol	< 0.01	< 200	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	< 1000	< 0.05
2-Methylnaphthalene	< 0.01	< 200	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	< 200	< 0.01
2-Naphthylamine	< 0.01	< 200	< 0.01
2-Nitroaniline	< 0.05	< 1000	< 0.05
2-Nitrophenol	< 0.01	< 200	< 0.01
2-Picoline	< 0.02	< 400	< 0.02
3,3'-Dichlorobenzidine	< 0.05	< 1000	< 0.05
3,3'-Dimethylbenzidine	< 0.05	< 1000	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 200	< 0.01
3-Methylcholanthrene	< 0.02	< 400	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	NA	< 0.01
3-Nitroaniline	< 0.05	< 1000	< 0.05
4-Aminobiphenyl	< 0.05	< 1000	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	< 200	< 0.01

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Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
4-Chloro-3-Methylphenol	< 0.01	< 200	< 0.01
4-Chloroaniline	< 0.01	< 200	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	< 200	< 0.01
4-Nitrophenol	< 0.05	< 1000	< 0.05
4-Nitroquinoline-1-oxide	< 0.1	< 2000	< 0.1
5-Nitro-o-toluidine	< 0.02	< 400	< 0.02
7,12-Dimethylbenz(a)anthracene	< 0.02	< 400	< 0.02
a,a-Dimethylphenethylamine	< 0.05	< 1000	< 0.05
Acenaphthene	< 0.01	< 200	< 0.01
Acenaphthylene	< 0.01	< 200	< 0.01
Acetophenone	< 0.01	< 200	< 0.01
Aniline	< 0.01	< 200	< 0.01
Anthracene	< 0.01	< 200	< 0.01
Aramite	< 0.02	< 400	< 0.02
Benz(b)Fluoranthene	< 0.01	< 200	< 0.01
Benzo(a)Anthracene	< 0.01	< 200	< 0.01
Benzo(a)Pyrene	< 0.01	< 200	< 0.01
Benzo(g,h,i)Perylene	< 0.01	< 200	< 0.01
Benzo(k)Fluoranthene	< 0.01	< 200	< 0.01
Benzyl Alcohol	< 0.01	< 200	< 0.01
Benzyl Butyl Phthalate	< 0.01	< 200	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	< 200	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	< 200	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	< 200	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	600	< 0.01
Chlorobenzilate	NA	< 200	NA
Chrysene	< 0.01	< 200	< 0.01
Diallate	NA	< 400	NA
Dibenzo(a,h)Anthracene	< 0.01	< 200	< 0.01
Dibenzofuran	< 0.01	< 200	< 0.01
Diethyl Phthalate	< 0.01	< 200	< 0.01

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Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
Dimethoate	< 0.02	< 400	< 0.02
Dimethyl Phthalate	< 0.01	< 200	< 0.01
Di-n-Butyl Phthalate	< 0.01	< 200	< 0.01
Di-n-Octylphthalate	< 0.01	360	< 0.01
Dinoseb	< 0.02	< 400	< 0.02
Disulfoton	< 0.05	< 1000	< 0.05
Ethyl methanesulfonate	< 0.01	< 200	< 0.01
Famphur	< 0.1	< 2000	< 0.1
Fluoranthene	< 0.01	< 200	< 0.01
Fluorene	< 0.01	< 200	< 0.01
Hexachlorobenzene	< 0.01	< 200	< 0.01
Hexachlorobutadiene	< 0.01	< 200	< 0.01
Hexachlorocyclopentadiene	< 0.05	< 1000	< 0.05
Hexachloroethane	< 0.01	< 200	< 0.01
Hexachlorophene	<	<	<
Hexachloropropene	< 0.1	< 2000	< 0.1
Indeno(1,2,3-CD)Pyrene	< 0.01	< 200	< 0.01
Isodrin	NA	< 200	NA
Isosafrole	< 0.02	< 400	< 0.02
Kepone	NA	< 2000	NA
M-Dichlorobenzene	< 0.01	< 200	< 0.01
Methapyrilene	< 0.05	< 1000	< 0.05
Methyl methanesulfonate	< 0.01	< 200	< 0.01
Methyl parathion	< 0.05	< 1000	< 0.05
Naphthalene	< 0.01	< 200	< 0.01
Nitrobenzene	< 0.01	< 200	< 0.01
N-Nitrosodiethylamine	< 0.01	< 200	< 0.01
N-Nitrosodimethylamine	< 0.01	< 200	< 0.01
N-Nitrosodi-n-butylamine	< 0.01	< 200	< 0.01
N-Nitroso-Di-n-Propylamine	< 0.01	< 200	< 0.01
N-Nitrosodiphenylamine	< 0.01	< 200	< 0.01

Table 4-42

SWMU No. 42 (Building 016)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	B016-MW-1-2749	B016-MW-2	B016-MW-3-2779
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	< 200	< 0.01
N-Nitrosomethylethylamine	< 0.01	< 200	< 0.01
N-Nitrosomorpholine	< 0.01	< 200	< 0.01
N-Nitrosopiperidine	< 0.01	< 200	< 0.01
N-Nitrosopyrrolidine	< 0.01	< 200	< 0.01
O,O,O-Triethyl phosphorothioate	< 0.05	< 1000	< 0.05
o-Toluidine	< 0.02	< 400	< 0.02
Parathion	< 0.05	< 1000	< 0.05
p-Dimethylaminoazobenzene	< 0.02	< 400	< 0.02
Pentachlorobenzene	< 0.01	< 200	< 0.01
Pentachloroethane	< 0.05	< 1000	< 0.05
Pentachloronitrobenzene	< 0.05	< 1000	< 0.05
Pentachlorophenol	< 0.05	< 1000	< 0.05
Phenacetin	< 0.02	< 400	< 0.02
Phenanthrene	< 0.01	< 200	< 0.01
Phenol	< 0.01	< 200	< 0.01
Phorate	< 0.05	< 1000	< 0.05
P-Nitroaniline	< 0.05	< 1000	< 0.05
p-Phenylene diamine	< 0.1	< 2000	< 0.1
Pronamide	< 0.02	< 400	< 0.02
Pyrene	< 0.01	< 200	< 0.01
Pyridine	< 0.02	< 400	< 0.02
Safrole	< 0.02	< 400	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	< 1000	< 0.05
Thionazin	< 0.05	< 1000	< 0.05

Notes:

[a] VOCs = volatile organic compounds.

[b] mg/l = milligrams per liter.

[c] < = not detected at indicated detection limits.

[d] SVOCs = semi-volatile organic compounds.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	S43-HA01-0.0-0.5 0.0-0.5	S43-HA01-0.5-1.0 0.5-1.0	S43-HA01-1.0-1.5 1.0-1.5	S43-HA01-1.5-2.0 1.5-2.0	S43-HA02-0.0-0.5 0.0-0.5
Inorganics (mg/kg)[b]					
Arsenic	7.3	6.7	8	7.5	6.9
Cadmium	< 0.24[c]	0.5	< 0.23	0.35	< 0.21
Chromium	14.2	19.1	24.1	27.7	21.6
Lead	71.7	93.7	33.8	48.4	22.5

Notes:
[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligrams per kilogram.
[c] < = not detected at indicated detection limit.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S43-HA02-0.5-1.0	S43-HA02-1.0-1.5	S43-HA02-1.5-2.0	S43-HA03-0.0-0.5	S43-HA03-0.5-1.0
Sample Depth (ft-bgs)[a] / Parameter	0.5-1.0	1.0-1.5	1.5-2.0	0.0-0.5	0.5-1.0
Inorganics (mg/kg)[b]					
Arsenic	9.2	10.4	9.2	9.9	8.2
Cadmium	< 0.23	< 0.24	< 0.24	< 0.25	< 0.25
Chromium	11.3	8	10.9	22.2	12.1
Lead	9.9	11	7.7	22.6	12.4

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S43-HA03-1.0-1.5 1.0-1.5	S43-HA03-1.5-2.0 1.5-2.0	S43-HA04-0.0-0.5 0.0-0.5	S43-HA04-0.5-1.0 0.5-1.0	S43-HA04-1.0-1.5 1.0-1.5
Inorganics (mg/kg)[b]					
Arsenic	3.8	8.6	6.8	12.6	11.2
Cadmium	< 0.25	< 0.25	< 0.21	< 0.24	< 0.24
Chromium	11.3	18.4	21.8	44.1	31.7
Lead	12.2	17.4	13.2	12.8	11.7

Notes:
[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligrams per kilogram.
[c] < = not detected at indicated detection limit.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	S43-HA04-1.5-2.0	S43-HA05-0.0-0.5	S43-HA05-0.5-1.0	S43-HA05-1.0-1.5	S43-HA06-0.0-0.5
Sample Depth (ft-bgs)[a]	1.5-2.0	0.0-0.5	0.5-1.0	1.0-1.5	0.0-0.5
Parameter					
Inorganics (mg/kg)[b]					
Arsenic	10.5	7.6	6.4	9.3	6.4
Cadmium	< 0.24	< 0.21	< 0.22	< 0.23	0.29
Chromium	23.1	19.2	16	15.6	19.6
Lead	20.4	16.3	10.4	22	18.8

Notes:
[a] ft-bgs = feet below ground surface.
[b] mg/kg = milligrams per kilogram.
[c] < = not detected at indicated detection limit.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	S43-HA06-0.5-1.0 0.5-1.0	S43-HA06-1.0-1.5 1.0-1.5	S43-HA06-1.5-2.0 1.5-2.0	S43-HA07-0.0-0.5 0.0-0.5
Inorganics (mg/kg)[b]				
Arsenic	9.2	12	16.3	9.1
Cadmium	< 0.24	< 0.24	< 0.24	< 0.26
Chromium	13.8	20.4	20.3	24.4
Lead	13.5	17.8	25	43.5

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

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Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID	S43-HA07-0.5-1.0	S43-HA07-1.0-1.5	S43-HA07-1.5-2.0	S43-HA08-0.0-0.5	S43-HA08-0.5-1.0
Sample Depth (ft-bgs)[a]	0.5-1.0	1.0-1.5	1.5-2.0	0.0-0.5	0.5-1.0
Inorganics (mg/kg)[b]					
Arsenic	10.1	8	4.9	11.6	10.8
Cadmium	< 0.25	< 0.24	< 0.25	< 0.25	< 0.24
Chromium	24.3	16.2	17.1	27.7	36.9
Lead	26.8	30.5	10.3	26.2	20

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

Table 4-43

SWMU No. 43 Overhead Crane Rebuild Structure
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample ID / Sample Depth (ft-bgs)[a]	S43-HA08-1.0-1.5 1.0-1.5	S43-HA08-1.5-2.0 1.5-2.0
Inorganics (mg/kg)[b]		
Arsenic	9	9.1
Cadmium	< 0.24	< 0.24
Chromium	17.7	14.9
Lead	12.8	16

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

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Table 4-44

Soil Screening Table
SWMU No. 43 (Overhead Crane Rebuild Structure)

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b] DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 2	NC SSL DAF = 20
Metals													
Arsenic	mg/kg[d]	31	31	3.8	16.3	3.8	0.43	29	29	✓	✓		
Cadmium	mg/kg	3	31	0.29	0.5	2000	78	8	8				
Chromium	mg/kg	31	31	8	44.1	6100	230	38	38			✓	✓
Lead	mg/kg	31	31	7.7	93.7	1000	400		267				

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentrations.

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Table 4-45
SWMU No. 46 (West SPL Area)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	WA TP01-3.5-4.0	WA TP01-8.5-9.5	WA-TP01E-0608	WA-TP01ED-0608	WA-TP02-0910	WA-TP03-0810	WA-TP06-0506
Sample Depth (ft-bgs)[a]	3.5-4.0	8.5-9.5	6.0-8.0	6.0-8.0	9.0-10.0	8.0-10.0	5.0-6.0
Parameter							
Inorganics (mg/kg)[b]							
Fluoride	21700	1190	1770	1590	562	777	938
Cyanide, Weak Acid Dissociable	139	13.9	3.9	3.7	3.9	4.1	2.5
Cyanide, Total	274	41.9	44.9	51.9	22.3	76.8	11.5
Arsenic	6.5	17.1	14.4	19.4	10.6	18.3	9.7
Barium	180	71.7	71.3	110	143	125	82.3
Cadmium	< 0.26[c]	< 0.24	< 0.24	< 0.25	0.38	< 0.24	0.49
Chromium	19.9	29.7	17.6	21.5	24.6	29	18.7
Lead	8.8	19.6	14.8	16.8	85.2	20.9	19.3
Selenium	< 0.64	< 0.61	< 0.61	< 0.62	0.76	< 0.61	< 0.62
Miscellaneous							
Asbestos	ND[d]	NA[e]	NA	NA	NA	NA	NA
Volatile Organic Compound (mg/kg)							
1,1,1,2-Tetrachloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,1,1-Trichloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,1,2,2-Tetrachloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,1,2-Trichloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,1-Dichloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,1-Dichloroethene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,2,3-Trichloropropane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,2-Dibromo-3-Chloropropane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
1,2-Dibromoethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,2-Dichloroethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,2-Dichloropropane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
1,4-Dioxane	< 32	< 0.61	< 0.61	< 0.62	< 0.61	< 0.61	< 0.61
2-Butanone	< 1.3	< 0.024	< 0.024	< 0.025	0.091	< 0.024	< 0.024
2-Hexanone	< 1.3	< 0.024	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024
4-Methyl-2-Pentanone	< 1.3	< 0.024	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024
Acetone	< 1.3	0.1	0.052	0.061	0.56	0.059	0.057
Acetonitrile	< 6.4	< 0.12	< 0.12	< 0.12	0.23	< 0.12	< 0.12
Acrolein	< 6.4	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
Acrylonitrile	< 6.4	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
Allyl Chloride	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Benzene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Bromodichloromethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Bromoform	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Bromomethane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Carbon Disulfide	< 0.32	0.022	< 0.0061	< 0.0062	0.013	< 0.0061	< 0.0061
Carbon Tetrachloride	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Chlorobenzene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Chloroethane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Chloroform	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Chloromethane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Chloroprene	< 0.32	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Cis-1,3-Dichloropropene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Dibromochloromethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061

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Table 4-45
SWMU No. 46 (West SPL Area)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	WA TP01-3.5-4.0	WA TP01-8.5-9.5	WA-TP01E-0608	WA-TP01ED-0608	WA-TP02-0910	WA-TP03-0810	WA-TP06-0506
Sample Depth (ft-bgs)[a]	3.5-4.0	8.5-9.5	6.0-8.0	6.0-8.0	9.0-10.0	8.0-10.0	5.0-6.0
Parameter							
Dibromomethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Dichlorodifluoromethane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Dichloromethane	0.39	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Ethyl Methacrylate	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Ethylbenzene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Iodomethane	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Isobutyl Alcohol	< 13	< 0.24	< 0.24	< 0.25	< 0.25	< 0.24	< 0.24
Methacrylonitrile	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Methyl Methacrylate	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Propionitrile	< 1.3	< 0.024	< 0.024	< 0.025	< 0.025	< 0.024	< 0.024
Styrene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Tetrachloroethene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Toluene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Trans-1,2-Dichloroethene	< 0.16	< 0.0031	< 0.003	< 0.0031	< 0.0031	< 0.003	< 0.0031
Trans-1,3-Dichloropropene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Trans-1,4-Dichloro-2-Butene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Trichloroethylene	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Trichlorofluoromethane	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Vinyl Acetate	< 0.64	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Vinyl Chloride	< 0.64	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Xylene (Total)	< 0.32	< 0.0061	< 0.0061	< 0.0062	< 0.0062	< 0.0061	< 0.0061
Semi Volatile Compounds (mg/kg)							
1,2,4,5-Tetrachlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
1,2,4-Trichlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
1,2-Dichlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
1,3,5-Trinitrobenzene	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
1,3-Dinitrobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
1,4-Dichlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
1,4-Naphthoquinone	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
1-Naphthylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,3,4,6-Tetrachlorophenol	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
2,4,5-Trichlorophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,4,6-Trichlorophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,4-Dichlorophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,4-Dimethylphenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,4-Dinitrophenol	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
2,4-Dinitrotoluene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,6-Dichlorophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2,6-Dinitrotoluene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Acetylaminofluorene	< 4.2	< 4	< 4	< 4.1	< 4	< 4	< 4.1
2-Chloronaphthalene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Chlorophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Methyl-4,6-Dinitrophenol	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
2-Methylnaphthalene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Methylphenol (O-Cresol)	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Naphthylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Nitroaniline	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2

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Table 4-45
SWMU No. 46 (West SPL Area)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	WA TP01-3.5-4.0	WA TP01-8.5-9.5	WA-TP01E-0608	WA-TP01ED-0608	WA-TP02-0910	WA-TP03-0810	WA-TP06-0506
Sample Depth (ft-bgs)[a]	3.5-4.0	8.5-9.5	6.0-8.0	6.0-8.0	9.0-10.0	8.0-10.0	5.0-6.0
Parameter							
2-Nitrophenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
2-Picoline	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
3,3'-Dichlorobenzidine	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
3,3'-Dimethylbenzidine	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
3-Methylcholanthrene	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
3-Nitroaniline	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
4-Aminobiphenyl	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
4-Bromophenyl Phenyl Ether	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
4-Chloro-3-Methylphenol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
4-Chloroaniline	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
4-Chlorophenyl Phenyl Ether	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
4-Methylphenol (P-Cresol)	< 0.42	< 0.4	< 0.4	< 0.41	2.6	< 0.4	< 0.41
4-Nitrophenol	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
4-Nitroquinoline-1-Oxide	< 4.2	< 4	< 4	< 4.1	< 4.1	< 4	< 4.1
5-Nitro-O-Toluidine	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
7,12-Dimethylbenz(A)Anthracene	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
a,a-Dimethylphenethylamine	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Acenaphthene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Acenaphthylene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Acetophenone	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Aniline	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Anthracene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Aramite	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Benzo(b)fluoranthene	< 0.42	< 0.4	< 0.4	< 0.41	1.2	< 0.4	1.6
Benzo(a)anthracene	< 0.42	< 0.4	< 0.4	< 0.41	0.9	< 0.4	0.89
Benzo(a)pyrene	< 0.42	< 0.4	< 0.4	< 0.41	1	< 0.4	1.6
Benzo(g,h,i)perylene	< 0.42	< 0.4	< 0.4	< 0.41	0.75	< 0.4	1.5
Benzo(k)fluoranthene	< 0.42	< 0.4	< 0.4	< 0.41	0.86	< 0.4	1.1
Benzyl Alcohol	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Benzyl Butyl Phthalate	1.1	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Bis(2-Chloroethoxy)Methane	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Bis(2-Chloroethyl)Ether	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Bis(2-Chloroisopropyl)Ether	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Bis(2-Ethylhexyl)Phthalate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Chlorobenzilate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Chrysene	< 0.42	< 0.4	< 0.4	< 0.41	1.2	< 0.4	1.2
Diallate	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Dibenzo(a,h)anthracene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	0.5
Dibenzofuran	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Diethyl Phthalate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Dimethoate	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Dimethyl Phthalate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Di-N-Butyl Phthalate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Di-N-Octylphthalate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Dinoseb	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Disulfoton	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2

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Table 4-45
SWMU No. 46 (West SPL Area)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	WA TP01-3.5-4.0	WA TP01-8.5-9.5	WA-TP01E-0608	WA-TP01ED-0608	WA-TP02-0910	WA-TP03-0810	WA-TP06-0506
Sample Depth (ft-bgs)[a]	3.5-4.0	8.5-9.5	6.0-8.0	6.0-8.0	9.0-10.0	8.0-10.0	5.0-6.0
Parameter							
Ethyl Methanesulfonate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Famphur	< 4.2	< 4	< 4	< 4.1	< 4.1	< 4	< 4.1
Fluoranthene	< 0.42	< 0.4	< 0.4	< 0.41	1.4	< 0.4	0.93
Fluorene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Hexachlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Hexachlorobutadiene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Hexachlorocyclopentadiene	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Hexachloroethane	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Hexachlorophene	<	<	<	<	<	<	<
Hexachloropropene	< 4.2	< 4	< 4	< 4.1	< 4.1	< 4	< 4.1
Indeno(1,2,3-cd)Pyrene	< 0.42	< 0.4	< 0.4	< 0.41	0.64	< 0.4	1.1
Isodrin	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Isosafrole	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Kepone	< 4.2	< 4	< 4	< 4.1	< 4.1	< 4	< 4.1
M-Dichlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Methapyrilene	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Methyl Methanesulfonate	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Methyl Parathion	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Naphthalene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Nitrobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosodiethylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosodimethylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosodi-N-Butylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitroso-Di-N-Propylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosodiphenylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosodiphenylamine/Diphenylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosomethylethylamine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosomorpholine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosopiperidine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
N-Nitrosopyrrolidine	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
O,O,O-Triethyl Phosphorothioate	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
O-Toluidine	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Parathion	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
P-Dimethylaminoazobenzene	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Pentachlorobenzene	< 0.42	< 0.4	< 0.4	< 0.41	< 0.41	< 0.4	< 0.41
Pentachloroethane	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Pentachloronitrobenzene	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Pentachlorophenol	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Phenacetin	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Phenanthrene	< 0.42	< 0.4	< 0.4	< 0.41	0.85	< 0.4	0.62
Phenol	< 0.42	< 0.4	< 0.4	< 0.41	1	< 0.4	< 0.41
Phenol-D5	4.4	4.9	2.6	3.7	4.8	3.7	3.9
Phorate	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
P-Nitroaniline	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
P-Phenylene Diamine	< 4.2	< 4	< 4	< 4.1	< 4.1	< 4	< 4.1
Pronamide	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Pyrene	< 0.42	< 0.4	< 0.4	< 0.41	1.3	< 0.4	1

Table 4-45
SWMU No. 46 (West SPL Area)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample ID	WA TP01-3.5-4.0	WA TP01-8.5-9.5	WA-TP01E-0608	WA-TP01ED-0608	WA-TP02-0910	WA-TP03-0810	WA-TP06-0506
Sample Depth (ft-bgs)[a]	3.5-4.0	8.5-9.5	6.0-8.0	6.0-8.0	9.0-10.0	8.0-10.0	5.0-6.0
Parameter							
Pyridine	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Safrole	< 0.84	< 0.81	< 0.8	< 0.82	< 0.82	< 0.8	< 0.82
Tetraethyldithiopyrophosphate	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2
Thionazin	< 2	< 2	< 1.9	< 2	< 2	< 1.9	< 2

Note:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

[d] ND = not detected.

[e] NA = denotes not analyzed.

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Table 4-46

SWMU No. 46
Phase II RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Date / Sample Depth (ft-bgs)[a] / Parameter	S46-SS01-0.0-0.5 8/29/00 0.0-0.5	S46-SS02-0.0-0.5 8/29/00 0.0-0.5	S46-SS03-0.0-0.5 8/29/00 0.0-0.5	S46-TP12-0708 8/28/00 7.0-8.0	S46-TP13-0910 8/28/00 9.0-10.0	S46-TP14-0708 8/28/00 7.0-8.0
Miscellaneous						
Percent Solids	93	86.6	92.7	85.4	80.6	82.8
Inorganics (mg/kg)[b]						
Cyanide, Total	0.73	< 0.58	3.6	4.4	1.4	< 0.6
Cyanide, Weak Acid Dissociable	< 0.54	< 0.58	< 0.54	< 0.59	< 0.62	< 0.6
Fluoride	150	77	650	88	7.1	<4.9
SVOCs[c](mg/kg)						
Acenaphthene	< 0.35	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Acenaphthylene	< 0.35	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Anthracene	< 0.35	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Benzo(a)anthracene	1.6	0.61	0.49	< 0.39	< 0.41	< 0.4
Benzo(a)pyrene	1.3	0.62	0.59	< 0.39	< 0.41	< 0.4
Benzo(b)fluoranthene	3.9	1.2	1	< 0.39	< 0.41	< 0.4
Benzo(ghi)perylene	1.1	0.43	0.39	0.62	< 0.41	< 0.4
Benzo(k)fluoranthene	1	0.56	0.46	< 0.39	< 0.41	< 0.4
Chrysene	3.3	0.93	0.69	0.52	< 0.41	< 0.4
Dibenz(a,h)anthracene	0.39	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Fluoranthene	1.9	1.1	0.63	< 0.39	< 0.41	< 0.4
Fluorene	< 0.35	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Indeno(1,2,3-cd)pyrene	1.1	0.47	0.42	0.4	< 0.41	< 0.4
Naphthalene	< 0.35	< 0.38	< 0.36	< 0.39	< 0.41	< 0.4
Phenanthrene	0.36	0.39	< 0.36	< 0.39	< 0.41	< 0.4
Pyrene	1.9	0.79	0.64	< 0.39	< 0.41	< 0.4

Notes:
(a) ft-bgs = feet below ground survace
(b) mg/kg = milligrams per kilogram
(c) SVOCs = Semi-Volatile Organic Compounds

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Table 4-47

SWMU No. 46 (West SPL Area)
Phase II RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Date / Parameter	MW-28-2510 9/6/00	MW-29-2510 9/6/00	MW-29-2510D 9/6/00
Inorganics (mg/l)[a]			
Cyanide, Total	< 0.01	8.5	8.4
Free Cyanide by Microdiffusion	< 0.01	0.09	0.099
Cyanide, Weak Acid Dissociable	< 0.01	0.25	0.3
Fluoride	< 0.2	18	20
Total Suspended Solids	NA	NA	NA
Antimony, Total	NA	NA	NA
Antimony, Dissolved	NA	NA	NA
Thallium, Total	NA	NA	NA
Thallium, Dissolved	NA	NA	NA
SVOCs[b] (mg/l)			
Acenaphthene	< 0.01	< 0.01	< 0.01
Acenaphthylene	< 0.01	< 0.01	< 0.01
Anthracene	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	< 0.01	< 0.01	< 0.01
Chrysene	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	< 0.01	< 0.01	< 0.01
Fluoranthene	< 0.01	< 0.01	< 0.01
Fluorene	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	< 0.01	< 0.01	< 0.01
Naphthalene	< 0.01	< 0.01	< 0.01
Phenanthrene	< 0.01	< 0.01	< 0.01
Pyrene	< 0.01	< 0.01	< 0.01

Notes:

[a] mg/l = milligrams per liter

[b] SVOCs = Semi-Volatile Organic Compounds

Table 4-48

Soil Screening Table
SWMU No. 46 (West SPL Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection		Maximum Detection		USEPA Region III Industrial Soil RBC(a)	USEPA Region III Residential Soil RBC(a)	USEPA SSL(b) DAF(c)=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals															
Arsenic	6	6	mg/kg[d]	9.7		19.4		3.8	0.43	29	29	✓	✓		
Barium	6	6	mg/kg	71.3		143		140000	5500	1600	1648				
Cadmium	2	6	mg/kg	0.38		0.49		2000	78	8	8				
Chromium	6	6	mg/kg	17.6		29.7		6100	230	38	38				
Lead	6	6	mg/kg	14.8		85.2		1000	400	NA	267				
Selenium	1	6	mg/kg	0.76		0.76		10000	390	5	5				
Other															
Cyanide, Weak Acid Dissociable	6	12	mg/kg	2.5		13.9		41000	1600	40	31				
Cyanide, Total	10	12	mg/kg	0.73		76.8		41000	1600	40	31				
Fluoride	11	12	mg/kg	7.1		1770		120000	4700	NA	NA				
SVOCs[e]															
4-Methylphenol (P-Cresol)	1	6	mg/kg	2.6		2.6		10000	390	NA	0.02				✓
Acetonitrile	1	6	mg/kg	0.23	E	0.23	E	NA	NA	NA	NA				
Benzo(a)anthracene	5	12	mg/kg	0.49		1.6		7.8	0.87	2	0.4		✓		✓
Benzo(a)pyrene	5	12	mg/kg	0.59		1.6		0.78	0.087	8	0.1	✓	✓		✓
Benzo(b)fluoranthene	5	12	mg/kg	1		3.9		7.8	0.87	5	1.2		✓		✓
Benzo(ghi)perylene[f]	6	12	mg/kg	0.39		1.5		61000	2300	4200	6720				
Benzo(k)fluoranthene	5	12	mg/kg	0.46		1.1		78	8.7	49	12				
Chrysene	6	12	mg/kg	0.52		3.3		780	87	160	39.8				
Dibenz(a,h)anthracene	2	12	mg/kg	0.39		0.5		0.78	0.087	2	0.4		✓		✓
Fluoranthene	5	12	mg/kg	0.63		1.9		82000	3100	4300	600				
Indeno(1,2,3-cd)pyrene	6	12	mg/kg	0.4		1.1		7.8	0.87	14	3.3		✓		
Phenanthrene[f]	4	12	mg/kg	0.36		0.85		61000	2300	4200	59.6				
Phenol	1	6	mg/kg	1		1		1200000	47000	100	1.4				
Pyrene	5	12	mg/kg	0.64		1.9		61000	2300	4200	442				

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Table 4-48

Soil Screening Table
SWMU No. 46 (West SPL Area)

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection		Maximum Detection		USEPA Region III Industrial Soil RBC(a)	USEPA Region III Residential Soil RBC(a)	USEPA SSL(b) DAF(c)=20	North Carolina SSL DAF = 20	Ind RBC	Res RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
VOCs[g]															
2-Butanone	1	6	mg/kg	0.091		0.091		1200000	47000	NA	0.8				
Acetone	6	6	mg/kg	0.052		0.7		200000	7800	16	2.8				
Carbon Disulfide	2	6	mg/kg	0.013		0.022		200000	7800	32	4.9				

Notes:

[a] RBC = Risk-Based Concentration (USEPA, 2000)

[b] SSL = Soil Screening Level (USEPA, 1996)

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] RBC for Pyrene as a Surrogate

[g] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentration of 34 mg/kg.

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Table 4-49

Exposure Point Concentrations
SWMU No. 46 - Soils

Alcoa Badin, NC Works RFI

Potential Exposure Medium	Constituent of Interest	Maximum Detection (mg/kg)[a]	Data Distribution	95% UCL (mg/kg)	EPC (mg/kg)
Surface Soil	Benzo(a)anthracene	1.3	NC[b]	NC	1.3
	Benzo(a)pyrene	1.6	NC	NC	1.6
	Benzo(b)fluoranthene	3.9	NC	NC	3.9
	Dibenz(a,h)anthracene	0.4	NC	NC	0.4
	Indeno(1,2,3-Cd)pyrene	1.1	NC	NC	1.1
Surface/Subsurface Soil	Benzo(a)pyrene	1.6	lognormal	2.0	2.0

[a]mg/kg = milligram per kilogram

[b]NC - Not able to calculate, insufficient number of data points to perform meaningful statistics.

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Table 4-50
SWMU No. 46 Risk Characterization Summary
Summed Theoretical Excess Lifetime Cancer Risks[a]

CURRENT/FUTURE INFREQUENT INDUSTRIAL WORKER
SURFACE SOIL

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Benzo(a)pyrene	3.32E-07	9.77E-09	4.28E-11	3E-07

CURRENT/FUTURE OFF-SITE RESIDENT - ADULT [b]
SURFACE SOIL GENERATED PARTICULATES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Benzo(a)pyrene	NA	NA	2.59E-10	3E-10

CURRENT/FUTURE OFF-SITE RESIDENT - CHILD [b]
SURFACE SOIL GENERATED PARTICULATES

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	NA	NA	1.21E-10	1E-10

FUTURE CONSTRUCTION WORKER
ALL SOIL (TO 10 FEET BGS)

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
ORGANICS				
Benzo(a)pyrene	3.67E-08	3.71E-09	9.47E-12	4E-08

FUTURE FULL-TIME INDUSTRIAL WORKER
SURFACE SOIL

Constituent	Ingestion of Soil	Dermal Contact with Soil	Inhalation of Particulates	TOTAL
Benzo(a)pyrene	1.66E-06	4.89E-08	2.14E-10	2E-06

[a] No Hazard Indices were calculated because carcinogenic PAHs do not have EPA-derived RfDs.

[b] Although additional COIs were identified for off-site residential scenario, only benzo(a)pyrene has an inhalation CSF (NCEA).

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Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
VOCs[a](mg/l)[b]		
1,1,1,2-Tetrachloroethane	< 0.005[c]	< 0.005
1,1,1-Trichloroethane	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.005
1,1,2-Trichloroethane	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005
1,2,3-Trichloropropane	< 0.005	< 0.005
1,2-Dibromo-3-chloropropane	< 0.01	< 0.01
1,2-Dibromoethane	< 0.005	< 0.005
1,2-Dichloroethane	< 0.005	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005
1,4-Dioxane	< 0.5	< 0.5
2-Butanone	< 0.02	< 0.02
2-Hexanone	< 0.02	< 0.02
4-Methyl-2-Pentanone	< 0.02	< 0.02
Acetone	< 0.02	< 0.02
Acetonitrile	< 0.1	< 0.1
Acrolein	< 0.1	< 0.1
Acrylonitrile	< 0.1	< 0.1
Allyl chloride	< 0.01	< 0.01
Benzene	< 0.005	< 0.005
Bromodichloromethane	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005
Bromomethane	< 0.01	< 0.01
Carbon Disulfide	< 0.005	< 0.005
Carbon Tetrachloride	< 0.005	< 0.005
Chlorobenzene	< 0.005	< 0.005
Chloroethane	< 0.01	< 0.01
Chloroform	< 0.005	< 0.005
Chloromethane	< 0.01	< 0.01
Chloroprene	< 0.005	< 0.005

Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
Cis-1,2-Dichloroethene	< 0.0025	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	< 0.005
Dibromochloromethane	< 0.005	< 0.005
Dibromomethane	< 0.005	< 0.005
Dichlorodifluoromethane	< 0.01	< 0.01
Dichloromethane	< 0.005	< 0.005
Ethyl methacrylate	< 0.005	< 0.005
Ethybennzene	< 0.005	< 0.005
Iodomethane	< 0.005	< 0.005
Isobutyl alcohol	< 0.2	< 0.2
Methacrylonitrile	< 0.005	< 0.005
Methyl methacrylate	< 0.005	< 0.005
Propionitrile	< 0.02	< 0.02
Styrene	< 0.005	< 0.005
Tetrachloroethene	< 0.005	< 0.005
Toluene	< 0.005	< 0.005
Trans-1,2-Dichloroethene	< 0.0025	< 0.0025
Trans-1,3-Dichloropropene	< 0.005	< 0.005
trans-1,4-Dichloro-2-butene	< 0.005	< 0.005
Trichloroethylene	< 0.005	< 0.005
Trichlorofluoromethane	< 0.01	< 0.01
Vinyl Acetate	< 0.01	< 0.01
Vinyl Chloride	< 0.01	< 0.01
Xylene (total)	< 0.005	< 0.005
SVOCs[(d)]		
1,2,4,5-Tetrachlorobenzene	< 0.01	< 0.01
1,2,4-Trichlorobenzene	< 0.01	< 0.01
1,2-Dichlorobenzene	< 0.01	< 0.01
1,3,5-Trinitrobenzene	< 0.05	< 0.05
1,3-Dinitrobenzene	< 0.01	< 0.01
1,4-Dichlorobenzene	< 0.01	< 0.01
1,4-Naphthoquinone	< 0.05	< 0.05
1-Naphthylamine	< 0.01	< 0.01

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Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
2,3,4,6-Tetrachlorophenol	< 0.05	< 0.05
2,4,5-Trichlorophenol	< 0.01	< 0.01
2,4,6-Trichlorophenol	< 0.01	< 0.01
2,4-Dichlorophenol	< 0.01	< 0.01
2,4-Dimethylphenol	< 0.01	< 0.01
2,4-Dinitrophenol	< 0.05	< 0.05
2,4-Dinitrotoluene	< 0.01	< 0.01
2,6-Dichlorophenol	< 0.01	< 0.01
2,6-Dinitrotoluene	< 0.01	< 0.01
2-Acetylaminofluorene	< 0.1	< 0.1
2-Chloronaphthalene	< 0.01	< 0.01
2-Chlorophenol	< 0.01	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	< 0.05
2-Methylnaphthalene	< 0.01	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	< 0.01
2-Naphthylamine	< 0.01	< 0.01
2-Nitroaniline	< 0.05	< 0.05
2-Nitrophenol	< 0.01	< 0.01
2-Picoline	< 0.02	< 0.02
3,3'-Dichlorobenzidine	< 0.05	< 0.05
3,3'-Dimethylbenzidine	< 0.05	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 0.01
3-Methylcholanthrene	< 0.02	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	< 0.01
3-Nitroaniline	< 0.05	< 0.05
4-Aminobiphenyl	< 0.05	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	< 0.01
4-Chloro-3-Methylphenol	< 0.01	< 0.01
4-Chloroaniline	< 0.01	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	< 0.01
4-Nitrophenol	< 0.05	< 0.05
4-Nitroquinoline-1-oxide	< 0.1	< 0.1

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Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
5-Nitro-o-toluidine	< 0.02	< 0.02
7,12-Dimethylbenz(a)anthracene	< 0.02	< 0.02
a,a-Dimethylphenethylamine	< 0.05	< 0.05
Acenaphthene	< 0.01	< 0.01
Acenaphthylene	< 0.01	< 0.01
Acetophenone	< 0.01	< 0.01
Aniline	< 0.01	< 0.01
Anthracene	< 0.01	< 0.01
Aramite	< 0.02	< 0.02
Benz(b)Fluoranthene	< 0.01	< 0.01
Benzo(a)Anthracene	< 0.01	< 0.01
Benzo(a)Pyrene	< 0.01	< 0.01
Benzo(g,h,i)Perylene	< 0.01	< 0.01
Benzo(k)Fluoranthene	< 0.01	< 0.01
Benzyl Alcohol	< 0.01	< 0.01
Benzyl Butyl Phthalate	< 0.01	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	< 0.01
Chrysene	< 0.01	< 0.01
Dibenzo(a,h)Anthracene	< 0.01	< 0.01
Dibenzofuran	< 0.01	< 0.01
Diethyl Phthalate	< 0.01	< 0.01
Dimethoate	< 0.02	< 0.02
Dimethyl Phthalate	< 0.01	< 0.01
Di-n-Butylphthalate	< 0.01	< 0.01
Di-n-Octylphthalate	< 0.01	< 0.01
Dinoseb	< 0.02	< 0.02
Disulfoton	< 0.05	< 0.05
Ethyl methanesulfonate	< 0.01	< 0.01
Famphur	< 0.1	< 0.1
Fluoranthene	< 0.01	< 0.01

Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
Fluorene	< 0.01	< 0.01
Hexachlorobenzene	< 0.01	< 0.01
Hexachlorobutadiene	< 0.01	< 0.01
Hexachlorocyclopentadiene	< 0.05	< 0.05
Hexachloroethane	< 0.01	< 0.01
Hexachlorophene	<	<
Hexachloropropene	< 0.1	< 0.1
Indeno(1,2,3-cd)Pyrene	< 0.01	< 0.01
Isosafrole	< 0.02	< 0.02
M-Dichlorobenzene	< 0.01	< 0.01
Methapyrilene	< 0.05	< 0.05
Methyl methanesulfonate	< 0.01	< 0.01
Methyl parathion	< 0.05	< 0.05
Naphthalene	< 0.01	< 0.01
Nitrobenzene	< 0.01	< 0.01
N-Nitrosodiethylamine	< 0.01	< 0.01
N-Nitrosodimethylamine	< 0.01	< 0.01
N-Nitrosodi-n-butylamine	< 0.01	< 0.01
N-Nitroso-di-n-Propylamine	< 0.01	< 0.01
N-Nitrosodiphenylamine	< 0.01	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	< 0.01
N-Nitrosomethylethylamine	< 0.01	< 0.01
N-Nitrosomorpholine	< 0.01	< 0.01
N-Nitrosopiperidine	< 0.01	< 0.01
N-Nitrosopyrrolidine	< 0.01	< 0.01
O,O,O-Triethyl phosphorothioate	< 0.05	< 0.05
o-Toluidine	< 0.02	< 0.02
Parathion	< 0.05	< 0.05
p-Dimethylaminoazobenzene	< 0.02	< 0.02
Pentachlorobenzene	< 0.01	< 0.01
Pentachloroethane	< 0.05	< 0.05
Pentachloronitrobenzene	< 0.05	< 0.05
Pentachlorophenol	< 0.05	< 0.05

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Table 4-51

AOC-A (Fuel Oil Release)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	MW-F0-2-2739	MW-F0-2-2739D
Phenacetin	< 0.02	< 0.02
Phenanthrene	< 0.01	< 0.01
Phenol	< 0.01	< 0.01
Phorate	< 0.05	< 0.05
P-Nitroanline	< 0.05	< 0.05
p-Phenylene diamine	< 0.1	< 0.1
Pronamide	< 0.02	< 0.02
Pyrene	< 0.01	< 0.01
Pyridine	< 0.02	< 0.02
Safrole	< 0.02	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	< 0.05
Thionazin	< 0.05	< 0.05

Notes:

[a] VOCs = volatile organic compounds.

[b] mg/l = milligrams per liter.

[c] < = not detected at indicated detection limit.

[d] SVOCs = semitvolatile organic compounds.

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	AB-HA01-1.3-1.6 1.3-1.6	AB-HA01-1.3-1.6R 1.3-1.6	AB-HA02-0.3-2.7 0.3-2.7	AB-HA02-0.3-2.7R 0.3-2.7	AB-HA03-3.5-4.0 3.5-4.0	AB-HA03-3.5-4.0R 3.5-4.0
PCBs[b] (mg/kg)[c]						
Aroclor 1016	NA[d]	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA
VOCs[f] (mg/kg)						
1,1,1,2-Tetrachloroethane	NA	< 0.0062[c]	NA	< 0.0059	NA	< 0.0064
1,1,1-Trichloroethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,1,2,2-Tetrachloroethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,1,2-Trichloroethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,1-Dichloroethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,1-Dichloroethene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,2,3-Trichloropropane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,2-Dibromo-3-Chloropropane	NA	< 0.012	NA	< 0.012	NA	< 0.013
1,2-Dibromoethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,2-Dichloroethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,2-Dichloropropane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
1,4-Dioxane	NA	< 0.62	NA	< 0.59	NA	< 0.64
2-Butanone	NA	< 0.025	NA	< 0.024	NA	< 0.025
2-Hexanone	NA	< 0.025	NA	< 0.024	NA	< 0.025
4-Methyl-2-Pentanone (MIBK)	NA	< 0.025	NA	< 0.024	NA	< 0.025
Acetone	NA	0.072	NA	0.65	NA	0.15
Acetonitrile	NA	< 0.12	NA	< 0.12	NA	< 0.13
Acrolein	NA	< 0.12	NA	< 0.12	NA	< 0.13
Acrylonitrile	NA	< 0.12	NA	< 0.12	NA	< 0.13
Allyl Chloride	NA	< 0.012	NA	< 0.012	NA	< 0.013
Benzene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Bromodichloromethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Bromoform	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Bromomethane	NA	< 0.012	NA	< 0.012	NA	< 0.013
Carbon Disulfide	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Carbon Tetrachloride	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Chlorobenzene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Chloroethane	NA	< 0.012	NA	< 0.012	NA	< 0.013
Chloroform	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Chloromethane	NA	< 0.012	NA	< 0.012	NA	< 0.013

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	AB-HA01-1.3-1.6 1.3-1.6	AB-HA01-1.3-1.6R 1.3-1.6	AB-HA02-0.3-2.7 0.3-2.7	AB-HA02-0.3-2.7R 0.3-2.7	AB-HA03-3.5-4.0 3.5-4.0	AB-HA03-3.5-4.0R 3.5-4.0
Chloroprene	NA	< 0.012	NA	< 0.012	NA	< 0.013
Cis-1,3-Dichloropropene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Dibromochloromethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Dibromomethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Dichlorodifluoromethane	NA	< 0.012	NA	< 0.012	NA	< 0.013
Dichloromethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Ethyl Methacrylate	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Ethylbenzene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Iodomethane	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Isobutyl Alcohol	NA	< 0.25	NA	< 0.24	NA	< 0.25
Methacrylonitrile	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Methyl Methacrylate	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Propionitrile	NA	< 0.025	NA	< 0.024	NA	< 0.025
Styrene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Tetrachloroethene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Toluene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Trans-1,2-Dichloroethene	NA	< 0.0031	NA	< 0.0029	NA	< 0.0032
Trans-1,3-Dichloropropene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Trans-1,4-Dichloro-2-Butene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Trichloroethylene	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Trichlorofluoromethane	NA	< 0.012	NA	< 0.012	NA	< 0.013
Vinyl Acetate	NA	< 0.012	NA	< 0.012	NA	< 0.013
Vinyl Chloride	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
Xylene (Total)	NA	< 0.0062	NA	< 0.0059	NA	< 0.0064
SVOCs[a] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,2,4-Trichlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,2-Dichlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,3,5-Trinitrobenzene	< 1.8	NA	< 1.9	NA	< 2.1	NA
1,3-Dichlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,3-Dinitrobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,4-Dichlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
1,4-Naphthoquinone	< 1.8	NA	< 1.9	NA	< 2.1	NA
1-Naphthylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,3,4,6-Tetrachlorophenol	< 1.8	NA	< 1.9	NA	< 2.1	NA
2,4,5-Trichlorophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,4,6-Trichlorophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,4-Dichlorophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,4-Dimethylphenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,4-Dinitrophenol	< 1.8	NA	< 1.9	NA	< 2.1	NA

Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-HA01-1.3-1.6 1.3-1.6	AB-HA01-1.3-1.6R 1.3-1.6	AB-HA02-0.3-2.7 0.3-2.7	AB-HA02-0.3-2.7R 0.3-2.7	AB-HA03-3.5-4.0 3.5-4.0	AB-HA03-3.5-4.0R 3.5-4.0
2,4-Dinitrotoluene	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,6-Dichlorophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2,6-Dinitrotoluene	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Acetylaminofluorene	< 3.8	NA	< 3.9	NA	< 4.2	NA
2-Chloronaphthalene	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Chlorophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Methylnaphthalene	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Methylphenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Naphthylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Nitroaniline	< 1.8	NA	< 1.9	NA	< 2.1	NA
2-Nitrophenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
2-Picoline	< 0.76	NA	< 0.79	NA	< 0.85	NA
2-Sec-Butyl-4,6-Dinitrophenol	< 0.76	NA	< 0.79	NA	< 0.85	NA
3,3'-Dichlorobenzidine	< 1.8	NA	< 1.9	NA	< 2.1	NA
3,3'-Dimethylbenzidine	< 1.8	NA	< 1.9	NA	< 2.1	NA
3-Methylcholanthrene	< 0.76	NA	< 0.79	NA	< 0.85	NA
3-Nitroaniline	< 1.8	NA	< 1.9	NA	< 2.1	NA
4,6-Dinitro-2-Methylphenol	< 1.8	NA	< 1.9	NA	< 2.1	NA
4-Aminobiphenyl	< 1.8	NA	< 1.9	NA	< 2.1	NA
4-Bromophenyl Phenyl Ether	< 0.38	NA	< 0.39	NA	< 0.42	NA
4-Chloro-3-Methylphenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
4-Chloroaniline	< 0.38	NA	< 0.39	NA	< 0.42	NA
4-Chlorophenyl Phenyl Ether	< 0.38	NA	< 0.39	NA	< 0.42	NA
4-Methylphenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
4-Nitroaniline	< 1.8	NA	< 1.9	NA	< 2.1	NA
4-Nitrophenol	< 1.8	NA	< 1.9	NA	< 2.1	NA
4-Nitroquinoline-1-Oxide	< 3.8	NA	< 3.9	NA	< 4.2	NA
5-Nitro-o-Toluidine	< 0.76	NA	< 0.79	NA	< 0.85	NA
7,12-Dimethylbenz(a)Anthracene	< 0.76	NA	< 0.79	NA	< 0.85	NA
A,A-Dimethylphenethylamine	< 1.8	NA	< 1.9	NA	< 2.1	NA
Acenaphthene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Acenaphthylene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Acetophenone	< 0.38	NA	< 0.39	NA	< 0.42	NA
Aniline	< 0.38	NA	< 0.39	NA	< 0.42	NA
Anthracene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Aramite	< 0.76	NA	< 0.79	NA	< 0.85	NA
Benzo(a)Anthracene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Benzo(a)Pyrene	< 0.38	NA	0.4	NA	< 0.42	NA
Benzo(b)Fluoranthene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Benzo(g,h,i)Perylene	< 0.38	NA	< 0.39	NA	< 0.42	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-HA01-1.3-1.6 1.3-1.6	AB-HA01-1.3-1.6R 1.3-1.6	AB-HA02-0.3-2.7 0.3-2.7	AB-HA02-0.3-2.7R 0.3-2.7	AB-HA03-3.5-4.0 3.5-4.0	AB-HA03-3.5-4.0R 3.5-4.0
Benzo(k)Fluoranthene	< 0.38	NA	0.42	NA	< 0.42	NA
Benzyl Alcohol	< 0.38	NA	< 0.39	NA	< 0.42	NA
Bis(2-Chloro-1-Methylethyl) Ether	< 0.38	NA	< 0.39	NA	< 0.42	NA
Bis(2-Chloroethoxy)Methane	< 0.38	NA	< 0.39	NA	< 0.42	NA
Bis(2-Chloroethyl) Ether	< 0.38	NA	< 0.39	NA	< 0.42	NA
Bis(2-Ethylhexyl) Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Butyl Benzyl Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Chlorobenzilate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Chrysene	< 0.38	NA	0.41	NA	< 0.42	NA
Diallate	< 0.76	NA	< 0.79	NA	< 0.85	NA
Dibenz(a,h)Anthracene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Dibenzofuran	< 0.38	NA	< 0.39	NA	< 0.42	NA
Diethyl Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Dimethoate	< 0.76	NA	< 0.79	NA	< 0.85	NA
Dimethyl Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Di-N-Butyl Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Di-N-Octyl Phthalate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Diphenylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
Disulfoton	< 1.8	NA	< 1.9	NA	< 2.1	NA
Ethyl Methanesulfonate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Famphur	< 3.8	NA	< 3.9	NA	< 4.2	NA
Fluoranthene	< 0.38	NA	0.89	NA	< 0.42	NA
Fluorene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Hexachlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Hexachlorobutadiene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Hexachlorocyclopentadiene	< 1.8	NA	< 1.9	NA	< 2.1	NA
Hexachloroethane	< 0.38	NA	< 0.39	NA	< 0.42	NA
Hexachlorophene	< 1.8	NA	<	NA	<	NA
Hexachloropropene	< 3.8	NA	< 3.9	NA	< 4.2	NA
Indeno(1,2,3-cd)Pyrene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Isodrin	< 0.38	NA	< 0.39	NA	< 0.42	NA
Isophorone	< 0.38	NA	< 0.39	NA	< 0.42	NA
Isosafrole	< 0.76	NA	< 0.79	NA	< 0.85	NA
Kepone	< 3.8	NA	< 3.9	NA	< 4.2	NA
Methapyrilene	< 1.8	NA	< 1.9	NA	< 2.1	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-HA01-1.3-1.6 1.3-1.6	AB-HA01-1.3-1.6R 1.3-1.6	AB-HA02-0.3-2.7 0.3-2.7	AB-HA02-0.3-2.7R 0.3-2.7	AB-HA03-3.5-4.0 3.5-4.0	AB-HA03-3.5-4.0R 3.5-4.0
Methyl Methanesulfonate	< 0.38	NA	< 0.39	NA	< 0.42	NA
Methyl Parathion	< 1.8	NA	< 1.9	NA	< 2.1	NA
Naphthalene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Nitrobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosodiethylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosodimethylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosodi-n-Butylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosodi-n-Propylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosodiphenylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosomethylethylamine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosomorpholine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosopiperidine	< 0.38	NA	< 0.39	NA	< 0.42	NA
N-Nitrosopyrrolidine	< 0.38	NA	< 0.39	NA	< 0.42	NA
O,O,O-Triethyl Phosphorothioate	< 1.8	NA	< 1.9	NA	< 2.1	NA
O-Toluidine	< 0.76	NA	< 0.79	NA	< 0.85	NA
Parathion	< 1.8	NA	< 1.9	NA	< 2.1	NA
P-Dimethylaminoazobenzene	< 0.76	NA	< 0.79	NA	< 0.85	NA
Pentachlorobenzene	< 0.38	NA	< 0.39	NA	< 0.42	NA
Pentachloroethane	< 1.8	NA	< 1.9	NA	< 2.1	NA
Pentachloronitrobenzene	< 1.8	NA	< 1.9	NA	< 2.1	NA
Pentachlorophenol	< 1.8	NA	< 1.9	NA	< 2.1	NA
Phenacetin	< 0.76	NA	< 0.79	NA	< 0.85	NA
Phenanthrene	< 0.38	NA	0.52	NA	< 0.42	NA
Phenol	< 0.38	NA	< 0.39	NA	< 0.42	NA
Phorate	< 1.8	NA	< 1.9	NA	< 2.1	NA
P-Phenylene Diamine	< 3.8	NA	< 3.9	NA	< 4.2	NA
Pronamide	< 0.76	NA	< 0.79	NA	< 0.85	NA
Pyrene	< 0.38	NA	0.66	NA	< 0.42	NA
Pyridine	< 0.76	NA	< 0.79	NA	< 0.85	NA
Safrole	< 0.76	NA	< 0.79	NA	< 0.85	NA
Tetraethyldithiopyrophosphate	< 1.8	NA	< 1.9	NA	< 2.1	NA
Thionazin	< 1.8	NA	< 1.9	NA	< 2.1	NA

Notes:

[a] ft-bgs = feet below ground surface. Sample depths prior to cap installation.

[b] PCBs = Polychlorinated Biphenyls

[c] mg/kg = milligram per kilogram.

[d] NA = Not Analyzed

[e] < = not detected at indicated detection limit

[f] VOCs = Volatile Organic Compounds

[g] SVOCs - Semi-Volatile Organic Compounds

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-SS01-0.0-0.5 0.0-0.5	AB-SS01-0.0-0.5R 0.0-0.5	AB-SS02-0.0-0.7 0.0-0.7	AB-SS02-0.0-0.7R 0.0-0.7	AB-SS03-0.0-0.5 0.0-0.5	AB-SS03-0.0-0.5R 0.0-0.5
PCBs[b] (mg/kg)[c]						
Aroclor 1016	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA
VOCs[f] (mg/kg)						
1,1,1,2-Tetrachloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,1,1-Trichloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,1,2,2-Tetrachloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,1,2-Trichloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,1-Dichloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,1-Dichloroethene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,2,3-Trichloropropane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,2-Dibromo-3-Chloropropane	NA	< 0.013	NA	< 0.011	NA	< 0.012
1,2-Dibromoethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,2-Dichloroethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,2-Dichloropropane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
1,4-Dioxane	NA	< 0.63	NA	< 0.55	NA	< 0.6
2-Butanone	NA	< 0.025	NA	< 0.022	NA	0.025
2-Hexanone	NA	< 0.025	NA	< 0.022	NA	< 0.024
4-Methyl-2-Pentanone (MIBK)	NA	< 0.025	NA	< 0.022	NA	< 0.024
Acetone	NA	0.052	NA	0.076	NA	0.25
Acetonitrile	NA	< 0.13	NA	< 0.11	NA	< 0.12
Acrolein	NA	< 0.13	NA	< 0.11	NA	< 0.12
Acrylonitrile	NA	< 0.13	NA	< 0.11	NA	< 0.12
Allyl Chloride	NA	< 0.013	NA	< 0.011	NA	< 0.012
Benzene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Bromodichloromethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Bromoform	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Bromomethane	NA	< 0.013	NA	< 0.011	NA	< 0.012
Carbon Disulfide	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Carbon Tetrachloride	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Chlorobenzene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Chloroethane	NA	< 0.013	NA	< 0.011	NA	< 0.012
Chloroform	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Chloromethane	NA	< 0.013	NA	< 0.011	NA	< 0.012

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-SS01-0.0-0.5 0.0-0.5	AB-SS01-0.0-0.5R 0.0-0.5	AB-SS02-0.0-0.7 0.0-0.7	AB-SS02-0.0-0.7R 0.0-0.7	AB-SS03-0.0-0.5 0.0-0.5	AB-SS03-0.0-0.5R 0.0-0.5
Chloroprene	NA	< 0.013	NA	< 0.011	NA	< 0.012
Cis-1,3-Dichloropropene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Dibromochloromethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Dibromomethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Dichlorodifluoromethane	NA	< 0.013	NA	< 0.011	NA	< 0.012
Dichloromethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Ethyl Methacrylate	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Ethylbenzene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Iodomethane	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Isobutyl Alcohol	NA	< 0.25	NA	< 0.22	NA	< 0.24
Methacrylonitrile	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Methyl Methacrylate	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Propionitrile	NA	< 0.025	NA	< 0.022	NA	< 0.024
Styrene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Tetrachloroethene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Toluene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Trans-1,2-Dichloroethene	NA	< 0.0031	NA	< 0.0028	NA	< 0.003
Trans-1,3-Dichloropropene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Trans-1,4-Dichloro-2-Butene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Trichloroethylene	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Trichlorofluoromethane	NA	< 0.013	NA	< 0.011	NA	< 0.012
Vinyl Acetate	NA	< 0.013	NA	< 0.011	NA	< 0.012
Vinyl Chloride	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
Xylene (Total)	NA	< 0.0063	NA	< 0.0055	NA	< 0.006
SVOCs[g] (mg/kg)						
1,2,4,5-Tetrachlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,2,4-Trichlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,2-Dichlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,3,5-Trinitrobenzene	< 1.9	NA	< 1.7	NA	< 1.9	NA
1,3-Dichlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,3-Dinitrobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,4-Dichlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
1,4-Naphthoquinone	< 1.9	NA	< 1.7	NA	< 1.9	NA
1-Naphthylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,3,4,6-Tetrachlorophenol	< 1.9	NA	< 1.7	NA	< 1.9	NA
2,4,5-Trichlorophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,4,6-Trichlorophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,4-Dichlorophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,4-Dimethylphenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,4-Dinitrophenol	< 1.9	NA	< 1.7	NA	< 1.9	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-SS01-0.0-0.5 0.0-0.5	AB-SS01-0.0-0.5R 0.0-0.5	AB-SS02-0.0-0.7 0.0-0.7	AB-SS02-0.0-0.7R 0.0-0.7	AB-SS03-0.0-0.5 0.0-0.5	AB-SS03-0.0-0.5R 0.0-0.5
2,4-Dinitrotoluene	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,6-Dichlorophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2,6-Dinitrotoluene	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Acetylaminofluorene	< 4	NA	< 3.5	NA	< 4	NA
2-Chloronaphthalene	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Chlorophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Methylnaphthalene	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Methylphenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Naphthylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Nitroaniline	< 1.9	NA	< 1.7	NA	< 1.9	NA
2-Nitrophenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
2-Picoline	< 0.8	NA	< 0.7	NA	< 0.8	NA
2-Sec-Butyl-4,6-Dinitrophenol	< 0.8	NA	< 0.7	NA	< 0.8	NA
3,3'-Dichlorobenzidine	< 1.9	NA	< 1.7	NA	< 1.9	NA
3,3'-Dimethylbenzidine	< 1.9	NA	< 1.7	NA	< 1.9	NA
3-Methylcholanthrene	< 0.8	NA	< 0.7	NA	< 0.8	NA
3-Nitroaniline	< 1.9	NA	< 1.7	NA	< 1.9	NA
4,6-Dinitro-2-Methylphenol	< 1.9	NA	< 1.7	NA	< 1.9	NA
4-Aminobiphenyl	< 1.9	NA	< 1.7	NA	< 1.9	NA
4-Bromophenyl Phenyl Ether	< 0.4	NA	< 0.35	NA	< 0.4	NA
4-Chloro-3-Methylphenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
4-Chloroaniline	< 0.4	NA	< 0.35	NA	< 0.4	NA
4-Chlorophenyl Phenyl Ether	< 0.4	NA	< 0.35	NA	< 0.4	NA
4-Methylphenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
4-Nitroaniline	< 1.9	NA	< 1.7	NA	< 1.9	NA
4-Nitrophenol	< 1.9	NA	< 1.7	NA	< 1.9	NA
4-Nitroquinoline-1-Oxide	< 4	NA	< 3.5	NA	< 4	NA
5-Nitro-o-Toluidine	< 0.8	NA	< 0.7	NA	< 0.8	NA
7,12-Dimethylbenz(a)Anthracene	< 0.8	NA	< 0.7	NA	< 0.8	NA
A,A-Dimethylphenethylamine	< 1.9	NA	< 1.7	NA	< 1.9	NA
Acenaphthene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Acenaphthylene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Acetophenone	< 0.4	NA	< 0.35	NA	< 0.4	NA
Aniline	< 0.4	NA	< 0.35	NA	< 0.4	NA
Anthracene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Aramite	< 0.8	NA	< 0.7	NA	< 0.8	NA
Benzo(a)Anthracene	< 0.4	NA	0.38	NA	< 0.4	NA
Benzo(a)Pyrene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Benzo(b)Fluoranthene	< 0.4	NA	0.35	NA	0.4	NA
Benzo(g,h,i)Perylene	< 0.4	NA	< 0.35	NA	< 0.4	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-SS01-0.0-0.5 0.0-0.5	AB-SS01-0.0-0.5R 0.0-0.5	AB-SS02-0.0-0.7 0.0-0.7	AB-SS02-0.0-0.7R 0.0-0.7	AB-SS03-0.0-0.5 0.0-0.5	AB-SS03-0.0-0.5R 0.0-0.5
Benzo(k)Fluoranthene	< 0.4	NA	0.37	NA	0.46	NA
Benzyl Alcohol	< 0.4	NA	< 0.35	NA	< 0.4	NA
Bis(2-Chloro-1-Methylethyl) Ether	< 0.4	NA	< 0.35	NA	< 0.4	NA
Bis(2-Chloroethoxy)Methane	< 0.4	NA	< 0.35	NA	< 0.4	NA
Bis(2-Chloroethyl) Ether	< 0.4	NA	< 0.35	NA	< 0.4	NA
Bis(2-Ethylhexyl) Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Butyl Benzyl Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Chlorobenzilate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Chrysene	< 0.4	NA	0.41	NA	< 0.4	NA
Diallate	< 0.8	NA	< 0.7	NA	< 0.8	NA
Dibenz(a,h)Anthracene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Dibenzofuran	< 0.4	NA	< 0.35	NA	< 0.4	NA
Diethyl Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Dimethoate	< 0.8	NA	< 0.7	NA	< 0.8	NA
Dimethyl Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Di-N-Butyl Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Di-N-Octyl Phthalate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Diphenylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
Disulfoton	< 1.9	NA	< 1.7	NA	< 1.9	NA
Ethyl Methanesulfonate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Famphur	< 4	NA	< 3.5	NA	< 4	NA
Fluoranthene	< 0.4	NA	0.92	NA	0.4	NA
Fluorene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Hexachlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Hexachlorobutadiene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Hexachlorocyclopentadiene	< 1.9	NA	< 1.7	NA	< 1.9	NA
Hexachloroethane	< 0.4	NA	< 0.35	NA	< 0.4	NA
Hexachlorophene	< 1.9	NA	< 1.7	NA	< 1.9	NA
Hexachloropropene	< 4	NA	< 3.5	NA	< 4	NA
Indeno(1,2,3-cd)Pyrene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Isodrin	< 0.4	NA	< 0.35	NA	< 0.4	NA
Isophorone	< 0.4	NA	< 0.35	NA	< 0.4	NA
Isosafrole	< 0.8	NA	< 0.7	NA	< 0.8	NA
Kepone	< 4	NA	< 3.5	NA	< 4	NA
Methapyrilene	< 1.9	NA	< 1.7	NA	< 1.9	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	AB-SS01-0.0-0.5 0.0-0.5	AB-SS01-0.0-0.5R 0.0-0.5	AB-SS02-0.0-0.7 0.0-0.7	AB-SS02-0.0-0.7R 0.0-0.7	AB-SS03-0.0-0.5 0.0-0.5	AB-SS03-0.0-0.5R 0.0-0.5
Methyl Methanesulfonate	< 0.4	NA	< 0.35	NA	< 0.4	NA
Methyl Parathion	< 1.9	NA	< 1.7	NA	< 1.9	NA
Naphthalene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Nitrobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosodiethylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosodimethylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosodi-n-Butylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosodi-n-Propylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosodiphenylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosomethylethylamine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosomorpholine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosopiperidine	< 0.4	NA	< 0.35	NA	< 0.4	NA
N-Nitrosopyrrolidine	< 0.4	NA	< 0.35	NA	< 0.4	NA
O,O,O-Triethyl Phosphorothioate	< 1.9	NA	< 1.7	NA	< 1.9	NA
O-Toluidine	< 0.8	NA	< 0.7	NA	< 0.8	NA
Parathion	< 1.9	NA	< 1.7	NA	< 1.9	NA
P-Dimethylaminoazobenzene	< 0.8	NA	< 0.7	NA	< 0.8	NA
Pentachlorobenzene	< 0.4	NA	< 0.35	NA	< 0.4	NA
Pentachloroethane	< 1.9	NA	< 1.7	NA	< 1.9	NA
Pentachloronitrobenzene	< 1.9	NA	< 1.7	NA	< 1.9	NA
Pentachlorophenol	< 1.9	NA	< 1.7	NA	< 1.9	NA
Phenacetin	< 0.8	NA	< 0.7	NA	< 0.8	NA
Phenanthrene	< 0.4	NA	0.87	NA	< 0.4	NA
Phenol	< 0.4	NA	< 0.35	NA	< 0.4	NA
Phorate	< 1.9	NA	< 1.7	NA	< 1.9	NA
P-Phenylene Diamine	< 4	NA	< 3.5	NA	< 4	NA
Pronamide	< 0.8	NA	< 0.7	NA	< 0.8	NA
Pyrene	< 0.4	NA	0.61	NA	< 0.4	NA
Pyridine	< 0.8	NA	< 0.7	NA	< 0.8	NA
Safrole	< 0.8	NA	< 0.7	NA	< 0.8	NA
Tetraethyldithiopyrophosphate	< 1.9	NA	< 1.7	NA	< 1.9	NA
Thionazin	< 1.9	NA	< 1.7	NA	< 1.9	NA

Notes:
[a] ft-bgs = feet below ground surface. Sample depths prior to cap installation.
[b] PCBs = Polychlorinated Biphenyls
[c] mg/kg = milligram per kilogram.
[d] NA = Not Analyzed
[e] < = not detected at indicated detection limit
[e] VOCs = Volatile Organic Compounds
[f] SVOCs - Semi-Volatile Organic Compounds

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	SS(S)-9 0-1	SS(S)-11 0-1	SS(S)-12 0-1	SS(S)-13 0-1	SS(S)-14 0-1
PCBs[b] (mg/kg)[c]					
Aroclor 1016	< 0.032	< 0.03	< 0.032	< 0.05	< 0.028
Aroclor 1221	< 0.08	< 0.124	< 0.075	< 0.07	< 0.08
Aroclor 1232	< 0.124	< 0.08	< 0.07	< 0.08	< 0.075
Aroclor 1242	< 0.079	< 0.051	< 0.045	< 0.048	< 0.051
Aroclor 1248	< 0.048	< 0.079	< 0.045	< 0.051	< 0.051
Aroclor 1254	< 0.017	< 0.03	< 0.019	< 0.018	< 0.019
Aroclor 1260	< 0.011	< 0.013	< 0.013	< 0.02	< 0.012
VOCs[f] (mg/kg)					
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	SS(S)-9 0-1	SS(S)-11 0-1	SS(S)-12 0-1	SS(S)-13 0-1	SS(S)-14 0-1
Chloroprene	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropene	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA
Dichloromethane	NA	NA	NA	NA	NA
Ethyl Methacrylate	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethene	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropene	NA	NA	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA
Trichloroethylene	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA
SVOCs[g] (mg/kg)					
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA

Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	SS(S)-9 0-1	SS(S)-11 0-1	SS(S)-12 0-1	SS(S)-13 0-1	SS(S)-14 0-1
2,4-Dinitrotoluene	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA
2-Sec-Butyl-4,6-Dinitrophenol	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA
4-Nitroquinoline-1-Oxide	NA	NA	NA	NA	NA
5-Nitro-o-Toluidine	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)Anthracene	NA	NA	NA	NA	NA
A,A-Dimethylphenethylamine	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA
Benzo(a)Anthracene	NA	NA	NA	NA	NA
Benzo(a)Pyrene	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	NA	NA	NA	NA	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	SS(S)-9 0-1	SS(S)-11 0-1	SS(S)-12 0-1	SS(S)-13 0-1	SS(S)-14 0-1
Benzo(k)Fluoranthene	NA	NA	NA	NA	NA
Benzyl Alcohol	NA	NA	NA	NA	NA
Bis(2-Chloro-1-Methylethyl) Ether	NA	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA
Bis(2-Chloroethyl) Ether	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl) Phthalate	NA	NA	NA	NA	NA
Butyl Benzyl Phthalate	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA
Dibenz(a,h)Anthracene	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA
Diethyl Phthalate	NA	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA	NA
Di-N-Butyl Phthalate	NA	NA	NA	NA	NA
Di-N-Octyl Phthalate	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA

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Table 4-52
AOC-B (Compressor Oil Leakage Area)
Phase I RFI Soil Analytical Data

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	SS(S)-9 0-1	SS(S)-11 0-1	SS(S)-12 0-1	SS(S)-13 0-1	SS(S)-14 0-1
Methyl Methanesulfonate	NA	NA	NA	NA	NA
Methyl Parathion	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA
N-Nitrosodi-n-Butylamine	NA	NA	NA	NA	NA
N-Nitrosodi-n-Propylamine	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA	NA
O-Toluidine	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA
P-Dimethylaminoazobenzene	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA
P-Phenylene Diamine	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA

Notes:
[a] ft-bgs = feet below ground surface. Sample depths prior to cap installation.
[b] PCBs = Polychlorinated Biphenyls
[c] mg/kg = milligram per kilogram.
[d] NA = Not Analyzed
[e] < = not detected at indicated detection limit
[e] VOCs = Volatile Organic Compounds
[f] SVOCs - Semi-Volatile Organic Compounds

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Table 4-53

Soil Screening Table
AOC-B (Compressor Oil Leakage Area)

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection		USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b] DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Pesticides/Herbicides														
None Detected														
PCBs [e]														
None Detected														
SVOCs [f]														
Benzo(a)anthracene	mg/kg [d]	1	6	0.38	0.38		7.8	0.87	2	0.4				
Benzo(a)pyrene	mg/kg	1	6	0.4	0.4		0.78	0.087	8	0.1		✓		✓
Benzo(b)fluoranthene	mg/kg	2	6	0.35	0.4		7.8	0.87	5	1				
Benzo(k)fluoranthene	mg/kg	3	6	0.37	0.46		78	8.7	49	11.6				
Chrysene	mg/kg	2	6	0.41	0.41		780	87	160	39.8				
Fluoranthene	mg/kg	3	6	0.4	0.92		82000	3100	4300	600				
Phenanthrene[g]	mg/kg	2	6	0.52	0.87		61000	2300	4200	59.6				
Pyrene	mg/kg	2	6	0.61	0.66		61000	2300	4200	442				
VOCs [h]														
2-Butanone	mg/kg	1	6	0.025	0.025		1200000	47000		1				
Acetone	mg/kg	6	6	0.052	0.65	E	200000	7800	16	2.81				

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] PCBs = Polychlorinated Biphenyls

[f] SVOCs = Semi-Volatile Organic Compounds

[g] RBC for pyrene as a Surrogate

[h] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

Woodward Clyde (1997) Badin Lake Surface Water Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation	WA-OBL-092296-001	WA-OBL-101296-001	WA-NEP-092296-001	WA-NEP-092296-004	WA-NEP-092296-006	WA-NEP-092296-007	WB-NEP-092296-002
Sample Location	OBL1	OBL1	NEP4	NEP14	NEP16	NEP16 (dup)	NEP4
Sample Date	9/22/96	10/12/96	9/22/96	9/22/96	9/22/96	9/22/96	9/22/96
Sample Depth	Top Water	Top Water	Top Water	Top Water	Top Water	Top Water	Bottom Water
Parameter							
Miscellaneous (mg/l) [a]							
TOC	6.2	NA[b]	6.2	9	5.3	4.2	21
TSS	7.3	NA	7.7	6.3	< 5[c]	5.3	8.7
Alkalinity	22	NA	23	23	23	22	24
Hardness	19	NA	19	18	19	18	19
PCBs[d] (mg/l)							
Aroclor 1248	< 0.001 J[e]	NA	< 0.001 J	< 0.001	< 0.001 J	< 0.001 J	< 0.001 J
Aroclor 1260	< 0.001 J	NA	< 0.001 J	< 0.001	< 0.001 J	< 0.001 J	< 0.001 J
Inorganics (mg/l)							
Cyanide, Amenable	NA	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.005
Cyanide, Free	NA	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.005
Cyanide, Total	NA	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.005
Cyanide, Weak Acid Dissociable	NA	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.005
Fluoride	< 0.2	NA	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ammonia	< 0.03	NA	0.036	0.054	0.049	0.19	0.08
Arsenic	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Barium	0.017	NA	0.018	0.017	0.018	0.016	0.018
Cadmium	0.000071	NA	0.00016	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Chromium	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Iron CN	NA	< 0.004	< 0.004	< 0.004	NA	< 0.004	< 0.004
Lead	< 0.0005	NA	0.00094	0.0005	< 0.0005	< 0.0005	< 0.0005
Nitrate/Nitrite	0.35	NA	0.35	0.34	0.4	0.43	1.1
Nitrite	NA	NA	NA	NA	NA	NA	NA
Selenium	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sodium	8.6	NA	8.6	8.4	8.8	8.2	8.3
SVOCs[f] (mg/l)							
1-Methylnaphthalene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
2-Methylnaphthalene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(a)anthracene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(a)pyrene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(b)fluoranthene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(g,h,i)perylene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Benzo(k)fluoranthene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chrysene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dibenzo(a,h)anthracene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Fluorene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Indeno(1,2,3-cd)pyrene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Naphthalene	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Pyrene	< 0.0005	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005

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Woodward Clyde (1997) Badin Lake Surface Water Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Parameter	Sample Designation / Sample Location / Sample Date / Sample Depth						
	WB-NEP-092296-005 / NEP14 / 9/22/96 / Bottom Water	WB-NEP-092296-008 / NEP16 / 9/22/96 / Bottom Water	WA-NEP-101296-003 / NEP14 / 10/12/96 / Top Water	WA-NEP-012297-002 / NEP4 / 1/22/97 / Top Water	WA-NEP-012297-003F / NEP4 / 1/22/97 / Top Water	WA-NEP-012297-004 / NEP14 / 1/22/97 / Top Water	WA-NEP-012297-005 / NEP14 (dup) / 1/22/97 / Top Water
Miscellaneous (mg/l) [a]							
TOC	4.6	4.4	NA	NA	NA	NA	NA
TSS	8	6.3	NA	< 3.4	NA	< 3.4	NA
Alkalinity	25	23	NA	NA	NA	NA	NA
Hardness	18	18	NA	NA	NA	NA	NA
PCBs [d] (mg/l)							
Aroclor 1248	< 0.001	< 0.001 J	NA	NA	NA	NA	NA
Aroclor 1260	< 0.001	< 0.001 J	NA	NA	NA	NA	NA
Inorganics (mg/l)							
Cyanide, Amenable	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
Cyanide, Free	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
Cyanide, Total	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
Cyanide, Weak Acid Dissociable	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
Fluoride	< 0.2	< 0.2	NA	NA	NA	NA	NA
Ammonia	0.092	0.053	NA	NA	NA	NA	NA
Arsenic	< 0.01	< 0.01	NA	NA	NA	NA	NA
Barium	0.018	0.018	NA	NA	NA	NA	NA
Cadmium	< 0.00005	< 0.00005	NA	NA	NA	NA	NA
Chromium	< 0.01	< 0.01	NA	NA	NA	NA	NA
Iron CN	< 0.004	< 0.004	< 0.004	NA	NA	NA	NA
Lead	< 0.0005	< 0.0005	NA	< 0.0012	< 0.0012	< 0.0012	< 0.0012
Nitrate/Nitrite	0.36	0.36	NA	NA	NA	NA	NA
Nitrite	NA	NA	NA	NA	NA	NA	NA
Selenium	< 0.01	< 0.01	NA	NA	NA	NA	NA
Sodium	8.3	8.8	NA	NA	NA	NA	NA
SVOCs [f] (mg/l)							
1-Methylnaphthalene	< 0.001	< 0.001	NA	NA	NA	NA	NA
2-Methylnaphthalene	< 0.001	< 0.001	NA	NA	NA	NA	NA
Acenaphthene	< 0.001	< 0.001	NA	NA	NA	NA	NA
Acenaphthylene	< 0.001	< 0.001	NA	NA	NA	NA	NA
Anthracene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Benzo(a)anthracene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Benzo(a)pyrene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA
Chrysene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	< 0.001	< 0.001	NA	NA	NA	NA	NA
Fluoranthene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA
Fluorene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA
Naphthalene	< 0.001	< 0.001	NA	NA	NA	NA	NA
Phenanthrene	< 0.0002	< 0.0002	NA	NA	NA	NA	NA
Pyrene	< 0.0005	< 0.0005	NA	NA	NA	NA	NA

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Woodward Clyde (1997) Badin Lake Surface Water Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	WA-NEP-012297-006F	WA-NEP-012297-007	WA-NEP-012297-010	WA-NEP-012297-011	WA-NEP-012297-013	WA-NEP-012297-014	WA-NEP-012297-016
Sample Location	NEP14	NEP18	NEP19	NEP8	NEP20	NEP20 (dup)	NEP15
Sample Date	1/22/97	1/22/97	1/22/97	1/22/97	1/22/97	1/22/97	1/22/97
Sample Depth	Top Water	Top Water	Top Water	Top Water	Top Water	Top Water	Top Water
Miscellaneous (mg/l) [a]							
TOC	NA	NA	NA	NA	NA	NA	NA
TSS	NA	NA	NA	NA	NA	NA	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
PCBs[d] (mg/l)							
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/l)							
Cyanide, Amenable	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Free	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Total	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Weak Acid Dissociable	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Fluoride	NA	NA	NA	NA	NA	NA	NA
Ammonia	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Iron CN	NA	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Lead	< 0.0012	NA	NA	NA	NA	NA	NA
Nitrate/Nitrite	NA	NA	NA	NA	NA	NA	NA
Nitrite	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA
SVOCs[f] (mg/l)							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA

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Table 4-54

Woodward Clyde (1997) Badin Lake Surface Water Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Parameter	Sample Designation / Sample Location / Sample Date / Sample Depth					
	WA-NEP-012297-017 / NEP7 / 1/22/97 / Top Water	WB-NEP-012297-001 / NEP4 / 1/22/97 / Bottom Water	WB-NEP-012297-008 / NEP18 / 1/22/97 / Bottom Water	WB-NEP-012297-009 / NEP19 / 1/22/97 / Bottom Water	WB-NEP-012297-012 / NEP8 / 1/22/97 / Bottom Water	WB-NEP-012297-015 / NEP20 / 1/22/97 / Bottom Water
Miscellaneous (mg/l) [a]						
TOC	NA	NA	NA	NA	NA	NA
TSS	NA	NA	NA	NA	NA	NA
Alkalinity	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA
PCBs[d] (mg/l)						
Aroclor 1248	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA
Inorganics (mg/l)						
Cyanide, Amenable	0.024	NA	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Free	< 0.005	NA	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Total	0.031	NA	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide, Weak Acid Dissociable	0.011	NA	< 0.005	< 0.005	< 0.005	< 0.005
Fluoride	NA	NA	NA	NA	NA	NA
Ammonia	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA
Iron CN	0.000015	NA	< 0.004	< 0.004	< 0.004	< 0.004
Lead	NA	NA	NA	NA	NA	NA
Nitrate/Nitrite	NA	NA	NA	NA	NA	NA
Nitrite	NA	< 0.5	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA
SVOCs[f] (mg/l)						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA

NOTES:

[a] mg/l = milligrams/lite

[b] NA = not analyzed

[c] < = not detected at indicated detection limit

[d] PCBs = Polychlorinated Biphenyls

[e] J = estimated value

[f] SVOCs = semi-volatile organic compounds

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Woodward Clyde (1997) Badin Lake Sediment Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation	SX-NEP-092296-003	SX-OBL-092296-002	SX-NEP-092396-009	SX-NEP-092396-010	SX-NEP-101296-001	SX-NEP-101296-002	SX-NEP-101296-004
Sample Location	NEP4	OBL1	NEP16	NEP16(dup)	NEP16	NEP16(dup)	NEP4
Sample Date	9/22/96	9/22/96	9/23/96	9/23/96	10/12/96	10/12/96	10/12/96
Sample Depth	Surface Sed	Surface Sed	Surface Sed	Surface Sed	Surface Sed	Surface Sed	Surface Sed
Parameter							
Miscellaneous							
% Moisture	NA[a]	NA	NA	NA	NA	NA	NA
AVS SEM	NA	NA	NA	NA	NA	NA	NA
TOC	120000	8000	380000	410000	NA	NA	NA
PCBs[b] [mg/kg][c]							
Aroclor 1242	NA[d][e]	NA	NA	NA	NA	NA	NA
Aroclor 1248	< 2.6 J	< 0.87 J	< 2.2	< 2.9	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	< 2.6 J	< 0.87 J	4.3	6.5	NA	NA	NA
Inorganics [mg/kg]							
CYANIDE, AMENABLE	NA	NA	NA	NA	< 0.5	< 0.5	2.1
CYANIDE, FREE	NA	NA	NA	NA	< 0.5	< 0.5	< 0.5
Cyanide, Total	NA	NA	NA	NA	7.1	6.2	5.2
Cyanide, Weak Acid Dissociable	NA	NA	NA	NA	< 0.5	1.5	3.4
Fluoride	50	< 5.8	< 8.5	< 8.6	NA	NA	NA
Arsenic	11	37	4.5	7.8	NA	NA	NA
Barium	64	68	120	110	NA	NA	NA
Cadmium	1.1	2.7	1.6	1.6	NA	NA	NA
Chromium	23	25	36	38	NA	NA	NA
Iron CN	NA	NA	NA	NA	5.2	5.8	3.5
Lead	29	7.4	46	50	NA	NA	NA
Selenium	< 1	< 1	< 1	1.8	NA	NA	NA
SVOCs[f] [mg/kg]							
1-Methylnaphthalene	< 7.9	< 0.032	< 11	< 11	NA	NA	NA
2-Methylnaphthalene	< 7.9	< 0.032	< 11	< 11	NA	NA	NA
Acenaphthene	< 7.9	< 0.032	< 11	< 11	NA	NA	NA
Acenaphthylene	< 7.9 J	< 0.032	< 11	< 11	NA	NA	NA
Anthracene	3.1 J	< 0.0063	12	10	NA	NA	NA
Benzo(a)anthracene	11 J	0.021J	53	51	NA	NA	NA
Benzo(a)pyrene	13 J	0.03 J	51	48	NA	NA	NA
Benzo(b)fluoranthene	16 J	0.079J	62	60	NA	NA	NA
Benzo(g,h,i)perylene	11 J	0.041J	34	33	NA	NA	NA
Benzo(k)fluoranthene	6.4 J	0.021 J	27	26	NA	NA	NA
Chrysene	11 J	0.027 J	54	52	NA	NA	NA
Dibenzo(a,h)anthracene	< 7.9	0.03 J	29	25	NA	NA	NA
Fluoranthene	23 J	0.033 J	100	100	NA	NA	NA
Fluorene	< 4	< 0.016	< 5.6	< 5.4	NA	NA	NA
Indeno(1,2,3-cd)pyrene	10 J	0.035 J	35	30	NA	NA	NA
Naphthalene	< 7.9	< 0.032	< 11	< 11	NA	NA	NA
Phenanthrene	14 J	0.011 J	40	39	NA	NA	NA
Pyrene	16 J	0.021 J	78	69	NA	NA	NA

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Woodward Clyde (1997) Badin Lake Sediment Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation / Sample Location / Sample Date / Sample Depth / Parameter	SX-OBL-101296-002 OBL1 10/12/96 Surface Sed	SA-SWC-012097-001 NEP2 1/20/97 Surface Sed	SA-SWC-012097-002 NEP6 1/20/97 Surface Sed	SA-SWC-012097-003 NEP11 1/20/97 Surface Sed	SA-SWC-012097-004 NEP12 1/20/97 Surface Sed	SA-SWC-012097-005 NEP12 1/20/97 Surface Sed	SA-SWC-012097-006 NEP13 1/20/97 Surface Sed
Miscellaneous							
% Moisture	NA	55.6	47.9	16.4	60.4	60.8	46.9
AVS SEM	NA	NA	NA	NA	NA	NA	NA
TOC	NA	17400	8400	1570	9600	14100	8300
PCBs[b] [mg/kg][c]							
Aroclor 1242	NA	< 0.0023	< 0.002	< 0.0012	< 0.0026	< 0.0027	< 0.002
Aroclor 1248	NA	0.0221 J	0.251	0.051	0.097	0.175	0.166
Aroclor 1254	NA	0.0197 J	0.151	0.0182 J	0.257	0.545	0.394
Aroclor 1260	NA	0.012 J	0.183	0.0118 J	0.044	0.114	0.062
Inorganics [mg/kg]							
CYANIDE, AMENABLE	14	NA	NA	NA	NA	NA	NA
CYANIDE, FREE	< 0.5	NA	NA	NA	NA	NA	NA
Cyanide, Total	40	NA	NA	NA	NA	NA	NA
Cyanide, Weak Acid Dissociable	1.2	NA	NA	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Iron CN	37	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
SVOCs[f] [mg/kg]							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	< 0.075	< 0.064	0.1 J	0.43 J	0.52 J	0.34 J
Acenaphthylene	NA	< 0.075	< 0.064	< 0.04	< 0.084	< 0.085	< 0.063
Anthracene	NA	< 0.075	0.12 J	0.22 J	1	1.2	0.86
Benzo(a)anthracene	NA	0.75 J	0.81	0.98	6	7.8	4.8
Benzo(a)pyrene	NA	0.83	0.85	1.2	7.2	9.1	5.9
Benzo(b)fluoranthene	NA	2.4	1.7	1.7	11	11	9.5
Benzo(g,h,i)perylene	NA	0.77	0.78	0.86	5.1	7	4.6
Benzo(k)fluoranthene	NA	0.59 J	0.5 J	0.55	3.7	4.7	3.1
Chrysene	NA	1.3	1	1.1	7.2	9.2	5.7
Dibenzo(a,h)anthracene	NA	< 0.15	< 0.13	< 0.08	1.5	2	1.2
Fluoranthene	NA	1	1.3	1.7	8.3	9.8	6.2
Fluorene	NA	< 0.075	< 0.064	< 0.04	0.33 J	0.41 J	0.31 J
Indeno(1,2,3-cd)pyrene	NA	< 0.15	0.72	0.91	5.4	7.6	4.6
Naphthalene	NA	< 0.075	< 0.064	0.047 J	< 0.084	< 0.085	0.11 J
Phenanthrene	NA	0.34 J	0.59 J	0.8	3.4	4.2	3
Pyrene	NA	1	1.3	1.5	8.2	9.5	6.2

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Woodward Clyde (1997) Badin Lake Sediment Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation / Sample Location / Sample Date / Sample Depth / Parameter	SA-SWC-012097-007 NEP21 1/20/97 Surface Sed	SA-SWC-012097-008 NEP3 1/20/97 Surface Sed	SA-SWC-012097-010 NEP5 1/20/97 Surface Sed	SA-SWC-012097-012 NEP17 1/20/97 Surface Sed	SA-SWC-012097-015 NEP10 1/20/97 Surface Sed	SA-SWC-012097-017 NEP9 1/20/97 Surface Sed	SA-SWC-012097-018 NEP1 1/20/97 Surface Sed
Miscellaneous							
% Moisture	61.7	26.9	48.8	63.4	55.4	54.6	27.5
AVS SEM	NA	NA	NA	NA	NA	NA	NA
TOC	11900	3600	7900	9900	9100	13200	5710
PCBs[(b)] [mg/kg][(c)]							
Aroclor 1242	< 0.0027	< 0.0014	< 0.002	< 0.0028	< 0.0023	< 0.0023	< 0.0014
Aroclor 1248	0.202	< 0.0038	0.093	1.07	0.213	0.053	< 0.0039
Aroclor 1254	0.261	< 0.0031	< 0.0044	1.5	0.211	0.078	0.0046 J
Aroclor 1260	0.094	< 0.0035	0.157	0.419	0.327	0.073	0.0058 J
Inorganics [mg/kg]							
CYANIDE, AMENABLE	NA	NA	NA	NA	NA	NA	NA
CYANIDE, FREE	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	NA	NA	NA	NA	NA	NA	NA
Cyanide, Weak Acid Dissociable	NA	NA	NA	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Iron CN	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
SVOCs[(f)] [mg/kg]							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.42 J	< 0.046	0.14 J	0.48 J	< 0.075	< 0.073	< 0.046
Acenaphthylene	< 0.087	< 0.046	< 0.065	< 0.091	< 0.075	< 0.073	< 0.046
Anthracene	0.54 J	< 0.046	0.36 J	1.3	0.094 J	0.16 J	< 0.046
Benzo(a)anthracene	2.9	< 0.046	2.1	9.3	0.71 J	1	0.15 J
Benzo(a)pyrene	3.4	< 0.091	2.4	10	0.69 J	1.1	0.18 J
Benzo(b)fluoranthene	5	< 0.091	4.5	13	1.2	1.9	0.27 J
Benzo(g,h,i)perylene	2.2	< 0.091	2	8.6	0.73 J	0.89	0.15
Benzo(k)fluoranthene	1.7	< 0.18	1.2	5.3	0.4 J	0.53 J	< 0.18
Chrysene	3.6	< 0.046	2.8	11	0.88	1.4	0.2 J
Dibenzo(a,h)anthracene	0.68 J	< 0.091	< 0.13	2.5	0.23 J	0.28 J	< 0.092
Fluoranthene	4.3	0.063 J	2.8	14	1.3	1.9	0.25 J
Fluorene	0.5 J	< 0.046	0.12 J	0.35 J	< 0.075	< 0.073	< 0.046
Indeno(1,2,3-cd)pyrene	2.5	< 0.091	2.1	9.2	0.83	1	0.22J
Naphthalene	0.26 J	< 0.046	0.096 J	< 0.091	< 0.075	< 0.073	< 0.046
Phenanthrene	1.3	< 0.046	1.3	4.4	0.46 J	0.61 J	0.086 J
Pyrene	4.3	< 0.091	2.8	11	0.87	1.2	0.16 J

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Woodward Clyde (1997) Badin Lake Sediment Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation	SB-SWC-012097-009	SB-SWC-012097-011	SB-SWC-012097-013	SB-SWC-012097-014	SB-SWC-012097-016	SA-002-012197-001	SA-002-012197-002
Sample Location	NEP3	NEP5	NEP17	NEP17 (dup)	NEP10	NEP24	NEP23
Sample Date	1/20/97	1/20/97	1/20/97	1/20/97	1/20/97	1/21/97	1/21/97
Sample Depth	Bottom Sed	Bottom Sed	Bottom Sed	Bottom Sed	Bottom Sed	Surface Sed	Surface Sed
Parameter							
Miscellaneous							
% Moisture	29.7	42.6	52	57.8	45.1	38.3	23.2
AVS SEM	NA	NA	NA	NA	NA	NA	NA
TOC	5500	7500	7900	8600	7400	3740	2220
PCBs[(b)] [mg/kg][(c)]							
Aroclor 1242	< 0.0015	< 0.0018	< 0.0022	< 0.0025	< 0.0019	3.35	< 0.0014 J
Aroclor 1248	< 0.004	0.328	0.106	0.138	0.034	< 0.023	0.323 J
Aroclor 1254	< 0.0032	< 0.0039	0.191	0.269	0.045	0.75	0.204 J
Aroclor 1260	< 0.0036	0.495	0.044	0.073	0.06	0.22	0.064 J
Inorganics [mg/kg]							
CYANIDE, AMENABLE	NA	NA	NA	NA	NA	NA	NA
CYANIDE, FREE	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	NA	NA	NA	NA	NA	NA	NA
Cyanide, Weak Acid Dissociable	NA	NA	NA	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Iron CN	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
SVOCs[(f)] [mg/kg]							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	< 0.047	0.089 J	0.47 J	0.44 J	< 0.061	8.4 J	3.5 J
Acenaphthylene	< 0.047	< 0.058	< 0.069	< 0.079	< 0.061	0.16 J	< 0.22 J
Anthracene	< 0.047	0.21 J	1.7	1.4	< 0.061	28 J	16 J
Benzo(a)anthracene	0.069 J	1.2	11	9.4	0.33 J	190 J	77 J
Benzo(a)pyrene	< 0.095	1.4	9.4	8.3	0.34 J	180 J	75 J
Benzo(b)fluoranthene	0.31 J	2.1	19	16	0.64	250 J	98 J
Benzo(g,h,i)perylene	< 0.095	1.3	7	6.7	0.41 J	130 J	48 J
Benzo(k)fluoranthene	< 0.19	0.74	5	4.7	< 0.24	94 J	30 J
Chrysene	0.36 J	1.6	18	15	0.47 J	210 J	85 J
Dibenzo(a,h)anthracene	< 0.095	0.41 J	2.1	2	< 0.12	42 J	16 J
Fluoranthene	0.065 J	2.5	30	24	0.67	360 J	150 J
Fluorene	< 0.047	0.084 J	0.52 J	0.48 J	< 0.061	7.3 J	3 J
Indeno(1,2,3-cd)pyrene	< 0.095	1.3	6.5	6.2	0.47 J	140 J	54 J
Naphthalene	< 0.047	0.063 J	0.1 J	0.09 J	< 0.061	1.3 J	0.92 J
Phenanthrene	< 0.047	1	6.6	5.6	0.3 J	100 J	40 J
Pyrene	< 0.095	1.6	20	16	0.45 J	230 J	96 J

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Woodward Clyde (1997) Badin Lake Sediment Analytical Results - Plant and Old Brick Landfill Areas

Alcoa Badin, NC Works RFI

Sample Designation	SA-002-012197-003	SA-NEP-012197-001	SA-NEP-012197-002	SA-NEP-012197-003	SA-NEP-012197-004	SA-NEP-012197-005
Sample Location	NEP22	NEP4	NEP16	NEP8	NEP8(dup)	NEP20
Sample Date	1/21/97	1/21/97	1/21/97	1/21/97	1/21/97	1/21/97
Sample Depth	Surface Sed	Surface Sed	Surface Sed	Surface Sed	Surface Sed	Surface Sed
Parameter						
Miscellaneous						
% Moisture	37.4	32.2	62.1	NA	NA	NA
AVS SEM	NA	0.0118 J	0.0475	NA	NA	NA
TOC	5620	NA	NA	NA	NA	NA
PCBs[b] [mg/kg][c]						
Aroclor 1242	< 0.0017	NA	NA	NA	NA	NA
Aroclor 1248	0.127	NA	NA	NA	NA	NA
Aroclor 1254	0.117	NA	NA	NA	NA	NA
Aroclor 1260	0.05	NA	NA	NA	NA	NA
Inorganics [mg/kg]						
CYANIDE, AMENABLE	NA	NA	NA	1	< 0.5	1.9
CYANIDE, FREE	NA	NA	NA	< 0.5	< 0.5	< 0.5
Cyanide, Total	NA	NA	NA	1	0.5	3.7
Cyanide, Weak Acid Dissociable	NA	NA	NA	0.7	0.5	0.8
Fluoride	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA
Cadmium	NA	0.76 J	3 J	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA
Iron CN	NA	NA	NA	0.8	0.5	1.4
Lead	NA	15.4	36	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA
SVOCs[f] [mg/kg]						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	0.86 J	NA	NA	NA	NA	NA
Acenaphthylene	< 0.053 J	NA	NA	NA	NA	NA
Anthracene	4.6 J	NA	NA	NA	NA	NA
Benzo(a)anthracene	33 J	NA	NA	NA	NA	NA
Benzo(a)pyrene	35 J	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	48 J	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	23 J	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	18 J	NA	NA	NA	NA	NA
Chrysene	38 J	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	7.1 J	NA	NA	NA	NA	NA
Fluoranthene	54 J	NA	NA	NA	NA	NA
Fluorene	0.61 J	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	25 J	NA	NA	NA	NA	NA
Naphthalene	0.24 J	NA	NA	NA	NA	NA
Phenanthrene	16 J	NA	NA	NA	NA	NA
Pyrene	36 J	NA	NA	NA	NA	NA

[a] NA = not analyzed
[b] PCBs = Polychlorinated Biphenyls
[c] mg/kg = milligrams per kilogram
[d] < = not detected at indicated detection limit
[e] J = estimated value
[f] SVOCs = semi-volatile organic compounds

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Table 4-56

Badin Lake
Phase II RFI Surface-Water Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Date	NE-SW-2520 9/7/00	NE-SW-2520D 9/7/00
VOCs (mg/l)[a]		
Trichloroethene	< 0.001	< 0.001

[a] mg/l = milligrams per liter

Table 4-57

Surface Water Screening Table
Badin Lake - Plant Area

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina[a] Human Health 2B Standards	USEPA[b] WQC	NC 2B Standard	USEPA WQC
Metals									
Barium	7	7	mg/l[c]	0.016	0.018	1	1		
Cadmium	1	7	mg/l	0.00016	0.00016	NA	NA		
Iron CN	1	18	mg/l	0.000015	0.000015	NA	NA		
Lead	3	12	mg/l	0.0005	0.00094	NA	NA		
Sodium	7	7	mg/l	8.2	8.8	NA	NA		
Other									
Ammonia	7	7	mg/l	0.036	0.19	NA	NA		
Cyanide, Amenable	1	18	mg/l	0.024	0.024	NA	0.7		
Cyanide, Free	0	18	mg/l	NA	NA	NA	0.7		
Cyanide, Total	1	18	mg/l	0.031	0.031	NA	0.7		
Cyanide, Weak Acid Dissociable	1	18	mg/l	0.011	0.011	NA	0.7		
Nitrate/Nitrite	7	7	mg/l	0.34	1.1	10	10		
VOCs[d] None Detected									
PCBs[e] None Detected									
PAHs[f] None Detected									

Notes:

[a] NC 2B Standards for the protection of human health (Class W-IV Waters 15 A NCAC 02B.0216 (3)(g)(i, ii) (NCDENR, 2000)

[b] USEPA Recommended Water Quality Criteria (WQC) for the protection of human health (for consumption of water and organisms) (USEPA, 1999)

[c] mg/l = milligrams per liter

[d] VOCs = Volatile Organic Compounds

[e] PCBs = Polychlorinated Biphenyls

[f] PAHs = Polyaromatic Hydrocarbons

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Table 4-58

Sediment Screening Table (All Samples)
Badin Lake - Plant Area

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection		Maximum Detection		USEPA Region III Industrial Soil RBC [a]	Ind RBC
Metals									
Arsenic	3	3	mg/kg[b]	4.5		11		3.8	✓
Barium	3	3	mg/kg	64		120		140000	
Cadmium	5	5	mg/kg	0.76		3		2000	
Chromium	3	3	mg/kg	23		38		6100	
Iron CN	7	7	mg/kg	0.5		5.8		NA	
Lead	5	5	mg/kg	15.4		50		1000	
Selenium	1	3	mg/kg	1.8		1.8		10000	
Other									
Cyanide, Amenable	3	7	mg/kg	1		2.1		NA	
Cyanide, Free	0	7	mg/kg	NA		NA		NA	
Cyanide, Total	7	7	mg/kg	0.5		7.1		41000	
Cyanide, Weak Acid Dissociable	6	7	mg/kg	0.5		3.4		41000	
Fluoride	1	3	mg/kg	50		50		120000	
PCBs									
Aroclor 1242	1	20	mg/kg	3.35		3.35		2.9	✓
Aroclor 1248	16	23	mg/kg	0.0221		1.07		2.9	
Aroclor 1254	16	20	mg/kg	0.0046		1.5		2.9	
Aroclor 1260	20	23	mg/kg	0.0058		6.5		2.9	✓
SVOCs									
Acenaphthene	12	23	mg/kg	0.089	J	8.4	J	120000	
Acenaphthylene	1	23	mg/kg	0.16	J	0.16	J	120000	
Anthracene	18	23	mg/kg	0.094		28		610000	
Benzo(a)anthracene	22	23	mg/kg	0.069		190		7.8	✓
Benzo(a)pyrene	21	23	mg/kg	0.18		180		0.78	✓
Benzo(b)fluoranthene	22	23	mg/kg	0.27		250		7.8	✓
Benzo(g,h,i)perylene[c]	21	23	mg/kg	0.15		130		61000	
Benzo(k)fluoranthene	19	23	mg/kg	0.4		94		78	✓
Chrysene	22	23	mg/kg	0.2		210		780	
Dibenzo(a,h)anthracene	14	23	mg/kg	0.23		42		0.78	✓
Fluoranthene	23	23	mg/kg	0.063		360		82000	
Fluorene	11	23	mg/kg	0.084	J	7.3	J	82000	
Indeno(1,2,3-cd)pyrene	20	23	mg/kg	0.22		140		7.8	✓
Naphthalene	10	23	mg/kg	0.047	J	1.3	J	41000	
Phenanthrene[d]	21	23	mg/kg	0.086		100		61000	
Pyrene	21	23	mg/kg	0.16		230		61000	

Notes:

[a] Risk-Based Concentration (USEPA, 2000b) for industrial soil;
screening criteria are conservative for less frequently contacted medium of sediment.

[b] mg/kg = milligrams per kilogram.

[c] RBC for Pyrene used as a Surrogate.

Detected concentration of arsenic in sediment is below Plant-area background soil arsenic level of 33 mg/kg.

Table 4-59

Sediment Screening Table (Samples from Swimming Cove and <10 feet deep)
Badin Lake - Plant Area

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection		Maximum Detection		USEPA Region III Industrial Soil RBC[a]	Ind RBC
PCBs[b]									
Aroclor 1248	4	7	mg/kg[c]	0.0221		0.328		2.9	
Aroclor 1254	3	7	mg/kg	0.0046	J	0.0197	J	2.9	
Aroclor 1260	5	7	mg/kg	0.0058		0.495		2.9	
SVOCs[d]									
Acenaphthene	3	7	mg/kg	0.089	J	0.14	J	120000	
Anthracene	3	7	mg/kg	0.21	J	0.36	J	610000	
Benzo(a)anthracene	6	7	mg/kg	0.069		2.1		7.8	
Benzo(a)pyrene	5	7	mg/kg	0.18		2.4		0.78	✓
Benzo(b)fluoranthene	6	7	mg/kg	0.27		4.5		7.8	
Benzo(g,h,i)perylene[e]	5	7	mg/kg	0.15		2		61000	
Benzo(k)fluoranthene	4	7	mg/kg	0.55		1.2		78	
Chrysene	6	7	mg/kg	0.2		2.8		780	
Dibenzo(a,h)anthracene	1	7	mg/kg	0.41	J	0.41	J	0.78	
Fluoranthene	7	7	mg/kg	0.063		2.8		82000	
Fluorene	2	7	mg/kg	0.084	J	0.12	J	82000	
Indeno(1,2,3-cd)pyrene	4	7	mg/kg	0.22		2.1		7.8	
Naphthalene	3	7	mg/kg	0.047	J	0.096	J	41000	
Phenanthrene[c]	5	7	mg/kg	0.086		1.3		61000	
Pyrene	5	7	mg/kg	0.16		2.8		61000	

Notes:

[a] Risk-Based Concentration (USEPA, 2000b) for industrial soil;

screening criteria are conservative for less frequently contacted medium (sediment).

[b]PCBs = Polychlorinated Biphenyls

[c]mg/kg = milligram per kilogram

[d]SVOCs = Semi-Volatile Organic Compounds

[e]RBC for Pyrene as a Surrogate

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA01-0.0-0.5 0-0.5	S2-HA01-0.5-1.0 0.5-1.0	S2-HA02-0.0-0.5 0-0.5	S2-HA02-0.5-2.0 0.5-2.0	S2-HA03-0.0-0.5 0-0.5	S2-HA03-0.0-0.5R 0-0.5
Inorganics (mg/kg)[b]						
Fluoride	10.7	8.4	3.9	2.9	< 0.61[c]	NA
Cyanide, Weak Acid Dissociable	< 3.3	< 3.2	< 3.1	< 3.1	< 3.1	NA
Cyanide, Total	< 3.3	< 3.2	< 3.1	10.3	< 3.1	NA
Arsenic	12.4 J	15.8 J	5.4 J	7.3 J	12.2 J	NA
Barium	108 J	95.9 J	75.4 J	107 J	50.4 J	NA
Cadmium	< 0.26	< 0.25	< 0.25	< 0.24	< 0.24	NA
Chromium	28	31.6	19.7	21.1	22.6	NA
Lead	20.7 J	21.1 J	22.1 J	17.2 J	11.7 J	NA
Selenium	< 0.66 J	< 0.64 J	< 0.62 J	0.78 J	1 J	NA
Mercury	NA	< 0.13	NA	NA	< 0.12	NA
VOCs[d]						
1,1,1,2-Tetrachloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,1,1-Trichloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,1,2,2-Tetrachloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,1,2-Trichloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,1-Dichloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,1-Dichloroethene	< 0.0063	0.0088	< 0.0062	NA	< 0.0062 J	< 0.0061
1,2,3-Trichloropropane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,2-Dibromo-3-Chloropropane	< 0.013 J	< 0.013 J	< 0.012 J	< 0.012 J	< 0.012 J	< 0.012
1,2-Dibromoethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,2-Dichloroethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,2-Dichloropropane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
1,4-Dioxane	< 0.63 R	< 0.66 R	< 0.62 R	< 0.61 R	< 0.62 R	< 0.61
2-Butanone	< 0.025	< 0.026	< 0.025	< 0.024	< 0.025 J	< 0.024
2-Hexanone	< 0.025	< 0.026	< 0.025	< 0.024	< 0.025 J	< 0.024
4-Methyl-2-Pentanone	< 0.025	< 0.026	< 0.025	< 0.024	< 0.025 J	< 0.024
Acetone	0.16 J	0.18 J	0.15 J	0.04 J	0.038 J	0.048
Acetonitrile	< 0.13 R	< 0.13 R	< 0.12 R	< 0.12 R	< 0.12 R	< 0.12
Acrolein	< 0.13 J	< 0.13 J	< 0.12 J	< 0.12 J	< 0.12 J	< 0.12
Acrylonitrile	< 0.13	< 0.13	< 0.12	< 0.12	< 0.12 J	< 0.12
Allyl Chloride	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Benzene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Bromodichloromethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Bromoform	< 0.0063 J	< 0.0066 J	< 0.0062 J	< 0.0061 J	< 0.0062 J	< 0.0061

Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID	S2-HA01-0.0-0.5	S2-HA01-0.5-1.0	S2-HA02-0.0-0.5	S2-HA02-0.5-2.0	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5R
Sample Depth (ft-bgs)[a]	0-0.5	0.5-1.0	0-0.5	0.5-2.0	0-0.5	0-0.5
Parameter						
Bromomethane	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Carbon Disulfide	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Carbon Tetrachloride	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Chlorobenzene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Chloroethane	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Chloroform	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Chloromethane	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Chloroprene	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Cis-1,3-Dichloropropene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Dibromochloromethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Dibromomethane	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Dichlorodifluoromethane	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Dichloromethane (Methylene Chloride)	0.007 J	0.01 J	0.0077 J	0.0083 J	0.011 J	< 0.0061
Ethyl Methacrylate	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Ethylbenzene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Iodomethane	< 0.0063	0.0092 J	< 0.0062	< 0.0061	< 0.0062 J	< 0.24
Isobutyl Alcohol	< 0.25 R	< 0.26 R	< 0.25 R	< 0.24 R	< 0.25 R	< 0.0061
Methacrylonitrile	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Methyl Methacrylate	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Propionitrile	< 0.025 R	< 0.026 R	< 0.025 R	< 0.024 R	< 0.025 R	< 0.024
Styrene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Tetrachloroethene	< 0.0063 J	< 0.0066 J	< 0.0062 J	< 0.0061 J	< 0.0062 J	< 0.0061
Toluene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Trans-1,2-Dichloroethene	< 0.0032	< 0.0033	< 0.0031	< 0.003	< 0.0031 J	< 0.003
Trans-1,3-Dichloropropene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Trans-1,4-Dichloro-2-Butene	< 0.0063 J	< 0.0066 J	< 0.0062 J	< 0.0061 J	< 0.0062 J	< 0.0061
Trichloroethylene	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Trichlorofluoromethane	< 0.013	< 0.013	< 0.012	< 0.012	< 0.012 J	< 0.012
Vinyl Acetate	< 0.013 J	< 0.013 J	< 0.012 J	< 0.012 J	< 0.012 J	< 0.012
Vinyl Chloride	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
Xylene (Total)	< 0.0063	< 0.0066	< 0.0062	< 0.0061	< 0.0062 J	< 0.0061
SVOCs[e]						
1,2,4,5-Tetrachlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
1,2,4-Trichlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
1,2-Dichlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA01-0.0-0.5 0-0.5	S2-HA01-0.5-1.0 0.5-1.0	S2-HA02-0.0-0.5 0-0.5	S2-HA02-0.5-2.0 0.5-2.0	S2-HA03-0.0-0.5 0-0.5	S2-HA03-0.0-0.5R 0-0.5
1,3,5-Trinitrobenzene	< 2.1	< 2	< 2	< 2	< 2	NA
1,3-Dinitrobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
1,4-Dichlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
1,4-Naphthoquinone	< 2.1	< 2	< 2	< 0.4	< 2	NA
1-Naphthylamine	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
2,3,4,6-Tetrachlorophenol	< 2.1	< 2	< 2	< 0.4	< 2	NA
2,4,5-Trichlorophenol	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
2,4,6-Trichlorophenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2,4-Dichlorophenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2,4-Dimethylphenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2,4-Dinitrophenol	< 2.1 J	< 2 J	< 2 J	< 0.4 J	< 2 J	NA
2,4-Dinitrotoluene	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
2,6-Dichlorophenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2,6-Dinitrotoluene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2-Acetylaminofluorene	< 4.4	< 4.2	< 4.1	< 0.4	< 4	NA
2-Chloronaphthalene	< 0.44	< 0.42	< 0.41	< 4	< 0.4	NA
2-Chlorophenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2-Methyl-4,6-Dinitrophenol	< 2.1	< 2	< 2	< 0.4	< 2	NA
2-Methylnaphthalene	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
2-Methylphenol (O-Cresol)	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2-Naphthylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
2-Nitroaniline	< 2.1	< 2	< 2	< 0.4	< 2	NA
2-Nitrophenol	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
2-Picoline	< 0.87	< 0.84	< 0.82	< 0.4	< 0.81	NA
3,3'-Dichlorobenzidine	< 2.1	< 2	< 2	< 0.81	< 2	NA
3,3'-Dimethylbenzidine	< 2.1	< 2	< 2	< 2	< 2	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
3-Methylcholanthrene	< 0.87	< 0.84	< 0.82	< 0.4	< 0.81	NA
3-Nitroaniline	< 2.1	< 2	< 2	< 0.81	< 2	NA
4-Aminobiphenyl	< 2.1	< 2	< 2	< 2	< 2	NA
4-Bromophenyl Phenyl Ether	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
4-Chloro-3-Methylphenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
4-Chloroaniline	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
4-Chlorophenyl Phenyl Ether	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
4-Methylphenol (P-Cresol)	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA

Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID	S2-HA01-0.0-0.5	S2-HA01-0.5-1.0	S2-HA02-0.0-0.5	S2-HA02-0.5-2.0	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5R
Sample Depth (ft-bgs)[a]	0-0.5	0.5-1.0	0-0.5	0.5-2.0	0-0.5	0-0.5
Parameter						
4-Nitrophenol	< 2.1 J	< 2 J	< 2 J	< 0.4 J	< 2 J	NA
4-Nitroquinoline-1-Oxide	< 4.4 J	< 4.2 J	< 4.1 J	< 2 J	< 4 J	NA
5-Nitro-O-Toluidine	< 0.87	< 0.84	< 0.82	< 4	< 0.81	NA
7,12-Dimethylbenz(a)Anthracene	< 0.87 J	< 0.84 J	< 0.82 J	< 0.81 J	< 0.81 J	NA
A,A-Dimethylphenethylamine	< 2.1	< 2	< 2	< 0.81	< 2	NA
Acenaphthene	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
Acenaphthylene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Acetophenone	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Aniline	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Anthracene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Aramite	< 0.87 R	< 0.84 R	< 0.82 R	< 0.4 R	< 0.81 R	NA
Benz(B)Fluoranthene	< 0.44	< 0.42	< 0.41	< 0.81	< 0.4	NA
Benzo(A)Anthracene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Benzo(A)Pyrene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Benzo(G,H,I)Perylene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Benzo(K)Fluoranthene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Benzyl Alcohol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Benzyl Butyl Phthalate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Bis(2-Chloroethoxy)Methane	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Bis(2-Chloroethyl)Ether	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Bis(2-Chloroisopropyl)Ether	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Bis(2-Ethylhexyl)Phthalate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Chlorobenzilate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Chrysene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Diallate	< 0.87	< 0.84	< 0.82	< 0.4	< 0.81	NA
Dibenzo(A,H)Anthracene	< 0.44	< 0.42	< 0.41	< 0.81	< 0.4	NA
Dibenzofuran	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Diethyl Phthalate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Dimethoate	< 0.87 J	< 0.84 J	< 0.82 J	< 0.4 J	< 0.81 J	NA
Dimethyl Phthalate	< 0.44	< 0.42	< 0.41	< 0.81	< 0.4	NA
Di-N-Butyl Phthalate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Di-N-Octylphthalate	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Dinoseb	< 0.87	< 0.84	< 0.82	< 0.4	< 0.81	NA
Disulfoton	< 2.1	< 2	< 2	< 0.81	< 2	NA
Ethyl Methanesulfonate	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID	S2-HA01-0.0-0.5	S2-HA01-0.5-1.0	S2-HA02-0.0-0.5	S2-HA02-0.5-2.0	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5R
Sample Depth (ft-bgs)[a]	0-0.5	0.5-1.0	0-0.5	0.5-2.0	0-0.5	0-0.5
Parameter						
Famphur	< 4.4 R	< 4.2 R	< 4.1 R	< 0.4 R	< 4 R	NA
Fluoranthene	< 0.44	< 0.42	< 0.41	< 4	< 0.4	NA
Fluorene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Hexachlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Hexachlorobutadiene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Hexachlorocyclopentadiene	< 2.1	< 2	< 2	< 0.4	< 2	NA
Hexachloroethane	< 0.44	< 0.42	< 0.41	< 2	< 0.4	NA
Hexachlorophene	<	<	<	< 0.4	<	NA
Hexachloropropene	< 4.4	< 4.2	< 4.1	<	< 4	NA
Indeno(1,2,3-Cd)Pyrene	< 0.44	< 0.42	< 0.41	< 4	< 0.4	NA
Isodrin	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Isosafrole	< 0.87	< 0.84	< 0.82	< 0.4	< 0.81	NA
Kepone	< 4.4 R	< 4.2 R	< 4.1 R	< 0.81 R	< 4 R	NA
M-Dichlorobenzene	< 0.44	< 0.42	< 0.41	< 4	< 0.4	NA
Methapyrilene	< 2.1	< 2	< 2	< 2	< 2	NA
Methyl Methanesulfonate	< 0.44 J	< 0.42 J	< 0.41 J	< 0.4 J	< 0.4 J	NA
Methyl Parathion	< 2.1 J	< 2 J	< 2 J	< 2 J	< 2 J	NA
Naphthalene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Nitrobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosodiethylamine	< 0.44 J	< 0.42 J	< 0.41 J	< 0.4 J	< 0.4 J	NA
N-Nitrosodimethylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosodi-N-Butylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitroso-Di-N-Propylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosodiphenylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosomethylethylamine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosomorpholine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosopiperidine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
N-Nitrosopyrrolidine	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
O,O,O-Triethyl Phosphorothioate	< 2.1	< 2	< 2	< 2	< 2	NA
O-Toluidine	< 0.87	< 0.84	< 0.82	< 0.81	< 0.81	NA
Parathion	< 2.1	< 2	< 2	< 2	< 2	NA
P-Dimethylaminoazobenzene	< 0.87	< 0.84	< 0.82	< 0.81	< 0.81	NA
Pentachlorobenzene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Pentachloroethane	< 2.1	< 2	< 2	< 2	< 2	NA

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Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA01-0.0-0.5 0-0.5	S2-HA01-0.5-1.0 0.5-1.0	S2-HA02-0.0-0.5 0-0.5	S2-HA02-0.5-2.0 0.5-2.0	S2-HA03-0.0-0.5 0-0.5	S2-HA03-0.0-0.5R 0-0.5
Pentachloronitrobenzene	< 2.1	< 2	< 2	< 2	< 2	NA
Pentachlorophenol	< 2.1	< 2	< 2	< 2	< 2	NA
Phenacetin	< 0.87	< 0.84	< 0.82	< 0.81	< 0.81	NA
Phenanthrene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Phenol	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Phorate	< 2.1	< 2	< 2	< 2	< 2	NA
P-Nitroaniline	< 2.1	< 2	< 2	< 2	< 2	NA
P-Phenylene Diamine	< 4.4	< 4.2	< 4.1	< 4	< 4	NA
Pronamide	< 0.87 J	< 0.84 J	< 0.82 J	< 0.81 J	< 0.81 J	NA
Pyrene	< 0.44	< 0.42	< 0.41	< 0.4	< 0.4	NA
Pyridine	< 0.87	< 0.84	< 0.82	< 0.81	< 0.81	NA
Safrole	< 0.87	< 0.84	< 0.82	< 0.81	< 0.81	NA
Tetraethyldithiopyrophosphate	< 2.1	< 2	< 2	< 2	< 2	NA
Thionazin	< 2.1	< 2	< 2	< 2	< 2	NA

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = volatile organic compounds.

[e] SVOCs = semivolatile organic compounds.

[f] NA - Not analyzed

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA03-0.0-0.5D 0-0.5	S2-HA03-0.0-0.5DR 0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0/0-0.5 0-0.5	S2-HA04-0.5-2.0 0.5-2.0
Inorganics (mg/kg)[b]						
Fluoride	< 0.6	NA	< 0.63	NA	< 0.6	< 0.6
Cyanide, Weak Acid Dissociable	< 3	NA	< 3.1	NA	< 3	< 3
Cyanide, Total	< 3	NA	< 3.1	NA	< 3	< 3
Arsenic	12.2 J	NA	15.7 J	NA	7.8 J	2.3 J
Barium	51.6	NA	29.9 J	NA	< 23.9 J	< 24.1 J
Cadmium	< 0.24 J	NA	< 0.25	NA	< 0.24	< 0.24
Chromium	25.3	NA	24	NA	19.8	14.5
Lead	12.3 J	NA	13.4 J	NA	24.4 J	17.3 J
Selenium	1.2 J	NA	1.1 J	NA	1.1 J	< 0.6 J
Mercury	< 0.12	NA	< 0.13	NA	< 0.12	< 0.12
VOCs[d]						
1,1,1,2-Tetrachloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,1,1-Trichloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,1,2,2-Tetrachloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,1,2-Trichloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,1-Dichloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,1-Dichloroethene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	0.0069	< 0.006
1,2,3-Trichloropropane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,2-Dibromo-3-Chloropropane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012 J	< 0.012 J
1,2-Dibromoethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,2-Dichloroethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,2-Dichloropropane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
1,4-Dioxane	< 0.62 R	< 0.62	< 0.63 R	< 0.63	< 0.6 R	< 0.6 R
2-Butanone	< 0.025 J	< 0.025	< 0.025 J	< 0.025	< 0.024	< 0.024
2-Hexanone	< 0.025 J	< 0.025	< 0.025 J	< 0.025	< 0.024	< 0.024
4-Methyl-2-Pentanone	< 0.025 J	< 0.025	< 0.025 J	< 0.025	< 0.024	< 0.024
Acetone	0.071 J	0.032	< 0.025 J	< 0.025	0.062 J	< 0.024
Acetonitrile	< 0.12 R	< 0.12	< 0.13 R	< 0.13	< 0.12 R	< 0.12 R
Acrolein	< 0.12 J	< 0.12	< 0.13 J	< 0.13	< 0.12 J	< 0.12 J
Acrylonitrile	< 0.12 J	< 0.12	< 0.13 J	< 0.13	< 0.12	< 0.12
Allyl Chloride	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Benzene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Bromodichloromethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Bromoform	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006 J	< 0.006 J

Sample ID	S2-HA03-0.0-0.5D	S2-HA03-0.0-0.5DR	S2-HA03-0.5-2.0	S2-HA03-0.5-2.0R	S2-HA04-0/0-0.5	S2-HA04-0.5-2.0
Sample Depth (ft-bgs)[a]	0-0.5	0-0.5	0.5-2.0	0.5-2.0	0-0.5	0.5-2.0
Parameter						
Bromomethane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Carbon Disulfide	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Carbon Tetrachloride	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Chlorobenzene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Chloroethane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Chloroform	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Chloromethane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Chloroprene	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Cis-1,3-Dichloropropene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Dibromochloromethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Dibromomethane	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Dichlorodifluoromethane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Dichloromethane (Methylene Chloride)	0.011 J	< 0.0062	0.0075 J	< 0.0063	0.0076 J	0.0084 J
Ethyl Methacrylate	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Ethylbenzene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Iodomethane	< 0.0062 J	< 0.25	< 0.0063 J	< 0.25	0.0064 J	< 0.006 J
Isobutyl Alcohol	< 0.25 R	< 0.0062	< 0.25 J R	< 0.0063	< 0.24 R	< 0.24 R
Methacrylonitrile	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Methyl Methacrylate	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Propionitrile	< 0.025 R	< 0.025	< 0.025 J R	< 0.025	< 0.024 R	< 0.024 R
Styrene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006 J	< 0.006 J
Tetrachloroethene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Toluene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Trans-1,2-Dichloroethene	< 0.0031 J	< 0.0031	< 0.0032 J	< 0.0031	< 0.003	< 0.003
Trans-1,3-Dichloropropene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Trans-1,4-Dichloro-2-Butene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Trichloroethylene	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Trichlorofluoromethane	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012 J	< 0.012 J
Vinyl Acetate	< 0.012 J	< 0.012	< 0.013 J	< 0.013	< 0.012	< 0.012
Vinyl Chloride	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
Xylene (Total)	< 0.0062 J	< 0.0062	< 0.0063 J	< 0.0063	< 0.006	< 0.006
SVOCs[c]						
1,2,4,5-Tetrachlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
1,2,4-Trichlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
1,2-Dichlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA03-0.0-0.5D 0-0.5	S2-HA03-0.0-0.5DR 0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0/0-0.5 0-0.5	S2-HA04-0.5-2.0 0.5-2.0
1,3,5-Trinitrobenzene	< 1.9	NA	< 2	NA	< 1.9	< 1.9
1,3-Dinitrobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
1,4-Dichlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
1,4-Naphthoquinone	< 1.9	NA	< 2	NA	< 1.9	< 1.9
1-Naphthylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,3,4,6-Tetrachlorophenol	< 1.9	NA	< 2	NA	< 1.9	< 1.9
2,4,5-Trichlorophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,4,6-Trichlorophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,4-Dichlorophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,4-Dimethylphenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,4-Dinitrophenol	< 1.9 J	NA	< 2 J	NA	< 1.9 J	< 1.9 J
2,4-Dinitrotoluene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,6-Dichlorophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2,6-Dinitrotoluene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Acetylaminofluorene	< 3.9	NA	< 4.2	NA	< 3.9	< 4
2-Chloronaphthalene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Chlorophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Methyl-4,6-Dinitrophenol	< 1.9	NA	< 2	NA	< 1.9	< 1.9
2-Methylnaphthalene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Methylphenol (O-Cresol)	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Naphthylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Nitroaniline	< 1.9	NA	< 2	NA	< 1.9	< 1.9
2-Nitrophenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
2-Picoline	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
3,3'-Dichlorobenzidine	< 1.9	NA	< 2	NA	< 1.9	< 1.9
3,3'-Dimethylbenzidine	< 1.9	NA	< 2	NA	< 1.9	< 1.9
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
3-Methylcholanthrene	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
3-Nitroaniline	< 1.9	NA	< 2	NA	< 1.9	< 1.9
4-Aminobiphenyl	< 1.9	NA	< 2	NA	< 1.9	< 1.9
4-Bromophenyl Phenyl Ether	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
4-Chloro-3-Methylphenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
4-Chloroaniline	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
4-Chlorophenyl Phenyl Ether	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
4-Methylphenol (P-Cresol)	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4

Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA03-0.0-0.5D 0-0.5	S2-HA03-0.0-0.5DR 0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0/0-0.5 0-0.5	S2-HA04-0.5-2.0 0.5-2.0
4-Nitrophenol	< 1.9	NA	< 2 J	NA	< 1.9 J	< 1.9 J
4-Nitroquinoline-1-Oxide	< 3.9 J	NA	< 4.2 J	NA	< 3.9 J	< 4 J
5-Nitro-O-Toluidine	< 0.79	NA	< 0.83 J	NA	< 0.79 J	< 0.8 J
7,12-Dimethylbenz(a)Anthracene	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
A,A-Dimethylphenethylamine	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Acenaphthene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Acenaphthylene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Acetophenone	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Aniline	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Anthracene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Aramite	< 0.79 R	NA	< 0.83 R	NA	< 0.79 R	< 0.8 R
Benz(B)Fluoranthene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzo(A)Anthracene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzo(A)Pyrene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzo(G,H,I)Perylene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzo(K)Fluoranthene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzyl Alcohol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Benzyl Butyl Phthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Bis(2-Chloroethoxy)Methane	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Bis(2-Chloroethyl)Ether	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Bis(2-Chloroisopropyl)Ether	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Bis(2-Ethylhexyl)Phthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Chlorobenzilate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Chrysene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Diallate	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Dibenzo(A,H)Anthracene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Dibenzofuran	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Diethyl Phthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Dimethoate	< 0.79 J	NA	< 0.83 J	NA	< 0.79 J	< 0.8 J
Dimethyl Phthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Di-N-Butyl Phthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Di-N-Octylphthalate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Dinoseb	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Disulfoton	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Ethyl Methanesulfonate	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA03-0.0-0.5D 0-0.5	S2-HA03-0.0-0.5DR 0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0/0-0.5 0-0.5	S2-HA04-0.5-2.0 0.5-2.0
Famphur	< 3.9 R	NA	< 4.2 R	NA	< 3.9 R	< 4 R
Fluoranthene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Fluorene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Hexachlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Hexachlorobutadiene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Hexachlorocyclopentadiene	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Hexachloroethane	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Hexachlorophene	<	NA	<	NA	<	<
Hexachloropropene	< 3.9	NA	< 4.2	NA	< 3.9	< 4
Indeno(1,2,3-Cd)Pyrene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Isodrin	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Isosafrole	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Kepone	< 3.9 R	NA	< 4.2 R	NA	< 3.9 R	< 4 R
M-Dichlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Methapyrilene	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Methyl Methanesulfonate	< 0.39 J	NA	< 0.42 J	NA	< 0.39 J	< 0.4 J
Methyl Parathion	< 1.9 J	NA	< 2 J	NA	< 1.9 J	< 1.9 J
Naphthalene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Nitrobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosodiethylamine	< 0.39 J	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosodimethylamine	< 0.39	NA	< 0.42 J	NA	< 0.39 J	< 0.4 J
N-Nitrosodi-N-Butylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitroso-Di-N-Propylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosodiphenylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosodiphenylamine/Diphenylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosomethylethylamine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosomorpholine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosopiperidine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
N-Nitrosopyrrolidine	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
O,O,O-Triethyl Phosphorothioate	< 1.9	NA	< 2	NA	< 1.9	< 1.9
O-Toluidine	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Parathion	< 1.9	NA	< 2	NA	< 1.9	< 1.9
P-Dimethylaminoazobenzene	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Pentachlorobenzene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Pentachloroethane	< 1.9	NA	< 2	NA	< 1.9	< 1.9

Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA03-0.0-0.5D 0-0.5	S2-HA03-0.0-0.5DR 0-0.5	S2-HA03-0.5-2.0 0.5-2.0	S2-HA03-0.5-2.0R 0.5-2.0	S2-HA04-0/0-0.5 0-0.5	S2-HA04-0.5-2.0 0.5-2.0
Pentachloronitrobenzene	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Pentachlorophenol	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Phenacetin	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Phenanthrene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Phenol	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Phorate	< 1.9	NA	< 2	NA	< 1.9	< 1.9
P-Nitroaniline	< 1.9	NA	< 2	NA	< 1.9	< 1.9
P-Phenylene Diamine	< 3.9	NA	< 4.2 J	NA	< 3.9 J	< 4 J
Pronamide	< 0.79 J	NA	< 0.83	NA	< 0.79	< 0.8
Pyrene	< 0.39	NA	< 0.42	NA	< 0.39	< 0.4
Pyridine	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Safrole	< 0.79	NA	< 0.83	NA	< 0.79	< 0.8
Tetraethyldithiopyrophosphate	< 1.9	NA	< 2	NA	< 1.9	< 1.9
Thionazin	< 1.9	NA	< 2	NA	< 1.9	< 1.9

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = volatile organic compounds.

[e] SVOCs = semivolatile organic compounds.

[f] NA - Not analyzed

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA05-0.0-0.5 0-0.5	S2-HA05-0.5-2.0 0.5-2.0	S2-HA06-0.0-0.5 0-0.5	S2-HA06-0.5-2.0 0.5-2.0
Inorganics (mg/kg)[b]				
Fluoride	1.2	< 0.6	1.2	7.2
Cyanide, Weak Acid Dissociable	< 3.2	< 3	< 3.1	< 3.1
Cyanide, Total	< 3.2	< 3	< 3.1	< 3.1
Arsenic	19.1	33.6	18.8	18
Barium	76.9	81.4	167	262
Cadmium	< 0.51	< 0.24	< 0.99	< 1
Chromium	45.9	26.2	33.9	35.6
Lead	31.8	27.6	179	239
Selenium	< 1.3	< 0.6	< 2.5	< 2.5
Mercury	< 0.13	< 0.12	< 0.12	< 0.13
VOCs[d]				
1,1,1,2-Tetrachloroethane	NA[f]	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA
Acetone	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA
Benzene	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID	S2-HA05-0.0-0.5	S2-HA05-0.5-2.0	S2-HA06-0.0-0.5	S2-HA06-0.5-2.0
Sample Depth (ft-bgs)[a]	0-0.5	0.5-2.0	0-0.5	0.5-2.0
Parameter				
Bromomethane	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA
Chloroprene	NA	NA	NA	NA
Cis-1,3-Dichloropropene	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA
Dichloromethane (Methylene Chloride)	NA	NA	NA	NA
Ethyl Methacrylate	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA
Styrene	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA
Toluene	NA	NA	NA	NA
Trans-1,2-Dichloroethene	NA	NA	NA	NA
Trans-1,3-Dichloropropene	NA	NA	NA	NA
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA
Trichloroethylene	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA
SVOCs[e]				
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA05-0.0-0.5 0-0.5	S2-HA05-0.5-2.0 0.5-2.0	S2-HA06-0.0-0.5 0-0.5	S2-HA06-0.5-2.0 0.5-2.0
1,3,5-Trinitrobenzene	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA
2-Methylphenol (O-Cresol)	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA
4-Methylphenol (P-Cresol)	NA	NA	NA	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA05-0.0-0.5 0-0.5	S2-HA05-0.5-2.0 0.5-2.0	S2-HA06-0.0-0.5 0-0.5	S2-HA06-0.5-2.0 0.5-2.0
4-Nitrophenol	NA	NA	NA	NA
4-Nitroquinoline-1-Oxide	NA	NA	NA	NA
5-Nitro-O-Toluidine	NA	NA	NA	NA
7,12-Dimethylbenz(a)Anthracene	NA	NA	NA	NA
A,A-Dimethylphenethylamine	NA	NA	NA	NA
Acenaphthene	< 0.42	< 0.4	< 0.41	< 0.41
Acenaphthylene	< 0.42	< 0.4	< 0.41	< 0.41
Acetophenone	NA	NA	NA	NA
Aniline	NA	NA	NA	NA
Anthracene	< 0.42	< 0.4	< 0.41	< 0.41
Aramite	NA	NA	NA	NA
Benz(B)Fluoranthene	< 0.42	< 0.4	< 0.41	< 0.41
Benzo(A)Anthracene	< 0.42	< 0.4	< 0.41	< 0.41
Benzo(A)Pyrene	< 0.42	< 0.4	< 0.41	< 0.41
Benzo(G,H,I)Perylene	< 0.42	< 0.4	< 0.41	< 0.41
Benzo(K)Fluoranthene	< 0.42	< 0.4	< 0.41	< 0.41
Benzyl Alcohol	NA	NA	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA
Chrysene	< 0.42	< 0.4	< 0.41	< 0.41
Diallate	NA	NA	NA	NA
Dibenzo(A,H)Anthracene	< 0.42	< 0.4	< 0.41	< 0.41
Dibenzofuran	NA	NA	NA	NA
Diethyl Phthalate	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA
Di-N-Butyl Phthalate	NA	NA	NA	NA
Di-N-Octylphthalate	NA	NA	NA	NA
Dinoseb	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA
Ethyl Methanesulfonate	NA	NA	NA	NA

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Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA05-0.0-0.5 0-0.5	S2-HA05-0.5-2.0 0.5-2.0	S2-HA06-0.0-0.5 0-0.5	S2-HA06-0.5-2.0 0.5-2.0
Famphur	NA	NA	NA	NA
Fluoranthene	< 0.42	< 0.4	< 0.41	< 0.41
Fluorene	< 0.42	< 0.4	< 0.41	< 0.41
Hexachlorobenzene	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	< 0.42	< 0.4	< 0.41	< 0.41
Isodrin	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA
Kepone	NA	NA	NA	NA
M-Dichlorobenzene	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA
Methyl Methanesulfonate	NA	NA	NA	NA
Methyl Parathion	NA	NA	NA	NA
Naphthalene	< 0.42	< 0.4	< 0.41	< 0.41
Nitrobenzene	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA
N-Nitrosodi-N-Butylamine	NA	NA	NA	NA
N-Nitroso-Di-N-Propylamine	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA
O-Toluidine	NA	NA	NA	NA
Parathion	NA	NA	NA	NA
P-Dimethylaminoazobenzene	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA

Table 4-64

SWMU No. 2 (Alcoa/Badin Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC RFI

Sample ID / Sample Depth (ft-bgs)[a] / Parameter	S2-HA05-0.0-0.5 0-0.5	S2-HA05-0.5-2.0 0.5-2.0	S2-HA06-0.0-0.5 0-0.5	S2-HA06-0.5-2.0 0.5-2.0
Pentachloronitrobenzene	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA
Phenanthrene	< 0.42	< 0.4	< 0.41	< 0.41
Phenol	NA	NA	NA	NA
Phorate	NA	NA	NA	NA
P-Nitroaniline	NA	NA	NA	NA
P-Phenylene Diamine	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA
Pyrene	< 0.42	< 0.4	< 0.41	< 0.41
Pyridine	NA	NA	NA	NA
Safrole	NA	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

[d] VOCs = volatile organic compounds.

[e] SVOCs = semivolatile organic compounds.

[f] NA - Not analyzed

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
Inorganics (mg/l)[a]							
Cyanide, Total	< 0.01[b]	< 0.01	< 0.01	< 0.01	0.011 J[c]	< 0.01	0.036
Cyanide, Microdiffusion	< 0.005 J	< 0.005	< 0.005 J	< 0.005	< 0.005 J	< 0.005	< 0.005 J
Cyanide, Weak Acid Dissociable	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01 R[d]	< 0.01	0.011
Tss	< 4	NA[e]	< 4	NA	< 4	NA	< 4
Fluoride	< 0.1	NA	< 0.1	NA	< 0.1	NA	0.98
Total Sulfide	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	NA	NA	NA	NA	NA	NA	NA
Antimony, Total	NA	NA	NA	NA	NA	NA	NA
Arsenic, Dissolved	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Arsenic, Total	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Barium, Dissolved	0.43	NA	0.29	NA	0.49	NA	< 0.2
Barium, Total	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2
Beryllium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA
Cadmium, Dissolved	< 0.002	NA	< 0.002	NA	< 0.002	NA	< 0.002
Cadmium, Total	< 0.002	NA	< 0.002	NA	< 0.002	NA	< 0.002
Chromium, Dissolved	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Chromium, Total	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Cobalt, Dissolved	NA	NA	NA	NA	NA	NA	NA
Cobalt, Total	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	NA	NA	NA	NA	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	< 0.003	NA	< 0.003	NA	< 0.003	NA	< 0.003
Lead, Total	< 0.003	NA	< 0.003	NA	< 0.003	NA	< 0.003
Mercury, Dissolved	NA	NA	NA	NA	< 0.0002	NA	NA
Mercury, Total	NA	NA	NA	NA	< 0.0002	NA	NA
Nickel, Dissolved	NA	NA	NA	NA	NA	NA	NA
Nickel, Total	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Selenium, Total	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Silver, Dissolved	NA	NA	NA	NA	NA	NA	NA
Silver, Total	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	NA	NA	NA	NA	NA	NA	NA
Tin, Total	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	NA	NA	NA	NA	NA	NA	NA
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved	NA	NA	NA	NA	NA	NA	NA
Zinc, Total	NA	NA	NA	NA	NA	NA	NA

Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
PCBs[f]/Pesticides (mg/l)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA
Decachlorobiphenyl	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA
Tetrachloro-M-Xylene	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA
Methyl Parathion	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
Triphenyl Phosphate	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	NA	NA	NA	NA	NA	NA	NA
2,4,5-Tp (Silvex)	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	NA	NA	NA	NA	NA	NA
VOCs[g] (mg/l)							
1,1,1,2-Tetrachloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,1,1-Trichloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,1,2-Trichloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,1-Dichloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,1-Dichloroethene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,2,3-Trichloropropane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,2-Dibromo-3-Chloropropane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,2-Dibromoethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,2-Dichloroethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,2-Dichloropropane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
1,4-Dioxane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
2-Butanone	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
2-Hexanone	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
4-Methyl-2-Pentanone	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Acetone	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Acetonitrile	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Acrolein	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Acrylonitrile	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Allyl Chloride	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Bromodichloromethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Bromoform	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Bromomethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Carbon Disulfide	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Carbon Tetrachloride	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Chlorobenzene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Chloroethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Chloroform	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Chloromethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Chloroprene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Cis-1,2-Dichloroethene	< 0.0025	NA	< 0.0025	NA	< 0.0025	NA	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Dibromochloromethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Dibromomethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Dichlorodifluoromethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
Dichloromethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Ethyl Methacrylate	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Ethylbenzene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Iodomethane	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Isobutyl Alcohol	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2
Methacrylonitrile	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Methyl Methacrylate	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Propionitrile	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Styrene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Tetrachloroethene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Toluene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Trans-1,2-Dichloroethene	< 0.0025	NA	< 0.0025	NA	< 0.0025	NA	< 0.0025
Trans-1,3-Dichloropropene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Trans-1,4-Dichloro-2-Butene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Trichloroethylene	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
Trichlorofluoromethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Vinyl Acetate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Vinyl Chloride	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Xylene (Total)	< 0.005	NA	< 0.005	NA	< 0.005	NA	< 0.005
SVOCs[(h)]							
1,2,4,5-Tetrachlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
1,3-Dinitrobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
1,4-Naphthoquinone	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
1-Naphthylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dichlorophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dimethylphenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,4-Dinitrophenol	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
2,4-Dinitrotoluene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,6-Dichlorophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Acetylaminofluorene	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
2-Chloronaphthalene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Chlorophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
2-Methylnaphthalene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
2-Methylphenol (O-Cresol)	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Naphthylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Nitroaniline	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
2-Nitrophenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
2-Picoline	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
3,3'-Dichlorobenzidine	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
3-Methylcholanthrene	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
3-Nitroaniline	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
4-Aminobiphenyl	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
4-Chloroaniline	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
4-Nitrophenol	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
4-Nitroquinoline-1-Oxide	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
5-Nitro-O-Toluidine	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
7,12-Dimethylbenz(A)Anthracene	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
A,A-Dimethylphenethylamine	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Acenaphthene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Acenaphthylene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Acetophenone	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Aniline	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Anthracene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Aramite	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Benz(B)Fluoranthene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(A)Anthracene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(A)Pyrene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(G,H,I)Perylene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzo(K)Fluoranthene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzyl Alcohol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Chrysene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Dibenzo(A,H)Anthracene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Dibenzofuran	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01

Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
Diethyl Phthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Dimethoate	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Dimethyl Phthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Di-N-Butyl Phthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Di-N-Octylphthalate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Dinoseb	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Disulfoton	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Ethyl Methanesulfonate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Famphur	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Fluoranthene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Fluorene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorobutadiene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Hexachloroethane	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Hexachlorophene	<	NA	<	NA	<	NA	<
Hexachloropropene	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Indeno(1,2,3-Cd)Pyrene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Isosafrole	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
M-Dichlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Methapyrilene	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Methyl Methanesulfonate	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Methyl Parathion	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Naphthalene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Nitrobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodimethylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodi-N-Butylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitroso-Di-N-Propylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosomorpholine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosopiperidine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
O,O,O-Triethyl Phosphorothioate	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
O-Toluidine	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Parathion	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
P-Dimethylaminoazobenzene	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Pentachlorobenzene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Pentachloroethane	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Pentachloronitrobenzene	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-1-2679	ABL-MW-1-0050R	ABL-MW-2-2679	ABL-MW-2-0060R	ABL-MW-3	ABL-MW-3-0060R	ABL-MW-4-2679
Pentachlorophenol	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Phenacetin	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Phenanthrene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Phenol	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Phorate	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
P-Nitroaniline	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
P-Phenylene Diamine	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1
Pronamide	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Pyrene	< 0.01	NA	< 0.01	NA	< 0.01	NA	< 0.01
Pyridine	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Safrole	< 0.02	NA	< 0.02	NA	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05
Thionazin	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05

Notes:
(a) mg/l = milligrams per liter.
(b) < = not detected at indicated detection limit
(c) J = Estimated Value
(d) R = Rejected Value
(e) NA = Not analyzed
(f) PCBs = Polychlorinated Biphenyls
(g) VOCs = Volatile Organic Compounds
(h) SVOCs - Semi-Volatile Organic Compounds

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
Inorganics (mg/l)[a]					
Cyanide, Total	0.016	0.042	0.25	< 0.01	< 0.01
Cyanide, Microdiffusion	< 0.005	0.0059 J	0.0579	< 0.005 J	< 0.005
Cyanide, Weak Acid Dissociable	< 0.01	0.1 J	0.099	< 0.01	< 0.01
Tss	NA	< 4	NA	< 4	NA
Fluoride	NA	0.15	NA	< 0.1	NA
Total Sulfide	NA	< 1	NA	NA	NA
Antimony, Dissolved	NA	< 0.01	NA	NA	NA
Antimony, Total	NA	< 0.01	NA	NA	NA
Arsenic, Dissolved	NA	< 0.01	NA	0.0066	NA
Arsenic, Total	NA	< 0.01	NA	< 0.01	NA
Barium, Dissolved	NA	0.26	NA	0.27	NA
Barium, Total	NA	< 0.2	NA	< 0.2	NA
Beryllium, Dissolved	NA	< 0.005	NA	NA	NA
Beryllium, Total	NA	< 0.005	NA	NA	NA
Cadmium, Dissolved	NA	< 0.002	NA	< 0.002	NA
Cadmium, Total	NA	< 0.002	NA	< 0.002	NA
Chromium, Dissolved	NA	< 0.005	NA	< 0.005	NA
Chromium, Total	NA	< 0.005	NA	< 0.005	NA
Cobalt, Dissolved	NA	0.13	NA	NA	NA
Cobalt, Total	NA	0.13	NA	NA	NA
Copper, Dissolved	NA	< 0.025	NA	NA	NA
Copper, Total	NA	< 0.025	NA	NA	NA
Lead, Dissolved	NA	< 0.003	NA	< 0.003	NA
Lead, Total	NA	< 0.003	NA	< 0.003	NA
Mercury, Dissolved	NA	< 0.0002	NA	NA	NA
Mercury, Total	NA	< 0.0002	NA	NA	NA
Nickel, Dissolved	NA	< 0.04	NA	NA	NA
Nickel, Total	NA	< 0.04	NA	NA	NA
Selenium, Dissolved	NA	0.0069	NA	< 0.005	NA
Selenium, Total	NA	0.006	NA	< 0.005	NA
Silver, Dissolved	NA	< 0.01	NA	NA	NA
Silver, Total	NA	< 0.01	NA	NA	NA
Thallium, Dissolved	NA	< 0.01	NA	NA	NA
Thallium, Total	NA	< 0.01	NA	NA	NA
Tin, Dissolved	NA	< 0.1	NA	NA	NA
Tin, Total	NA	< 0.1	NA	NA	NA
Vanadium, Dissolved	NA	< 0.05	NA	NA	NA
Vanadium, Total	NA	< 0.05	NA	NA	NA
Zinc, Dissolved	NA	0.026	NA	NA	NA
Zinc, Total	NA	< 0.02	NA	NA	NA

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
PCBs[6]/Pesticides (mg/l)					
4,4'-DDD	NA	< 0.00005	NA	NA	NA
4,4'-DDE	NA	< 0.00005	NA	NA	NA
4,4'-DDT	NA	< 0.0001	NA	NA	NA
Aldrin	NA	< 0.00005	NA	NA	NA
Alpha-BHC	NA	< 0.00005	NA	NA	NA
Beta-BHC	NA	< 0.00005	NA	NA	NA
Chlordane	NA	< 0.0005	NA	NA	NA
Chlorobenzilate	NA	< 0.0001	NA	NA	NA
Decachlorobiphenyl	NA	0.00022	NA	NA	NA
Delta-BHC	NA	< 0.00005	NA	NA	NA
Diallate	NA	< 0.001	NA	NA	NA
Dieldrin	NA	< 0.00005	NA	NA	NA
Endosulfan I	NA	< 0.00005	NA	NA	NA
Endosulfan II	NA	< 0.00005	NA	NA	NA
Endosulfan Sulfate	NA	< 0.00005	NA	NA	NA
Endrin	NA	< 0.00005	NA	NA	NA
Endrin Aldehyde	NA	< 0.00005	NA	NA	NA
Gamma-BHC	NA	< 0.00005	NA	NA	NA
Heptachlor	NA	< 0.00005	NA	NA	NA
Heptachlor Epoxide	NA	< 0.00005	NA	NA	NA
Isodrin	NA	< 0.0001	NA	NA	NA
Kepone	NA	< 0.001	NA	NA	NA
Methoxychlor	NA	< 0.0001	NA	NA	NA
Tetrachloro-M-Xylene	NA	0.00017	NA	NA	NA
Toxaphene	NA	< 0.002	NA	NA	NA
Aroclor 1016	NA	< 0.001	NA	NA	NA
Aroclor 1221	NA	< 0.001	NA	NA	NA
Aroclor 1232	NA	< 0.001	NA	NA	NA
Aroclor 1242	NA	< 0.001	NA	NA	NA
Aroclor 1248	NA	< 0.001	NA	NA	NA
Aroclor 1254	NA	< 0.001	NA	NA	NA
Aroclor 1260	NA	< 0.001	NA	NA	NA
Dimethoate	NA	< 0.001	NA	NA	NA
Disulfoton	NA	< 0.001	NA	NA	NA
Famphur	NA	< 0.001	NA	NA	NA
Methyl Parathion	NA	< 0.001	NA	NA	NA
O,O,O-Triethyl Phosphorothioate	NA	< 0.001	NA	NA	NA
Parathion	NA	< 0.001	NA	NA	NA
Phorate	NA	< 0.001	NA	NA	NA
Tetraethyldithiopyrophosphate	NA	< 0.001	NA	NA	NA
Thionazin	NA	< 0.001	NA	NA	NA

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Table 4-65

SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
Triphenyl Phosphate	NA	0.019	NA	NA	NA
2,4,5-T	NA	< 0.001	NA	NA	NA
2,4,5-Tp (Silvex)	NA	< 0.001	NA	NA	NA
2,4-D	NA	< 0.004	NA	NA	NA
2,4-Dichlorophenylacetic Acid	NA	0.0017	NA	NA	NA
VOCs[g] (mg/l)					
1,1,1,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005	NA
1,1,1-Trichloroethane	NA	< 0.005	NA	< 0.005	NA
1,1,2,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005	NA
1,1,2-Trichloroethane	NA	< 0.005	NA	< 0.005	NA
1,1-Dichloroethane	NA	< 0.005	NA	< 0.005	NA
1,1-Dichloroethene	NA	< 0.005	NA	< 0.005	NA
1,2,3-Trichloropropane	NA	< 0.005	NA	< 0.005	NA
1,2-Dibromo-3-Chloropropane	NA	< 0.01	NA	< 0.01	NA
1,2-Dibromoethane	NA	< 0.005	NA	< 0.005	NA
1,2-Dichloroethane	NA	< 0.005	NA	< 0.005	NA
1,2-Dichloropropane	NA	< 0.005	NA	< 0.005	NA
1,4-Dioxane	NA	< 0.5	NA	< 0.5	NA
2-Butanone	NA	< 0.02	NA	< 0.02	NA
2-Hexanone	NA	< 0.02	NA	< 0.02	NA
4-Methyl-2-Pentanone	NA	< 0.02	NA	< 0.02	NA
Acetone	NA	< 0.02	NA	< 0.02	NA
Acetonitrile	NA	< 0.1	NA	< 0.1	NA
Acrolein	NA	< 0.1	NA	< 0.1	NA
Acrylonitrile	NA	< 0.1	NA	< 0.1	NA
Allyl Chloride	NA	< 0.01	NA	< 0.01	NA
Benzene	NA	< 0.005	NA	< 0.005	NA
Bromodichloromethane	NA	< 0.005	NA	< 0.005	NA
Bromoform	NA	< 0.005	NA	< 0.005	NA
Bromomethane	NA	< 0.01	NA	< 0.01	NA
Carbon Disulfide	NA	< 0.005	NA	< 0.005	NA
Carbon Tetrachloride	NA	< 0.005	NA	< 0.005	NA
Chlorobenzene	NA	< 0.005	NA	< 0.005	NA
Chloroethane	NA	< 0.01	NA	< 0.01	NA
Chloroform	NA	< 0.005	NA	< 0.005	NA
Chloromethane	NA	< 0.01	NA	< 0.01	NA
Chloroprene	NA	< 0.005	NA	< 0.005	NA
Cis-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025	NA
Cis-1,3-Dichloropropene	NA	< 0.005	NA	< 0.005	NA
Dibromochloromethane	NA	< 0.005	NA	< 0.005	NA
Dibromomethane	NA	< 0.005	NA	< 0.005	NA
Dichlorodifluoromethane	NA	< 0.01	NA	< 0.01	NA

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SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Parameter / Sample Designation	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
Dichloromethane	NA	< 0.005	NA	< 0.005	NA
Ethyl Methacrylate	NA	< 0.005	NA	< 0.005	NA
Ethylbenzene	NA	< 0.005	NA	< 0.005	NA
Iodomethane	NA	< 0.005	NA	< 0.005	NA
Isobutyl Alcohol	NA	< 0.2	NA	< 0.2	NA
Methacrylonitrile	NA	< 0.005	NA	< 0.005	NA
Methyl Methacrylate	NA	< 0.005	NA	< 0.005	NA
Propionitrile	NA	< 0.02	NA	< 0.02	NA
Styrene	NA	< 0.005	NA	< 0.005	NA
Tetrachloroethene	NA	< 0.005	NA	< 0.005	NA
Toluene	NA	< 0.005	NA	< 0.005	NA
Trans-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025	NA
Trans-1,3-Dichloropropene	NA	< 0.005	NA	< 0.005	NA
Trans-1,4-Dichloro-2-Butene	NA	< 0.005	NA	< 0.005	NA
Trichloroethylene	NA	< 0.005	NA	< 0.005	NA
Trichlorofluoromethane	NA	< 0.01	NA	< 0.01	NA
Vinyl Acetate	NA	< 0.01	NA	< 0.01	NA
Vinyl Chloride	NA	< 0.01	NA	< 0.01	NA
Xylene (Total)	NA	< 0.005	NA	< 0.005	NA
SVOCs[(h)]					
1,2,4,5-Tetrachlorobenzene	NA	< 0.01	NA	< 0.01	NA
1,2,4-Trichlorobenzene	NA	< 0.01	NA	< 0.01	NA
1,2-Dichlorobenzene	NA	< 0.01	NA	< 0.01	NA
1,3,5-Trinitrobenzene	NA	< 0.05	NA	< 0.05	NA
1,3-Dinitrobenzene	NA	< 0.01	NA	< 0.01	NA
1,4-Dichlorobenzene	NA	< 0.01	NA	< 0.01	NA
1,4-Naphthoquinone	NA	< 0.05	NA	< 0.05	NA
1-Naphthylamine	NA	< 0.01	NA	< 0.01	NA
2,3,4,6-Tetrachlorophenol	NA	< 0.05	NA	< 0.05	NA
2,4,5-Trichlorophenol	NA	< 0.01	NA	< 0.01	NA
2,4,6-Trichlorophenol	NA	< 0.01	NA	< 0.01	NA
2,4-Dichlorophenol	NA	< 0.01	NA	< 0.01	NA
2,4-Dimethylphenol	NA	< 0.01	NA	< 0.01	NA
2,4-Dinitrophenol	NA	< 0.05	NA	< 0.05	NA
2,4-Dinitrotoluene	NA	< 0.01	NA	< 0.01	NA
2,6-Dichlorophenol	NA	< 0.01	NA	< 0.01	NA
2,6-Dinitrotoluene	NA	< 0.01	NA	< 0.01	NA
2-Acetylaminofluorene	NA	< 0.1	NA	< 0.1	NA
2-Chloronaphthalene	NA	< 0.01	NA	< 0.01	NA
2-Chlorophenol	NA	< 0.01	NA	< 0.01	NA
2-Methyl-4,6-Dinitrophenol	NA	< 0.05	NA	< 0.05	NA
2-Methylnaphthalene	NA	< 0.01	NA	< 0.01	NA

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SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
2-Methylphenol (O-Cresol)	NA	< 0.01	NA	< 0.01	NA
2-Naphthylamine	NA	< 0.01	NA	< 0.01	NA
2-Nitroaniline	NA	< 0.05	NA	< 0.05	NA
2-Nitrophenol	NA	< 0.01	NA	< 0.01	NA
2-Picoline	NA	< 0.02	NA	< 0.02	NA
3,3'-Dichlorobenzidine	NA	< 0.05	NA	< 0.05	NA
3,3'-Dimethylbenzidine	NA	< 0.05	NA	< 0.05	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 0.01	NA	< 0.01	NA
3-Methylcholanthrene	NA	< 0.02	NA	< 0.02	NA
3-Methylphenol & 4-Methylphenol	NA	< 0.02	NA	< 0.02	NA
3-Methylphenol/4-Methylphenol	NA	< 0.01	NA	< 0.01	NA
3-Nitroaniline	NA	< 0.05	NA	< 0.05	NA
4-Aminobiphenyl	NA	< 0.05	NA	< 0.05	NA
4-Bromophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01	NA
4-Chloro-3-Methylphenol	NA	< 0.01	NA	< 0.01	NA
4-Chloroaniline	NA	< 0.01	NA	< 0.01	NA
4-Chlorophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01	NA
4-Nitrophenol	NA	< 0.05	NA	< 0.05	NA
4-Nitroquinoline-1-Oxide	NA	< 0.1	NA	< 0.1	NA
5-Nitro-O-Toluidine	NA	< 0.02	NA	< 0.02	NA
7,12-Dimethylbenz(A)Anthracene	NA	< 0.02	NA	< 0.02	NA
A,A-Dimethylphenethylamine	NA	< 0.05	NA	< 0.05	NA
Acenaphthene	NA	< 0.01	NA	< 0.01	NA
Acenaphthylene	NA	< 0.01	NA	< 0.01	NA
Acetophenone	NA	< 0.01	NA	< 0.01	NA
Aniline	NA	< 0.01	NA	< 0.01	NA
Anthracene	NA	< 0.01	NA	< 0.01	NA
Aramite	NA	< 0.02	NA	< 0.02	NA
Benz(B)Fluoranthene	NA	< 0.01	NA	< 0.01	NA
Benzo(A)Anthracene	NA	< 0.01	NA	< 0.01	NA
Benzo(A)Pyrene	NA	< 0.01	NA	< 0.01	NA
Benzo(G,H,I)Perylene	NA	< 0.01	NA	< 0.01	NA
Benzo(K)Fluoranthene	NA	< 0.01	NA	< 0.01	NA
Benzyl Alcohol	NA	< 0.01	NA	< 0.01	NA
Benzyl Butyl Phthalate	NA	< 0.01	NA	< 0.01	NA
Bis(2-Chloroethoxy)Methane	NA	< 0.01	NA	< 0.01	NA
Bis(2-Chloroethyl)Ether	NA	< 0.01	NA	< 0.01	NA
Bis(2-Chloroisopropyl)Ether	NA	< 0.01	NA	< 0.01	NA
Bis(2-Ethylhexyl)Phthalate	NA	< 0.01	NA	< 0.01	NA
Chrysene	NA	< 0.01	NA	< 0.01	NA
Dibenzo(A,H)Anthracene	NA	< 0.01	NA	< 0.01	NA
Dibenzofuran	NA	< 0.01	NA	< 0.01	NA

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SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
Diethyl Phthalate	NA	< 0.01	NA	< 0.01	NA
Dimethoate	NA	< 0.02	NA	< 0.02	NA
Dimethyl Phthalate	NA	< 0.01	NA	< 0.01	NA
Di-N-Butyl Phthalate	NA	< 0.01	NA	< 0.01	NA
Di-N-Octylphthalate	NA	< 0.01	NA	< 0.01	NA
Dinoseb	NA	< 0.02	NA	< 0.02	NA
Disulfoton	NA	< 0.05	NA	< 0.05	NA
Ethyl Methanesulfonate	NA	< 0.01	NA	< 0.01	NA
Famphur	NA	< 0.1	NA	< 0.1	NA
Fluoranthene	NA	< 0.01	NA	< 0.01	NA
Fluorene	NA	< 0.01	NA	< 0.01	NA
Hexachlorobenzene	NA	< 0.01	NA	< 0.01	NA
Hexachlorobutadiene	NA	< 0.01	NA	< 0.01	NA
Hexachlorocyclopentadiene	NA	< 0.05	NA	< 0.05	NA
Hexachloroethane	NA	< 0.01	NA	< 0.01	NA
Hexachlorophene	NA	<	NA	<	NA
Hexachloropropene	NA	< 0.1	NA	< 0.1	NA
Indeno(1,2,3-Cd)Pyrene	NA	< 0.01	NA	< 0.01	NA
Isosafrole	NA	< 0.02	NA	< 0.02	NA
M-Dichlorobenzene	NA	< 0.01	NA	< 0.01	NA
Methapyrilene	NA	< 0.05	NA	< 0.05	NA
Methyl Methanesulfonate	NA	< 0.01	NA	< 0.01	NA
Methyl Parathion	NA	< 0.05	NA	< 0.05	NA
Naphthalene	NA	< 0.01	NA	< 0.01	NA
Nitrobenzene	NA	< 0.01	NA	< 0.01	NA
N-Nitrosodiethylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosodimethylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosodi-N-Butylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitroso-Di-N-Propylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosodiphenylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosodiphenylamine/Diphènylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosomethylethylamine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosomorpholine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosopiperidine	NA	< 0.01	NA	< 0.01	NA
N-Nitrosopyrrolidine	NA	< 0.01	NA	< 0.01	NA
O,O,O-Triethyl Phosphorothioate	NA	< 0.05	NA	< 0.05	NA
O-Toluidine	NA	< 0.02	NA	< 0.02	NA
Parathion	NA	< 0.05	NA	< 0.05	NA
P-Dimethylaminoazobenzene	NA	< 0.02	NA	< 0.02	NA
Pentachlorobenzene	NA	< 0.01	NA	< 0.01	NA
Pentachloroethane	NA	< 0.05	NA	< 0.05	NA
Pentachloronitrobenzene	NA	< 0.05	NA	< 0.05	NA

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SWMU No. 2: Alcoa / Badin Landfill
Phase I RFI Groundwater Analytical Results
Alcoa Badin, NC Works RFI

Sample Designation / Parameter	ABL-MW-4-0060R	ABL-MW-5-2669	ABL-MW-5-0060R	ABL-MW-6-2679	ABL-MW-6-0080R
Pentachlorophenol	NA	< 0.05	NA	< 0.05	NA
Phenacetin	NA	< 0.02	NA	< 0.02	NA
Phenanthrene	NA	< 0.01	NA	< 0.01	NA
Phenol	NA	< 0.01	NA	< 0.01	NA
Phorate	NA	< 0.05	NA	< 0.05	NA
P-Nitroaniline	NA	< 0.05	NA	< 0.05	NA
P-Phenylene Diamine	NA	< 0.1	NA	< 0.1	NA
Pronamide	NA	< 0.02	NA	< 0.02	NA
Pyrene	NA	< 0.01	NA	< 0.01	NA
Pyridine	NA	< 0.02	NA	< 0.02	NA
Safrole	NA	< 0.02	NA	< 0.02	NA
Tetraethyldithiopyrophosphate	NA	< 0.05	NA	< 0.05	NA
Thionazin	NA	< 0.05	NA	< 0.05	NA

Notes:
(a) mg/l = milligrams per liter
(b) < = not detected at indicated detection limit
(c) J = Estimated Value
(d) R = Rejected Value
(e) NA = Not analyzed
(f) PCBs = Polychlorinated Biphenyls
(g) VOCs = Volatile Organic Compounds
(h) SVOCs - Semi-Volatile Organic Compounds

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Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
Inorganics (mg/kg)[b]		
Fluoride	< 0.65[c]	< 0.64
Cyanide (Weak Acid Dissociable)	< 3.3	< 3.2
Cyanide, Total	< 3.3	< 3.2
Arsenic	48.8 J	25.8 J
Barium	69.2 J	61.3 J
Cadmium	< 0.26	< 0.26
Chromium	101	87.7 J
Lead	26 J	22.4
Selenium	< 0.65 J	< 0.64 J
PCBs[d]		
Aroclor 1016	< 0.043 J	< 0.042 J
Aroclor 1221	< 0.043	< 0.042
Aroclor 1232	< 0.043	< 0.042
Aroclor 1242	< 0.043	< 0.042
Aroclor 1248	< 0.043	< 0.042
Aroclor 1254	< 0.043	< 0.042
Aroclor 1260	< 0.043	< 0.042
VOCs[e]		
1,1,1,2-Tetrachloroethane	< 0.0064	< 0.0065
1,1,1-Trichloroethane	< 0.0064	< 0.0065
1,1,2,2-Tetrachloroethane	< 0.0064	< 0.0065
1,1,2-Trichloroethane	< 0.0064	< 0.0065
1,1-Dichloroethane	< 0.0064	< 0.0065
1,1-Dichloroethene	< 0.0064	< 0.0065
1,2,3-Trichloropropane	< 0.0064	< 0.0065
1,2-Dibromo-3-chloropropane	< 0.013 J	< 0.013 J
1,2-Dibromoethane (EDB)	< 0.0064	< 0.0065
1,2-Dichloroethane	< 0.0064	< 0.0065
1,2-Dichloropropane	< 0.0064	< 0.0065
1,4-Dioxane	< 0.64 R	< 0.65 R
2-Butanone (MEK)	< 0.026	< 0.026

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Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
2-Hexanone	< 0.026	< 0.026
4-Bromofluorobenzene	0.055	0.062
4-Methyl-2-pentanone (MIBK)	< 0.026	< 0.026
Acetone	0.082 J	0.035 J
Acetonitrile	< 0.13 R	< 0.13 R
Acrolein	< 0.13 J	< 0.13 J
Acrylonitrile	< 0.13	< 0.13
Allyl chloride	< 0.013	< 0.013
Benzene	< 0.0064	< 0.0065
Bromodichloromethane	< 0.0064	< 0.0065
Bromoform	< 0.0064 J	< 0.0065 J
Bromomethane	< 0.013	< 0.013
Carbon disulfide	< 0.0064	< 0.0065
Carbon tetrachloride	< 0.0064	< 0.0065
Chlorobenzene	< 0.0064	< 0.0065
Chloroethane	< 0.013	< 0.013
Chloroform	< 0.0064	< 0.0065
Chloromethane	< 0.013	< 0.013
Chloroprene	< 0.013	< 0.013
cis-1,3-Dichloropropene	< 0.0064	< 0.0065
Dibromochloromethane	< 0.0064	< 0.0065
Dibromomethane	< 0.0064	< 0.0065
Dichlorodifluoromethane	< 0.013	< 0.013
Ethyl methacrylate	< 0.0064	< 0.0065
Ethylbenzene	< 0.0064	< 0.0065
Iodomethane	< 0.0064	< 0.0065
Isobutyl alcohol	< 0.26 R	< 0.26 R
Methacrylonitrile	< 0.0064	< 0.0065
Methyl methacrylate	< 0.0064 J	< 0.0065 J
Methylene chloride	0.0074 J	0.0093 J
Propionitrile	< 0.026 R	< 0.026 R
Styrene	< 0.0064	< 0.0065

Table 4-66

Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
Tetrachloroethene	< 0.0064 J	< 0.0065 J
Toluene	< 0.0064	< 0.0065
trans-1,2-Dichloroethene	< 0.0032	< 0.0033
trans-1,3-Dichloropropene	< 0.0064	< 0.0065
trans-1,4-Dichloro-2-butene	< 0.0064 J	< 0.0065 J
Trichloroethene	< 0.0064	< 0.0065
Trichlorofluoromethane	< 0.013	< 0.013
Vinyl acetate	< 0.013	< 0.013
Vinyl chloride	< 0.0064	< 0.0065
Xylenes (total)	< 0.0064	< 0.0065
SVOCs[f]		
1,2,4,5-Tetrachlorobenzene	< 0.43	< 0.42
1,2,4-Trichlorobenzene	< 0.43	< 0.42
1,2-Dichlorobenzene	< 0.43	< 0.42
1,3,5-Trinitrobenzene	< 2.1	< 2.1
1,3-Dichlorobenzene	< 0.43	< 0.42
1,3-Dinitrobenzene	< 0.43	< 0.42
1,4-Dichlorobenzene	< 0.43	< 0.42
1,4-Naphthoquinone	< 2.1	< 2.1
1-Naphthylamine	< 0.43	< 0.42
2,3,4,6-Tetrachlorophenol	< 2.1	< 2.1
2,4,5-Trichlorophenol	< 0.43	< 0.42
2,4,6-Tribromophenol	4.1	4.3
2,4,6-Trichlorophenol	< 0.43	< 0.42
2,4-Dichlorophenol	< 0.43	< 0.42
2,4-Dimethylphenol	< 0.43	< 0.42
2,4-Dinitrophenol	< 2.1 J	< 2.1 J
2,4-Dinitrotoluene	< 0.43	< 0.42
2,6-Dichlorophenol	< 0.43	< 0.42
2,6-Dinitrotoluene	< 0.43	< 0.42
2-Acetylaminofluorene	< 4.3	< 4.2
2-Chloronaphthalene	< 0.43	< 0.42

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Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
2-Chlorophenol	< 0.43	< 0.42
2-Methylnaphthalene	< 0.43	< 0.42
2-Methylphenol	< 0.43	< 0.42
2-Naphthylamine	< 0.43	< 0.42
2-Nitroaniline	< 2.1	< 2.1
2-Nitrophenol	< 0.43	< 0.42
2-Picoline	< 0.86	< 0.85
2-sec-Butyl-4,6-dinitrophenol	< 0.86	< 0.85
3,3'-Dichlorobenzidine	< 2.1	< 2.1
3,3'-Dimethylbenzidine	< 2.1	< 2.1
3-Methylcholanthrene	< 0.86	< 0.85
3-Nitroaniline	< 2.1	< 2.1
4,6-Dinitro-2-methylphenol	< 2.1	< 2.1
4-Aminobiphenyl	< 2.1	< 2.1
4-Bromophenyl phenyl ether	< 0.43	< 0.42
4-Chloro-3-methylphenol	< 0.43	< 0.42
4-Chloroaniline	< 0.43	< 0.42
4-Chlorophenyl phenyl ether	< 0.43	< 0.42
4-Methylphenol	< 0.43	< 0.42
4-Nitroaniline	< 2.1	< 2.1
4-Nitrophenol	< 2.1	< 2.1
4-Nitroquinoline-1-oxide	< 4.3 J	< 4.2 J
5-Nitro-o-toluidine	< 0.86	< 0.85
7,12-Dimethylbenz(a)anthracene	< 0.86	< 0.85
a,a-Dimethylphenethylamine	< 2.1	< 2.1
Acenaphthene	< 0.43	< 0.42
Acenaphthylene	< 0.43	< 0.42
Acetophenone	< 0.43	< 0.42
Aniline	< 0.43	< 0.42
Anthracene	< 0.43	< 0.42
Aramite	< 0.86 R	< 0.85 R
Benzo(a)anthracene	< 0.43	< 0.42

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Table 4-66

Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
Benzo(a)pyrene	< 0.43	< 0.42
Benzo(b)fluoranthene	< 0.43	< 0.42
Benzo(ghi)perylene	< 0.43	< 0.42
Benzo(k)fluoranthene	< 0.43	< 0.42
Benzyl alcohol	< 0.43	< 0.42
bis(2-Chloro-1-methylethyl) ether	< 0.43	< 0.42
bis(2-Chloroethoxy)methane	< 0.43	< 0.42
bis(2-Chloroethyl) ether	< 0.43	< 0.42
bis(2-Ethylhexyl) phthalate	< 0.43	< 0.42
Butyl benzyl phthalate	< 0.43	< 0.42
Chlorobenzilate	< 0.43	< 0.42
Chrysene	< 0.43	< 0.42
Diallate	< 0.86	< 0.85
Dibenz(a,h)anthracene	< 0.43	< 0.42
Dibenzofuran	< 0.43	< 0.42
Diethyl phthalate	< 0.43	< 0.42
Dimethoate	< 0.86 J	< 0.85 J
Dimethyl phthalate	< 0.43	< 0.42
Di-n-butyl phthalate	< 0.43	< 0.42
Di-n-octyl phthalate	< 0.43	< 0.42
Diphenylamine	< 0.43	< 0.42
Disulfoton	< 2.1	< 2.1
Ethyl methanesulfonate	< 0.43	< 0.42
Famphur	< 4.3 R	< 4.2 R
Fluoranthene	< 0.43	< 0.42
Fluorene	< 0.43	< 0.42
Hexachlorobenzene	< 0.43	< 0.42
Hexachlorobutadiene	< 0.43	< 0.42
Hexachlorocyclopentadiene	< 2.1	< 2.1
Hexachloroethane	< 0.43	< 0.42
Hexachlorophene	<	< 2.1
Hexachloropropene	< 4.3	< 4.2

Table 4-66

Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
Indeno(1,2,3-cd)pyrene	< 0.43	< 0.42
Isodrin	< 0.43	< 0.42
Isophorone	< 0.43	< 0.42
Isosafrole	< 0.86	< 0.85
Kepone	< 4.3	< 4.2
Methapyrilene	< 2.1	< 2.1
Methyl methanesulfonate	< 0.43	< 0.42
Methyl parathion	< 2.1	< 2.1
Naphthalene	< 0.43	< 0.42
Nitrobenzene	< 0.43	< 0.42
N-Nitrosodiethylamine	< 0.43	< 0.42
N-Nitrosodimethylamine	< 0.43	< 0.42
N-Nitrosodi-n-butylamine	< 0.43	< 0.42
N-Nitrosodi-n-propylamine	< 0.43	< 0.42
N-Nitrosodiphenylamine	< 0.43	< 0.42
N-Nitrosomethylethylamine	< 0.43	< 0.42
N-Nitrosomorpholine	< 0.43	< 0.42
N-Nitrosopiperidine	< 0.43	< 0.42
N-Nitrosopyrrolidine	< 0.43	< 0.42
O,O,O-Triethyl phosphorothioate	< 2.1	< 2.1
o-Toluidine	< 0.86	< 0.85
Parathion	< 2.1	< 2.1
p-Dimethylaminoazobenzene	< 0.86	< 0.85
Pentachlorobenzene	< 0.43	< 0.42
Pentachloroethane	< 2.1	< 2.1
Pentachloronitrobenzene	< 2.1	< 2.1
Pentachlorophenol	< 2.1	< 2.1
Phenacetin	< 0.86	< 0.85
Phenanthrene	< 0.43	< 0.42
Phenol	< 0.43	< 0.42
Phorate	< 2.1	< 2.1
p-Phenylene diamine	< 4.3	< 4.2

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Table 4-66

Little Mountain Creek
Phase I RFI Sediment Analytical Results

Alcoa Badin, NC Works RFI

Samples Designation / Sample Depth (ft-bgs)[a] / Parameter	LMC-S001-0.0-0.3 0-0.3	LMC-S002-0.0-0.4 0-0.4
Pronamide	< 0.86	< 0.85
Pyrene	< 0.43	< 0.42
Pyridine	< 0.86	< 0.85
Safrole	< 0.86	< 0.85
Tetraethyldithiopyrophosphate	< 2.1	< 2.1
Thionazin	< 2.1	< 2.1

Notes:

[a] ft-bgs = feet below ground surface.

[b] mg/kg = milligrams per kilogram.

[c] < = not detected at indicated detection limit.

[d] PCBs = polychlorinated biphenyls.

[e] VOCs = volatile organic compounds.

[f] SVOCs = semivolatile organic compounds.

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Table 4-67

Little Mountain Creek
Phase I RFI Surface Water Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	LMC-SW-01	LMC-SW01-2799	LMC-SW-02	LMC-SW02-2799
Miscellaneous				
TSS (mg/l)[a]	NA[b]	4	NA	7
Inorganics				
Fluoride	NA	0.17	NA	0.2
Cyanide, (Weak Acid Dissociable)	NA	< 0.01[c] J [d]	NA	< 0.01 J
Cyanide, Total	NA	< 0.01	NA	< 0.01
Cyanide, Microdiffusion	0.0052	< 0.005	< 0.005	< 0.005
Arsenic	NA	< 0.01	NA	< 0.01
Arsenic, Dissolved	NA	< 0.005	NA	< 0.005
Barium	NA	< 0.2	NA	< 0.2
Barium, Dissolved	NA	< 0.2	NA	< 0.2
Cadmium	NA	< 0.002	NA	< 0.002
Cadmium, Dissolved	NA	< 0.002	NA	< 0.002
Chromium	NA	< 0.005	NA	< 0.005
Chromium, Dissolved	NA	< 0.005	NA	< 0.005
Lead	NA	< 0.003	NA	< 0.003
Lead, Dissolved	NA	< 0.003	NA	< 0.003
Selenium	NA	< 0.005	NA	< 0.005
Selenium, Dissolved	NA	< 0.005	NA	< 0.005
PCBs (mg/l)[e]				
Aroclor 1016	NA	< 0.001	NA	< 0.001
Aroclor 1221	NA	< 0.001	NA	< 0.001
Aroclor 1232	NA	< 0.001	NA	< 0.001
Aroclor 1242	NA	< 0.001	NA	< 0.001
Aroclor 1248	NA	< 0.001	NA	< 0.001
Aroclor 1254	NA	< 0.001	NA	< 0.001
Aroclor1260	NA	< 0.001	NA	< 0.001
VOCs (mg/l)[f]				
1,1,1,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005
1,1,1-Trichloroethane	NA	< 0.005	NA	< 0.005
1,1,2,2-Tetrachloroethane	NA	< 0.005	NA	< 0.005
1,1,2-Trichloroethane	NA	< 0.005	NA	< 0.005
1,1-Dichloroethane	NA	< 0.005	NA	< 0.005
1,1-Dichloroethene	NA	< 0.005	NA	< 0.005
1,2,3-Trichloropropane	NA	< 0.005	NA	< 0.005
1,2-Dibromo-3-chloropropane	NA	< 0.01	NA	< 0.01
1,2-Dibromoethane	NA	< 0.005	NA	< 0.005
1,2-Dichloroethane	NA	< 0.005	NA	< 0.005
1,2-Dichloropropane	NA	< 0.005	NA	< 0.005
1,4-Dioxane	NA	< 0.5	NA	< 0.5

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Table 4-67

Little Mountain Creek
Phase I RFI Surface Water Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	LMC-SW-01	LMC-SW01-2799	LMC-SW-02	LMC-SW02-2799
2-Butanone	NA	< 0.02	NA	< 0.02
2-Hexanone	NA	< 0.02	NA	< 0.02
4-Methyl-2-pentanone	NA	< 0.02	NA	< 0.02
Acetone	NA	< 0.02	NA	< 0.02
Acetonitrile	NA	< 0.1	NA	< 0.1
Acrolein	NA	< 0.1	NA	< 0.1
Acrylonitrile	NA	< 0.1	NA	< 0.1
Allyl chloride	NA	< 0.01	NA	< 0.01
Benzene	NA	< 0.005	NA	< 0.005
Bromodichloromethane	NA	< 0.005	NA	< 0.005
Bromoform	NA	< 0.005	NA	< 0.005
Bromomethane	NA	< 0.01	NA	< 0.01
Carbon Disulfide	NA	< 0.005	NA	< 0.005
Carbon Tetrachloride	NA	< 0.005	NA	< 0.005
Chlorobenzene	NA	< 0.005	NA	< 0.005
Chloroethane	NA	< 0.01	NA	< 0.01
Chloroform	NA	< 0.005	NA	< 0.005
Chloromethane	NA	< 0.01	NA	< 0.01
Chloroprene	NA	< 0.005	NA	< 0.005
cis-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025
Cis-1,3-Dichloropropane	NA	< 0.005	NA	< 0.005
Dibromochloromethane	NA	< 0.005	NA	< 0.005
Dibromomethane	NA	< 0.005	NA	< 0.005
Dichlorodifluoromethane	NA	< 0.01	NA	< 0.01
Dichloromethane	NA	< 0.005	NA	< 0.005
Ethyl methacrylate	NA	< 0.005	NA	< 0.005
Ethylbenzene	NA	< 0.005	NA	< 0.005
Iodomethane	NA	< 0.005	NA	< 0.005
Isobutyl alcohol	NA	< 0.2	NA	< 0.2
Methacrylonitrile	NA	< 0.005	NA	< 0.005
Methyl methacrylate	NA	< 0.005	NA	< 0.005
Propionitrile	NA	< 0.02	NA	< 0.02
Styrene	NA	< 0.005	NA	< 0.005
Tetrachlorethene	NA	< 0.005	NA	< 0.005
Toluene	NA	< 0.005	NA	< 0.005
Trans-1,2-Dichloroethene	NA	< 0.0025	NA	< 0.0025
Trans-1,3-Dichloropropene	NA	< 0.005	NA	< 0.005
trans-1,4-Dichloro-2-butene	NA	< 0.005	NA	< 0.005
Trichloroethylene	NA	< 0.005	NA	< 0.005
Trichlorofluoromethane	NA	< 0.01	NA	< 0.01
Vinyl Acetate	NA	< 0.01	NA	< 0.01
Vinyl Chloride	NA	< 0.01	NA	< 0.01

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Table 4-67

Little Mountain Creek
Phase I RFI Surface Water Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	LMC-SW-01	LMC-SW01-2799	LMC-SW-02	LMC-SW02-2799
Xylene (Total)	NA	< 0.005	NA	< 0.005
SVOCs [g]				
1,2,4,5-Tetrachlorobenzene	NA	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	NA	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	NA	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	NA	< 0.05	NA	< 0.05
1,3-Dichlorobenzene	NA	< 0.01	NA	< 0.01
1,3-Dinitrobenzene	NA	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	NA	< 0.01	NA	< 0.01
1,4-Naphthoquinone	NA	< 0.05	NA	< 0.05
1-Naphthylamine	NA	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	NA	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	NA	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	NA	< 0.01	NA	< 0.01
2,4-Dichlorophenol	NA	< 0.01	NA	< 0.01
2,4-Dimethylphenol	NA	< 0.01	NA	< 0.01
2,4-Dinitrophenol	NA	< 0.05	NA	< 0.05
2,4-Dinitrotoluene	NA	< 0.01	NA	< 0.01
2,6-Dichlorophenol	NA	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	NA	< 0.01	NA	< 0.01
2-Acetylaminofluorene	NA	< 0.1	NA	< 0.1
2-Chloronaphthalene	NA	< 0.01	NA	< 0.01
2-Chlorophenol	NA	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	NA	< 0.05	NA	< 0.05
2-Methylnaphthalene	NA	< 0.01	NA	< 0.01
2-Methylphenol (O-Cresol)	NA	< 0.01	NA	NA
2-Naphthylamine	NA	< 0.01	NA	< 0.01
2-Nitroaniline	NA	< 0.05	NA	< 0.05
2-Nitrophenol	NA	< 0.01	NA	< 0.01
2-Picoline	NA	< 0.02	NA	< 0.02
3,3'-Dichlorobenzidine	NA	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	NA	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-cyclohexen-1-one	NA	< 0.01	NA	< 0.01
3-Methylcholanthrene	NA	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	NA	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	NA	< 0.01	NA	< 0.01
3-Nitroaniline	NA	< 0.05	NA	< 0.05
4-Aminobiphenyl	NA	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	NA	< 0.01	NA	< 0.01
4-Chloroaniline	NA	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	NA	< 0.01	NA	< 0.01

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Table 4-67

Little Mountain Creek
Phase I RFI Surface Water Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	LMC-SW-01	LMC-SW01-2799	LMC-SW-02	LMC-SW02-2799
4-Nitrophenol	NA	< 0.05	NA	< 0.05
4-Nitroquinoline-1-oxide	NA	< 0.1	NA	< 0.1
5-Nitro-o-toluidine	NA	< 0.02	NA	< 0.02
7,12-Dimethylbenz(a)anthracene	NA	< 0.02	NA	< 0.02
a,a-Dimethylphenethylamine	NA	< 0.05	NA	< 0.05
Acenaphthene	NA	< 0.01	NA	< 0.01
Acenaphthylene	NA	< 0.01	NA	< 0.01
Acetophenone	NA	< 0.01	NA	< 0.01
Aniline	NA	< 0.01	NA	< 0.01
Anthracene	NA	< 0.01	NA	< 0.01
Aramite	NA	< 0.02	NA	< 0.02
Benz(b)Fluoranthene	NA	< 0.01	NA	< 0.01
Benzo(a)Anthracene	NA	< 0.01	NA	< 0.01
Benzo(a)Pyrene	NA	< 0.01	NA	< 0.01
Benzo(g,h,I)Perylene	NA	< 0.01	NA	< 0.01
Benzo(k)Fluoranthene	NA	< 0.01	NA	< 0.01
Benzyl Alcohol	NA	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	NA	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	NA	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	NA	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	NA	< 0.01	NA	< 0.01
Chrysene	NA	< 0.01	NA	< 0.01
Dibenzo(a,h)Anthracene	NA	< 0.01	NA	< 0.01
Dibenzofuran	NA	< 0.01	NA	< 0.01
Diethyl Phthalate	NA	< 0.01	NA	< 0.01
Dimethoate	NA	< 0.02	NA	< 0.02
Dimethyl Phthalate	NA	< 0.01	NA	< 0.01
Di-n-Butyl Phthalate	NA	< 0.01	NA	< 0.01
Di-n-Octyl Phthalate	NA	NA	NA	< 0.01
Dinoseb	NA	< 0.02	NA	< 0.02
Disulfoton	NA	< 0.05	NA	< 0.05
Ethyl methanesulfonate	NA	< 0.01	NA	< 0.01
Famphur	NA	< 0.1	NA	< 0.1
Fluoranthene	NA	< 0.01	NA	< 0.01
Fluorene-	NA	< 0.01	NA	< 0.01
Hexachlorobenzene	NA	< 0.01	NA	< 0.01
Hexachlorobutadiene	NA	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	NA	< 0.05	NA	< 0.05
Hexachloroethane	NA	< 0.01	NA	< 0.01
Hexachlorophene	NA	< 0.01	NA	<
Hexachloropropene	NA	< 0.1	NA	< 0.1

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Table 4-67

Little Mountain Creek
Phase I RFI Surface Water Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	LMC-SW-01	LMC-SW01-2799	LMC-SW-02	LMC-SW02-2799
Indeno(1,2,3-cd)Pyrene	NA	< 0.01	NA	NA
Isosafrole	NA	< 0.02	NA	< 0.02
Methapyrilene	NA	< 0.05	NA	< 0.05
Methyl methanesulfonate	NA	< 0.01	NA	< 0.01
Methyl parathion	NA	< 0.05	NA	< 0.05
Naphthalene	NA	< 0.01	NA	< 0.01
Nitrobenzene	NA	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	NA	< 0.01	NA	< 0.01
N-NitrosodimeThylamine	NA	< 0.01	NA	< 0.01
N-Nitrosodi-n-butylamine	NA	< 0.01	NA	< 0.01
N-Nitroso-Di-n-Propylamine	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	NA	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	NA	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	NA	< 0.01	NA	< 0.01
N-Nitrosomorpholine	NA	< 0.01	NA	< 0.01
N-Nitrosopiperidine	NA	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	NA	< 0.01	NA	< 0.01
O,O,O-Triethyl phosphorothioate	NA	< 0.05	NA	< 0.05
o-Toluidine	NA	< 0.02	NA	< 0.02
Parathion	NA	< 0.05	NA	< 0.05
p-Dimethylaminoazobenzene	NA	< 0.02	NA	< 0.02
Pentachlorobenzene	NA	< 0.01	NA	< 0.01
Pentachloroethane	NA	< 0.05	NA	< 0.05
Pentachloronitrobenzene	NA	< 0.05	NA	< 0.05
Pentachlorophenol	NA	< 0.05	NA	< 0.05
Phenacetin	NA	< 0.02	NA	< 0.02
Phenanthrene	NA	< 0.01	NA	< 0.01
Phenol	NA	< 0.01	NA	< 0.01
Phorate	NA	< 0.05	NA	< 0.05
P-Nitroaniline	NA	< 0.05	NA	< 0.05
p-Phenylene diamine	NA	< 0.1	NA	< 0.1
Pronamide	NA	< 0.02	NA	< 0.02
Pyrene	NA	< 0.01	NA	< 0.01
Pyridine	NA	< 0.02	NA	< 0.02
Safrole	NA	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	NA	< 0.05	NA	< 0.05
Thionazin	NA	< 0.05	NA	< 0.05

Notes:

[a] mg/l = milligrams per liter

[b] NA = Not Analyzed

[c] < = not detected at indicated detection limit

[d] PCBs = Polychlorinated Biphenyls

[e] VOCs = Volatile Organic Compounds

[f] SVOCs - Semi-Volatile Organic Compounds

Table 4-68

Soil Screening Table
SWMU No. 2 (Alcoa/Badin Landfill)

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b]DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	mg/kg[d]	4	4	5.4	15.8	3.8	0.43	29	29.2	✓	✓		
Barium	mg/kg	4	4	75.4	108	140000	5500	1600	1648				
Chromium	mg/kg	4	4	19.7	31.6	6100	230	38	38.4				
Lead	mg/kg	4	4	17.2	22.1	1000	400	NA	267				
Selenium	mg/kg	1	4	0.78	0.78	10000	390	5	5.2				
Other													
Cyanide (total)	mg/kg	1	4	10.3	10.3	41000	1600	40	31.1				
Fluoride	mg/kg	4	4	2.9	10.7	120000	4700	NA	NA				
Pesticides/Herbicides													
None Detected													
SVOCs[e]													
None Detected													
VOCs[f]													
	mg/kg	1	4	0.0092	0.0092	2900	110	0.2	NA				
1,1-Dichloroethene	mg/kg	1	4	0.0088	0.0088	9.5	1.1	0.06	0.492				
Acetone	mg/kg	4	4	0.04	0.18	200000	7800	16	1250				
Methylene chloride	mg/kg	4	4	0.007 B	0.01 B	760	85	0.02	0.022				

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentrations.

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Table 4-69
Groundwater Screening Table
SWMU No. 2 (Alcoa/Badin Landfill)
Alcoa-Badin Works

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina 2L Standard	USEPA MCL	NC Standard	USEPA MCL
Metals									
Arsenic, Dissolved	1	6	mg/l[a]	0.0066	0.0066	0.05	0.05		
Barium, Dissolved	5	6	mg/l	0.26	0.49	2	2		
Cobalt, Total	1	1	mg/l	0.13	0.13	NA	NA		
Cobalt, Dissolved	1	1	mg/l	0.13	0.13	NA	NA		
Cyanide, Microdiffusion	2	12	mg/l	0.0059	0.0579	0.154	0.2		
Cyanide, Total	5	12	mg/l	0.011	0.25	0.154	0.2	✓	✓
Cyanide, Weak Acid Dissociable	3	12	mg/l	0.011	0.1	0.154	0.2		
Selenium, Total	1	6	mg/l	0.006	0.006	0.05	0.05		
Selenium, Dissolved	1	6	mg/l	0.0069	0.0069	NA	NA		
Zinc, Dissolved	1	1	mg/l	0.026	0.026	2.1	NA		
Other Parameters									
Fluoride	2	6	mg/l	0.15	0.98	2	4		
SVOCs[b]									
None Detected									
VOCs[c]									
None Detected									

Notes:

[a] mg/l = milligrams per liter

[b] SVOCs = Semi-Volatile Organic Compounds

[c] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value
The only detection of Arsenic is in upgradient monitoring well ABL-MW-6

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Table 4-70
Sediment Screening Table
Little Mountain Creek
Alcoa Badin, NC Works RFI

Parameter	Units	Number Detected	Number Analyzed	Minimum Detection		Maximum Detection		USEPA Region III Industrial RBC[a]	Ind. RBC
VOCs[b]									
Acetone	mg/kg[c]	2	2	0.035		0.082		200000	
Methylene chloride	mg/kg	2	2	0.0074	B[d]	0.0093	B	760	
Inorganics									
Arsenic	mg/kg	2	2	25.8		48.8		3.8	✓
Barium	mg/kg	2	2	61.3		69.2		140000	
Chromium	mg/kg	2	2	87.7		101		6100	
Lead	mg/kg	2	2	22.4		26		1000	

Notes:

[a] RBC = Risk-Based Concentration

[b] VOCs = Volatile Organic Compounds

[c] mg/kg = milligrams per kilogram

[d] B = Blank contamination.

✓ = Maximum concentration of constituent exceeds screening value

Arsenic concentration in sample upgradient of site is higher than downgradient

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Table 4-71

Surface Water Screening Table
Little Mountain Creek

Alcoa Badin, NC Works RFI

Parameter	Number Detected	Number Analyzed	Frequency of Detection	Units	Minimum Detection	Maximum Detection	North Carolina[a] Human Health 2B Standard	AWQC (HH)[b]	NC Std	AWQC
Cyanide (Microdiffusion)	1	2	0.5	mg/l[c]	< 0.005	0.0052	NA	0.2		
Fluoride	2	2	100	mg/l	0.17	0.2	NA	NA		

Notes:

[a] NC 2B Standard for the Protection of Human Health (Class W-IV Waters-15A NCAC 02B.0216(3)(g)(i, ii)

[b] USEPA Recommended Water Quality Criteria (WQC) for the Protection of Human Health (for Consumption of Water and Organisms) (EPA, 1999)

[c] mg/l = milligrams per liter

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Table 4-72

Old Brick Landfill
Monitoring Well Construction

Alcoa Badin, NC Works RFI

Well Number	Top of Casing Elevation (ft-msl)[a]	Ground surface (ft-msl)	Top of Screen (ft-bgs)[b]	Bottom of Screen (ft-bgs)	Top of Screen Elevation (ft-msl)	Bottom of Screen Elevation (ft-msl)	Screened Interval Lithology
OBL-MW-1	682.29	678.81	92	102	586.81	576.81	Bedrock
OBL-MW-2	616.41	613.34	72	82	541.34	531.34	Bedrock
OBL-MW-3	559.26	556.74	46	56	510.74	500.74	Residual Soil
OBL-MW-4	536.19	534.89	16	26	518.89	508.89	Residual Soil
OBL-MW-5	604.21	601.76	67	77	534.76	524.76	Residual Soil
OBL-MW-6	579.97	577.32	44	54	533.32	523.32	Weathered Bedrock/Residual Soil

Notes:

(a) ft-msl = feet above mean sea level.

(b) ft-bgs = feet below ground surface.

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Table 4-73

Hydraulic Conductivity Data for SWMU No. 3 (Old Brick Landfill)

Alcoa Badin, NC Works RFI

Well ID	Test Type	Lithology Screened	Hydraulic Conductivity cm/sec[(a)]	Hydraulic Conductivity ft/day[(b)]
OBL-MW-2	Slug in	Bedrock	2.45E-05	6.94E-02
	Slug out		1.30E-05	3.69E-02
OBL-MW-3	Slug in	Residual Soil	1.19E-02	3.37E+01
	Slug out		7.06E-03	2.00E+01
OBL-MW-4	Slug in	Residual Soil	5.51E-04	1.56E+00
	Slug out		5.08E-03	1.44E+01
OBL-MW-5	Slug in	Residual Soil	1.32E-04	3.73E-01
	Slug out		8.81E-05	2.50E-01
Average All Tests			3.30E-03	8.80-E-00
Average For Bedrock			1.88E-05	5.32E-02
Average For Residual Soil			4.13E-03	1.17E+01

Notes:

(a) cm/sec = centimeters per second.

(b) ft/day = feet per day.

Reference: Aquaterra, September 3, 1991

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
Inorganics (mg/kg)[b]								
Fluoride	2.1	< 0.66[c]	1.9	< 0.64	1.5	NA[d]	< 0.63	NA
Cyanide Dissociable	< 3.4	< 3.3	< 3.3	< 3.2	< 3	NA	< 3.1	NA
Cyanide, Total	< 3.4	< 3.3	5.3	< 3.2	< 3	NA	< 3.1	NA
Arsenic	47.1	64	51.6	59.2	57.8	NA	72.7	NA
Barium	34.6	< 26.4	68.5	43.3	81.2	NA	55.2	NA
Cadmium	< 0.27	< 0.26	< 0.26	< 0.26	< 0.24	NA	< 0.25	NA
Chromium	50.6	46.9	32.5	31.8	30.9	NA	40.3	NA
Lead	9.7	6	5.5	4.8	11.9	NA	8	NA
Selenium	0.89	1.2	< 0.66	0.97	< 0.61	NA	1.8	NA
Mercury	< 0.13	< 0.13	< 0.13	< 0.13	< 0.12	NA	< 0.13	NA
VOCs[e]								
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,1-Dichloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,1-Dichloroethene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
1,2-Dibromoethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,2-Dichloroethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,2-Dichloropropane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
1,4-Dioxane	NA	NA	NA	NA	NA	< 0.63	NA	< 0.62
2-Butanone	NA	NA	NA	NA	NA	< 0.025	NA	< 0.025
2-Hexanone	NA	NA	NA	NA	NA	< 0.025	NA	< 0.025
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	NA	NA	< 0.025	NA	< 0.025
Acetone	NA	NA	NA	NA	NA	0.21	NA	0.15
Acetonitrile	NA	NA	NA	NA	NA	< 0.13	NA	< 0.12
Acrolein	NA	NA	NA	NA	NA	< 0.13	NA	< 0.12
Acrylonitrile	NA	NA	NA	NA	NA	< 0.13	NA	< 0.12
Allyl chloride	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Benzene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
Bromodichloromethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Bromoform	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Bromomethane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Carbon Disulfide	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Carbon Tetrachloride	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Chlorobenzene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Chloroethane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Chloroform	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Chloromethane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Chloroprene	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Dibromochloromethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Dibromomethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Dichlorodifluoromethane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Dichloromethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Ethyl methacrylate	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Ethylbenzene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Iodomethane	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Isobutyl alcohol	NA	NA	NA	NA	NA	< 0.25	NA	< 0.25
Methacrylonitrile	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Methyl methacrylate	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Propionitrile	NA	NA	NA	NA	NA	< 0.025	NA	< 0.025
Styrene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Tetrachloroethene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Toluene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 0.0032	NA	< 0.0031
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Trichloroethylene	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Trichlorofluoromethane	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Vinyl acetate	NA	NA	NA	NA	NA	< 0.013	NA	< 0.012
Vinyl Chloride	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062
Xylenes (total)	NA	NA	NA	NA	NA	< 0.0063	NA	< 0.0062

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
SVOCs[f]								
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	< 1.9	NA	< 2	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
1,4-Naphthoquinone	NA	NA	NA	NA	< 1.9	NA	< 2	NA
1-Naphthylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	< 1.9	NA	< 2	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,4-Dichlorophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,4-Dimethylphenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,4-Dinitrophenol	NA	NA	NA	NA	< 1.9	NA	< 2	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,6-Dichlorophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Acetylaminofluorene	NA	NA	NA	NA	< 4	NA	< 4.1	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Chlorophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Methylnaphthalene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Methylphenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Naphthylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Nitroaniline	NA	NA	NA	NA	< 1.9	NA	< 2	NA
2-Nitrophenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
2-Picoline	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
2-sec-Butyl-4,6-dinitrophenol	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	< 1.9	NA	< 2	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	< 1.9	NA	< 2	NA
3-Methylcholanthrene	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
3-Nitroaniline	NA	NA	NA	NA	< 1.9	NA	< 2	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	< 1.9	NA	< 2	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
4-Aminobiphenyl	NA	NA	NA	NA	< 1.9	NA	< 2	NA
4-Bromophenyl phenyl ether	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
4-Chloroaniline	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
4-Methylphenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
4-Nitroaniline	NA	NA	NA	NA	< 1.9	NA	< 2	NA
4-Nitrophenol	NA	NA	NA	NA	< 1.9	NA	< 2	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	< 4	NA	< 4.1	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Acenaphthene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Acenaphthylene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Acetophenone	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Aniline	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Anthracene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Aramite	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Benzo(a)anthracene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Benzo(a)pyrene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Benzo(b)fluoranthene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Benzo(ghi)perylene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Benzo(k)fluoranthene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Benzyl alcohol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
bis(2-Chloro-1-methylethyl) ether	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
bis(2-Chloroethyl) ether	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
bis(2-Ethylhexyl) phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Butyl benzyl phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Chlorobenzilate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Chrysene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Diallate	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Dibenz(a,h)anthracene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Dibenzofuran	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
Diethyl phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Dimethoate	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Dimethyl phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Di-n-butyl phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Di-n-octyl phthalate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Diphenylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Disulfoton	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Ethyl methanesulfonate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Famphur	NA	NA	NA	NA	< 4	NA	< 4.1	NA
Fluoranthene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Fluorene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Hexachlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Hexachlorobutadiene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Hexachloroethane	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Hexachlorophene	NA	NA	NA	NA	< 1.9	NA	<	NA
Hexachloropropene	NA	NA	NA	NA	< 4	NA	< 4.1	NA
Indeno(1,2,3-cd)pyrene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Isodrin	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Isophorone	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Isosafrole	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Kepone	NA	NA	NA	NA	< 4	NA	< 4.1	NA
Methapyrilene	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Methyl methanesulfonate	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Methyl parathion	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Naphthalene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Nitrobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosodi-n-butylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosomorpholine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA

Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA01-0.0-0.5 0-0.5	S3-HA01-0.5-2.0 0.5-2.0	S3-HA02-0.0-0.5 0-0.5	S3-HA02-0.5-1.7 0.5-1.7	S3-HA03-0.0-0.5 0-0.5	S3-HA03-0.0-0.5R 0-0.5	S3-HA03-0.5-2.0 0.5-2.0	S3-HA03-0.5-2.0 0.5-2.0
N-Nitrosopiperidine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
O,O,O-Triethyl phosphorothioate	NA	NA	NA	NA	< 1.9	NA	< 2	NA
o-Toluidine	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Parathion	NA	NA	NA	NA	< 1.9	NA	< 2	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Pentachlorobenzene	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Pentachloroethane	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Pentachloronitrobenzene	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Pentachlorophenol	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Phenacetin	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Phenanthrene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Phenol	NA	NA	NA	NA	< 0.4	NA	< 0.41	NA
Phorate	NA	NA	NA	NA	< 1.9	NA	< 2	NA
p-Phenylene diamine	NA	NA	NA	NA	< 4	NA	< 4.1	NA
Pronamide	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Pyrene	< 0.44	< 0.44	< 0.44	< 0.43	< 0.4	NA	< 0.41	NA
Pyridine	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Safrole	NA	NA	NA	NA	< 0.8	NA	< 0.83	NA
Tetraethyldithiopyrophosphate	NA	NA	NA	NA	< 1.9	NA	< 2	NA
Thionazin	NA	NA	NA	NA	< 1.9	NA	< 2	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
Inorganics (mg/kg)[b]								
Fluoride	1.2	NA	NA	< 0.61	NA	1.6	NA	< 0.65
Cyanide Dissociable	< 3.1	NA	NA	< 3.1	NA	< 3.2	NA	< 3.3
Cyanide, Total	< 3.1	NA	NA	< 3.1	NA	< 3.2	NA	< 3.3
Arsenic	34.7	NA	NA	33.9	NA	20.8	NA	28.1
Barium	76	NA	NA	46.1	NA	87	NA	359
Cadmium	< 0.25	NA	NA	< 0.24	NA	< 0.26	NA	< 0.26
Chromium	37.8	NA	NA	37.8	NA	61.6	NA	61.9
Lead	9.4	NA	NA	6.9	NA	13.1	NA	27.3
Selenium	< 0.63	NA	NA	< 0.61	NA	1.2	NA	< 0.65
Mercury		NA	NA		NA		NA	
VOCs[e]								
1,1,1,2-Tetrachloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,1,1-Trichloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,1,2,2-Tetrachloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,1,2-Trichloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,1-Dichloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,1-Dichloroethene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,2,3-Trichloropropane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,2-Dibromo-3-chloropropane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
1,2-Dibromoethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,2-Dichloroethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,2-Dichloropropane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
1,4-Dioxane	NA	< 0.64	< 0.65	NA	< 0.58	NA	< 0.64	NA
2-Butanone	NA	< 0.026	0.026	NA	< 0.023	NA	< 0.026	NA
2-Hexanone	NA	< 0.026	< 0.026	NA	< 0.023	NA	< 0.026	NA
4-Methyl-2-pentanone (MIBK)	NA	< 0.026	< 0.026	NA	< 0.023	NA	< 0.026	NA
Acetone	NA	3.9	3.8	NA	1.8	NA	0.25	NA
Acetonitrile	NA	< 0.13	< 0.13	NA	< 0.12	NA	< 0.13	NA
Acrolein	NA	< 0.13	< 0.13	NA	< 0.12	NA	< 0.13	NA
Acrylonitrile	NA	< 0.13	< 0.13	NA	< 0.12	NA	< 0.13	NA
Allyl chloride	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Benzene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
Bromodichloromethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Bromoform	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Bromomethane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Carbon Disulfide	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Carbon Tetrachloride	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Chlorobenzene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Chloroethane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Chloroform	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Chloromethane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Chloroprene	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
cis-1,3-Dichloropropene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Dibromochloromethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Dibromomethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Dichlorodifluoromethane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Dichloromethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Ethyl methacrylate	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Ethylbenzene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Iodomethane	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Isobutyl alcohol	NA	< 0.26	< 0.26	NA	< 0.23	NA	< 0.26	NA
Methacrylonitrile	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Methyl methacrylate	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Propionitrile	NA	< 0.026	< 0.026	NA	< 0.023	NA	< 0.026	NA
Styrene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Tetrachloroethene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Toluene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
trans-1,2-Dichloroethene	NA	< 0.0032	< 0.0033	NA	< 0.0029	NA	< 0.0032	NA
trans-1,3-Dichloropropene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
trans-1,4-Dichloro-2-butene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Trichloroethylene	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Trichlorofluoromethane	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Vinyl acetate	NA	< 0.013	< 0.013	NA	< 0.012	NA	< 0.013	NA
Vinyl Chloride	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA
Xylenes (total)	NA	< 0.0064	< 0.0065	NA	< 0.0058	NA	< 0.0064	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
SVOCs[f]								
1,2,4,5-Tetrachlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,2,4-Trichlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,2-Dichlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,3,5-Trinitrobenzene	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
1,3-Dichlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,3-Dinitrobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,4-Dichlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
1,4-Naphthoquinone	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
1-Naphthylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,3,4,6-Tetrachlorophenol	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
2,4,5-Trichlorophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,4,6-Trichlorophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,4-Dichlorophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,4-Dimethylphenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,4-Dinitrophenol	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
2,4-Dinitrotoluene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,6-Dichlorophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2,6-Dinitrotoluene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Acetylaminofluorene	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
2-Chloronaphthalene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Chlorophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Methylnaphthalene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Methylphenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Naphthylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Nitroaniline	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
2-Nitrophenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
2-Picoline	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
2-sec-Butyl-4,6-dinitrophenol	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
3,3'-Dichlorobenzidine	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
3,3'-Dimethylbenzidine	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
3-Methylcholanthrene	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
3-Nitroaniline	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
4,6-Dinitro-2-methylphenol	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
4-Aminobiphenyl	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
4-Bromophenyl phenyl ether	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
4-Chloro-3-methylphenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
4-Chloroaniline	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
4-Chlorophenyl phenyl ether	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
4-Methylphenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
4-Nitroaniline	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
4-Nitrophenol	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
4-Nitroquinoline-1-oxide	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
5-Nitro-o-toluidine	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
7,12-Dimethylbenz(a)anthracene	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
a,a-Dimethylphenethylamine	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Acenaphthene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Acenaphthylene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Acetophenone	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Aniline	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Anthracene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Aramite	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Benzo(a)anthracene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Benzo(a)pyrene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Benzo(b)fluoranthene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Benzo(ghi)perylene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Benzo(k)fluoranthene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Benzyl alcohol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
bis(2-Chloro-1-methylethyl) ether	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
bis(2-Chloroethoxy)methane	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
bis(2-Chloroethyl) ether	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
bis(2-Ethylhexyl) phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Butyl benzyl phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Chlorobenzilate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Chrysene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Diallate	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Dibenz(a,h)anthracene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Dibenzofuran	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
Diethyl phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Dimethoate	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Dimethyl phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Di-n-butyl phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Di-n-octyl phthalate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Diphenylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Disulfoton	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Ethyl methanesulfonate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Famphur	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
Fluoranthene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Fluorene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Hexachlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Hexachlorobutadiene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Hexachlorocyclopentadiene	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Hexachloroethane	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Hexachlorophene	< 2	NA	NA	<	NA	< 2	NA	<.
Hexachloropropene	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
Indeno(1,2,3-cd)pyrene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Isodrin	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Isophorone	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Isosafrole	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Kepone	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
Methapyrilene	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Methyl methanesulfonate	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Methyl parathion	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Naphthalene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Nitrobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosodiethylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosodimethylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosodi-n-butylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosodi-n-propylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosodiphenylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosomethylethylamine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosomorpholine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	S3-HA04-0.0-0.5 0-0.5	S3-HA04-0.0-0.5R 0-0.5	S3-HA04-0.0-0.5RD 0-0.5	S3-HA04-0.5-2.0 0.5-2.0	S3-HA04-0.5-2.0R 0.5-2.0	S3-HA05-0.0-0.5 0-0.5	S3-HA05-0.0-0.5R 0-0.5	S3-HA05-0.5-2.0 0.5-2.0
N-Nitrosopiperidine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
N-Nitrosopyrrolidine	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
O,O,O-Triethyl phosphorothioate	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
o-Toluidine	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Parathion	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
p-Dimethylaminoazobenzene	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Pentachlorobenzene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Pentachloroethane	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Pentachloronitrobenzene	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Pentachlorophenol	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Phenacetin	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Phenanthrene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Phenol	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Phorate	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
p-Phenylene diamine	< 4.2	NA	NA	< 4	NA	< 4.2	NA	< 4.3
Pronamide	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Pyrene	< 0.42	NA	NA	< 0.4	NA	< 0.42	NA	< 0.43
Pyridine	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Safrole	< 0.83	NA	NA	< 0.81	NA	< 0.85	NA	< 0.86
Tetraethyldithiopyrophosphate	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1
Thionazin	< 2	NA	NA	< 2	NA	< 2	NA	< 2.1

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
Inorganics (mg/kg)[b]						
Fluoride	NA	1.2	< 0.66	NA	< 0.67	NA
Cyanide Dissociable	NA	< 3.4	< 3.3	NA	< 3.4	NA
Cyanide, Total	NA	< 3.4	< 3.3	NA	< 3.4	NA
Arsenic	NA	28.5	24.2	NA	36.3	NA
Barium	NA	75.8	102	NA	37.5	NA
Cadmium	NA	< 0.27	< 0.26	NA	< 0.27	NA
Chromium	NA	63.2	58.9	NA	96.4	NA
Lead	NA	12	14.7	NA	12.3	NA
Selenium	NA	1.9	< 0.66	NA	< 0.67	NA
Mercury	NA	< 0.14	< 0.13	NA	< 0.13	NA
VOCs[e]						
1,1,1,2-Tetrachloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,1,1-Trichloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,1,2,2-Tetrachloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,1,2-Trichloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,1-Dichloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,1-Dichloroethene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,2,3-Trichloropropane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,2-Dibromo-3-chloropropane	< 0.013	NA	NA	< 0.014	NA	< 0.013
1,2-Dibromoethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,2-Dichloroethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,2-Dichloropropane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
1,4-Dioxane	< 0.65	NA	NA	< 0.68	NA	< 0.67
2-Butanone	< 0.026	NA	NA	< 0.027	NA	< 0.027
2-Hexanone	< 0.026	NA	NA	< 0.027	NA	< 0.027
4-Methyl-2-pentanone (MIBK)	< 0.026	NA	NA	< 0.027	NA	< 0.027
Acetone	0.054	NA	NA	0.12	NA	0.049
Acetonitrile	< 0.13	NA	NA	< 0.14	NA	< 0.13
Acrolein	< 0.13	NA	NA	< 0.14	NA	< 0.13
Acrylonitrile	< 0.13	NA	NA	< 0.14	NA	< 0.13
Allyl chloride	< 0.013	NA	NA	< 0.014	NA	< 0.013
Benzene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
Bromodichloromethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Bromoform	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Bromomethane	< 0.013	NA	NA	< 0.014	NA	< 0.013
Carbon Disulfide	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Carbon Tetrachloride	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Chlorobenzene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Chloroethane	< 0.013	NA	NA	< 0.014	NA	< 0.013
Chloroform	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Chloromethane	< 0.013	NA	NA	< 0.014	NA	< 0.013
Chloroprene	< 0.013	NA	NA	< 0.014	NA	< 0.013
cis-1,3-Dichloropropene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Dibromochloromethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Dibromomethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Dichlorodifluoromethane	< 0.013	NA	NA	< 0.014	NA	< 0.013
Dichloromethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Ethyl methacrylate	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Ethylbenzene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Iodomethane	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Isobutyl alcohol	< 0.26	NA	NA	< 0.27	NA	< 0.27
Methacrylonitrile	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Methyl methacrylate	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Propionitrile	< 0.026	NA	NA	< 0.027	NA	< 0.027
Styrene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Tetrachloroethene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Toluene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
trans-1,2-Dichloroethene	< 0.0033	NA	NA	< 0.0034	NA	< 0.0033
trans-1,3-Dichloropropene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
trans-1,4-Dichloro-2-butene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Trichloroethylene	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Trichlorofluoromethane	< 0.013	NA	NA	< 0.014	NA	< 0.013
Vinyl acetate	< 0.013	NA	NA	< 0.014	NA	< 0.013
Vinyl Chloride	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067
Xylenes (total)	< 0.0065	NA	NA	< 0.0068	NA	< 0.0067

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
SVOCs[f]						
1,2,4,5-Tetrachlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,2,4-Trichlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,2-Dichlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,3,5-Trinitrobenzene	NA	< 2.2	< 2.1	NA	< 2.1	NA
1,3-Dichlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,3-Dinitrobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,4-Dichlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
1,4-Naphthoquinone	NA	< 2.2	< 2.1	NA	< 2.1	NA
1-Naphthylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,3,4,6-Tetrachlorophenol	NA	< 2.2	< 2.1	NA	< 2.1	NA
2,4,5-Trichlorophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,4,6-Trichlorophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,4-Dichlorophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,4-Dimethylphenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,4-Dinitrophenol	NA	< 2.2	< 2.1	NA	< 2.1	NA
2,4-Dinitrotoluene	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,6-Dichlorophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2,6-Dinitrotoluene	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Acetylaminofluorene	NA	< 4.5	< 4.4	NA	< 4.4	NA
2-Chloronaphthalene	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Chlorophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Methylnaphthalene	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Methylphenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Naphthylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Nitroaniline	NA	< 2.2	< 2.1	NA	< 2.1	NA
2-Nitrophenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
2-Picoline	NA	< 0.9	< 0.87	NA	< 0.89	NA
2-sec-Butyl-4,6-dinitrophenol	NA	< 0.9	< 0.87	NA	< 0.89	NA
3,3'-Dichlorobenzidine	NA	< 2.2	< 2.1	NA	< 2.1	NA
3,3'-Dimethylbenzidine	NA	< 2.2	< 2.1	NA	< 2.1	NA
3-Methylcholanthrene	NA	< 0.9	< 0.87	NA	< 0.89	NA
3-Nitroaniline	NA	< 2.2	< 2.1	NA	< 2.1	NA
4,6-Dinitro-2-methylphenol	NA	< 2.2	< 2.1	NA	< 2.1	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
4-Aminobiphenyl	NA	< 2.2	< 2.1	NA	< 2.1	NA
4-Bromophenyl phenyl ether	NA	< 0.45	< 0.44	NA	< 0.44	NA
4-Chloro-3-methylphenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
4-Chloroaniline	NA	< 0.45	< 0.44	NA	< 0.44	NA
4-Chlorophenyl phenyl ether	NA	< 0.45	< 0.44	NA	< 0.44	NA
4-Methylphenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
4-Nitroaniline	NA	< 2.2	< 2.1	NA	< 2.1	NA
4-Nitrophenol	NA	< 2.2	< 2.1	NA	< 2.1	NA
4-Nitroquinoline-1-oxide	NA	< 4.5	< 4.4	NA	< 4.4	NA
5-Nitro-o-toluidine	NA	< 0.9	< 0.87	NA	< 0.89	NA
7,12-Dimethylbenz(a)anthracene	NA	< 0.9	< 0.87	NA	< 0.89	NA
a,a-Dimethylphenethylamine	NA	< 2.2	< 2.1	NA	< 2.1	NA
Acenaphthene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Acenaphthylene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Acetophenone	NA	< 0.45	< 0.44	NA	< 0.44	NA
Aniline	NA	< 0.45	< 0.44	NA	< 0.44	NA
Anthracene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Aramite	NA	< 0.9	< 0.87	NA	< 0.89	NA
Benzo(a)anthracene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Benzo(a)pyrene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Benzo(b)fluoranthene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Benzo(ghi)perylene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Benzo(k)fluoranthene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Benzyl alcohol	NA	< 0.45	< 0.44	NA	< 0.44	NA
bis(2-Chloro-1-methylethyl) ether	NA	< 0.45	< 0.44	NA	< 0.44	NA
bis(2-Chloroethoxy)methane	NA	< 0.45	< 0.44	NA	< 0.44	NA
bis(2-Chloroethyl) ether	NA	< 0.45	< 0.44	NA	< 0.44	NA
bis(2-Ethylhexyl) phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Butyl benzyl phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Chlorobenzilate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Chrysene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Diallate	NA	< 0.9	< 0.87	NA	< 0.89	NA
Dibenz(a,h)anthracene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Dibenzofuran	NA	< 0.45	< 0.44	NA	< 0.44	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Sample Depth (ft-bgs)[a] / Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
Diethyl phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Dimethoate	NA	< 0.9	< 0.87	NA	< 0.89	NA
Dimethyl phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Di-n-butyl phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Di-n-octyl phthalate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Diphenylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
Disulfoton	NA	< 2.2	< 2.1	NA	< 2.1	NA
Ethyl methanesulfonate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Famphur	NA	< 4.5	< 4.4	NA	< 4.4	NA
Fluoranthene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Fluorene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Hexachlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Hexachlorobutadiene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Hexachlorocyclopentadiene	NA	< 2.2	< 2.1	NA	< 2.1	NA
Hexachloroethane	NA	< 0.45	< 0.44	NA	< 0.44	NA
Hexachlorophene	NA	< 2.2	<	NA	<	NA
Hexachloropropene	NA	< 4.5	< 4.4	NA	< 4.4	NA
Indeno(1,2,3-cd)pyrene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Isodrin	NA	< 0.45	< 0.44	NA	< 0.44	NA
Isophorone	NA	< 0.45	< 0.44	NA	< 0.44	NA
Isosafrole	NA	< 0.9	< 0.87	NA	< 0.89	NA
Kepone	NA	< 4.5	< 4.4	NA	< 4.4	NA
Methapyrilene	NA	< 2.2	< 2.1	NA	< 2.1	NA
Methyl methanesulfonate	NA	< 0.45	< 0.44	NA	< 0.44	NA
Methyl parathion	NA	< 2.2	< 2.1	NA	< 2.1	NA
Naphthalene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Nitrobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosodiethylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosodimethylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosodi-n-butylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosodi-n-propylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosodiphenylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosomethylethylamine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosomorpholine	NA	< 0.45	< 0.44	NA	< 0.44	NA

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Table 4-74

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Soil Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation Sample Depth (ft-bgs)[a] Parameter	S3-HA05-0.5-2.0R 0.5-2.0	S3-HA06-0.0-0.5 0-0.5	S3-HA06-0.0-0.5D 0-0.5	S3-HA06-0.0-0.5R 0-0.5	S3-HA06-0.5-2.0 0.5-2.0	S3-HA06-0.5-2.0R 0.5-2.0
N-Nitrosopiperidine	NA	< 0.45	< 0.44	NA	< 0.44	NA
N-Nitrosopyrrolidine	NA	< 0.45	< 0.44	NA	< 0.44	NA
O,O,O-Triethyl phosphorothioate	NA	< 2.2	< 2.1	NA	< 2.1	NA
o-Toluidine	NA	< 0.9	< 0.87	NA	< 0.89	NA
Parathion	NA	< 2.2	< 2.1	NA	< 2.1	NA
p-Dimethylaminoazobenzene	NA	< 0.9	< 0.87	NA	< 0.89	NA
Pentachlorobenzene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Pentachloroethane	NA	< 2.2	< 2.1	NA	< 2.1	NA
Pentachloronitrobenzene	NA	< 2.2	< 2.1	NA	< 2.1	NA
Pentachlorophenol	NA	< 2.2	< 2.1	NA	< 2.1	NA
Phenacetin	NA	< 0.9	< 0.87	NA	< 0.89	NA
Phenanthrene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Phenol	NA	< 0.45	< 0.44	NA	< 0.44	NA
Phorate	NA	< 2.2	< 2.1	NA	< 2.1	NA
p-Phenylene diamine	NA	< 4.5	< 4.4	NA	< 4.4	NA
Pronamide	NA	< 0.9	< 0.87	NA	< 0.89	NA
Pyrene	NA	< 0.45	< 0.44	NA	< 0.44	NA
Pyridine	NA	< 0.9	< 0.87	NA	< 0.89	NA
Safrole	NA	< 0.9	< 0.87	NA	< 0.89	NA
Tetraethyldithiopyrophosphate	NA	< 2.2	< 2.1	NA	< 2.1	NA
Thionazin	NA	< 2.2	< 2.1	NA	< 2.1	NA

Notes:

(a) ft-bgs = feet below ground surface

(b) mg/kg = milligrams per kilogram

(c) NA = Not analyzed

(d) < = Not detected at indicated detection limit

(e) VOCs = Volatile Organic Compounds

(f) SVOCs = Semi-Volatile Organic Compounds

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
Miscellaneous (mg/l)[a]				
Total Suspended Solids	< 4[b]	NA[c]	< 4	NA
Inorganics (mg/l)				
Cyanide, Total	< 0.01	< 0.01	1.1	0.2
Cyanide, Microdiffusion	< 0.005 J[d]	< 0.005	0.0054 J	0.573
Cyanide, Weak Acid Dissociable	< 0.01	< 0.01	0.12	0.58
Fluoride	< 0.1	NA	< 0.1	NA
Arsenic, Dissolved	< 0.005	NA	0.011	NA
Arsenic, Total	< 0.01	NA	0.013	NA
Barium, Dissolved	0.38	NA	0.4	NA
Barium, Total	< 0.2	NA	< 0.2	NA
Cadmium, Dissolved	< 0.002	NA	< 0.002	NA
Cadmium, Total	< 0.002	NA	< 0.002	NA
Chromium, Dissolved	< 0.005	NA	< 0.005	NA
Chromium, Total	< 0.005	NA	< 0.005	NA
Lead, Dissolved	< 0.003	NA	< 0.003	NA
Lead, Total	< 0.003	NA	< 0.003	NA
Selenium, Dissolved	< 0.005	NA	< 0.005	NA
Selenium, Total	< 0.005	NA	< 0.005	NA
VOCs[e]				
1,1,1,2-Tetrachloroethane	< 0.005	NA	< 0.005	NA
1,1,1-Trichloroethane	< 0.005	NA	< 0.005	NA
1,1,2,2-Tetrachloroethane	< 0.005	NA	< 0.005	NA
1,1,2-Trichloroethane	< 0.005	NA	< 0.005	NA
1,1-Dichloroethane	< 0.005	NA	< 0.005	NA
1,1-Dichloroethene	< 0.005	NA	< 0.005	NA
1,2,3-Trichloropropane	< 0.005	NA	< 0.005	NA
1,2-Dibromo-3-chloropropane	< 0.01	NA	< 0.01	NA
1,2-Dibromoethane	< 0.005	NA	< 0.005	NA
1,2-Dichloroethane	< 0.005	NA	< 0.005	NA
1,2-Dichloropropane	< 0.005	NA	< 0.005	NA
1,4-Dioxane	< 0.5	NA	< 0.5	NA
2-Butanone	< 0.02	NA	< 0.02	NA
2-Hexanone	< 0.02	NA	< 0.02	NA
4-Methyl-2-Pentanone	< 0.02	NA	< 0.02	NA
Acetone	< 0.02	NA	< 0.02	NA
Acetonitrile	< 0.1	NA	< 0.1	NA

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
Acrolein	< 0.1	NA	< 0.1	NA
Acrylonitrile	< 0.1	NA	< 0.1	NA
Allyl chloride	< 0.01	NA	< 0.01	NA
Benzene	< 0.005	NA	< 0.005	NA
Bromodichloromethane	< 0.005	NA	< 0.005	NA
Bromoform	< 0.005	NA	< 0.005	NA
Bromomethane	< 0.01	NA	< 0.01	NA
Carbon Disulfide	< 0.005	NA	< 0.005	NA
Carbon Tetrachloride	< 0.005	NA	< 0.005	NA
Chlorobenzene	< 0.005	NA	< 0.005	NA
Chloroethane	< 0.01	NA	< 0.01	NA
Chloroform	< 0.005	NA	< 0.005	NA
Chloromethane	< 0.01	NA	< 0.01	NA
Chloroprene	< 0.005	NA	< 0.005	NA
cis-1,2-Dichloroethene	< 0.0025	NA	< 0.0025	NA
Cis-1,3-Dichloropropene	< 0.005	NA	< 0.005	NA
Dibromochloromethane	< 0.005	NA	< 0.005	NA
Dibromomethane	< 0.005	NA	< 0.005	NA
Dichlorodifluoromethane	< 0.01	NA	< 0.01	NA
Dichloromethane	< 0.005	NA	< 0.005	NA
Ethyl methacrylate	< 0.005	NA	< 0.005	NA
Ethylbenzene	< 0.005	NA	< 0.005	NA
Iodomethane	< 0.005	NA	< 0.005	NA
Isobutyl alcohol	< 0.2	NA	< 0.2	NA
Methacrylonitrile	< 0.005	NA	< 0.005	NA
Methyl methacrylate	< 0.005	NA	< 0.005	NA
Propionitrile	< 0.02	NA	< 0.02	NA
Styrene	< 0.005	NA	< 0.005	NA
Tetrachloroethene	< 0.005	NA	< 0.005	NA
Toluene	< 0.005	NA	< 0.005	NA
Trans-1,2-Dichloroethene	< 0.0025	NA	< 0.0025	NA
Trans-1,3-Dichloropropene	< 0.005	NA	< 0.005	NA
trans-1,4-Dichloro-2-butene	< 0.005	NA	< 0.005	NA
Trichloroethylene	< 0.005	NA	< 0.005	NA
Trichlorofluoromethane	< 0.01	NA	< 0.01	NA
Vinyl Acetate	< 0.01	NA	< 0.01	NA
Vinyl Chloride	< 0.01	NA	< 0.01	NA
Xylene (Total)	< 0.005	NA	< 0.005	NA

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
SVOCs[(f)]				
1,2,4,5-Tetrachlorobenzene	< 0.01	NA	< 0.01	NA
1,2,4-Trichlorobenzene	< 0.01	NA	< 0.01	NA
1,2-Dichlorobenzene	< 0.01	NA	< 0.01	NA
1,3,5-Trinitrobenzene	< 0.05	NA	< 0.05	NA
1,3-Dinitrobenzene	< 0.01	NA	< 0.01	NA
1,4-Dichlorobenzene	< 0.01	NA	< 0.01	NA
1,4-Naphthoquinone	< 0.05	NA	< 0.05	NA
1-Naphthylamine	< 0.01	NA	< 0.01	NA
2,3,4,6-Tetrachlorophenol	< 0.05	NA	< 0.05	NA
2,4,5-Trichlorophenol	< 0.01	NA	< 0.01	NA
2,4,6-Trichlorophenol	< 0.01	NA	< 0.01	NA
2,4-Dichlorophenol	< 0.01	NA	< 0.01	NA
2,4-Dimethylphenol	< 0.01	NA	< 0.01	NA
2,4-Dinitrophenol	< 0.05	NA	< 0.05	NA
2,4-Dinitrotoluene	< 0.01	NA	< 0.01	NA
2,6-Dichlorophenol	< 0.01	NA	< 0.01	NA
2,6-Dinitrotoluene	< 0.01	NA	< 0.01	NA
2-Acetylaminofluorene	< 0.1	NA	< 0.1	NA
2-Chloronaphthalene	< 0.01	NA	< 0.01	NA
2-Chlorophenol	< 0.01	NA	< 0.01	NA
2-Methyl-4,6-Dinitrophenol	< 0.05	NA	< 0.05	NA
2-Methylnaphthalene	< 0.01	NA	< 0.01	NA
2-Methylphenol (O-Cresol)	< 0.01	NA	< 0.01	NA
2-Naphthylamine	< 0.01	NA	< 0.01	NA
2-Nitroaniline	< 0.05	NA	< 0.05	NA
2-Nitrophenol	< 0.01	NA	< 0.01	NA
2-Picoline	< 0.02	NA	< 0.02	NA
3,3'-Dichlorobenzidine	< 0.05	NA	< 0.05	NA
3,3'-Dimethylbenzidine	< 0.05	NA	< 0.05	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	NA	< 0.01	NA
3-Methylcholanthrene	< 0.02	NA	< 0.02	NA
3-Methylphenol & 4-Methylphenol	< 0.02	NA	< 0.02	NA
3-Methylphenol/4-Methylphenol	< 0.01	NA	< 0.01	NA
3-Nitroaniline	< 0.05	NA	< 0.05	NA
4-Aminobiphenyl	< 0.05	NA	< 0.05	NA
4-Bromophenyl Phenyl Ether	< 0.01	NA	< 0.01	NA
4-Chloro-3-Methylphenol	< 0.01	NA	< 0.01	NA

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
4-Chloroaniline	< 0.01	NA	< 0.01	NA
4-Chlorophenyl Phenyl Ether	< 0.01	NA	< 0.01	NA
4-Nitrophenol	< 0.05	NA	< 0.05	NA
4-Nitroquinoline-1-oxide	< 0.1	NA	< 0.1	NA
5-Nitro-o-toluidine	< 0.02	NA	< 0.02	NA
7,12-Dimethylbenz(a)anthracene	< 0.02	NA	< 0.02	NA
a,a-Dimethylphenethylamine	< 0.05	NA	< 0.05	NA
Acenaphthene	< 0.01	NA	< 0.01	NA
Acenaphthylene	< 0.01	NA	< 0.01	NA
Acetophenone	< 0.01	NA	< 0.01	NA
Aniline	< 0.01	NA	< 0.01	NA
Anthracene	< 0.01	NA	< 0.01	NA
Aramite	< 0.02	NA	< 0.02	NA
Benz(B)Fluoranthene	< 0.01	NA	< 0.01	NA
Benzo(a)Anthracene	< 0.01	NA	< 0.01	NA
Benzo(a)Pyrene	< 0.01	NA	< 0.01	NA
Benzo(g,h,i)Perylene	< 0.01	NA	< 0.01	NA
Benzo(k)Fluoranthene	< 0.01	NA	< 0.01	NA
Benzyl Alcohol	< 0.01	NA	< 0.01	NA
Benzyl Butyl Phthalate	< 0.01	NA	< 0.01	NA
Bis(2-Chloroethoxy)Methane	< 0.01	NA	< 0.01	NA
Bis(2-Chloroethyl)Ether	< 0.01	NA	< 0.01	NA
Bis(2-Chloroisopropyl)Ether	< 0.01	NA	< 0.01	NA
Bis(2-Ethylhexyl)Phthalate	< 0.01	NA	< 0.01	NA
Chrysene	< 0.01	NA	< 0.01	NA
Dibenzo(a,h)Anthracene	< 0.01	NA	< 0.01	NA
Dibenzofuran	< 0.01	NA	< 0.01	NA
Diethyl Phthalate	< 0.01	NA	< 0.01	NA
Dimethoate	< 0.02	NA	< 0.02	NA
Dimethyl Phthalate	< 0.01	NA	< 0.01	NA
Di-n-Butyl Phthalate	< 0.01	NA	< 0.01	NA
Di-n-Octylphthalate	< 0.01	NA	< 0.01	NA
Dinoseb	< 0.02	NA	< 0.02	NA
Disulfoton	< 0.05	NA	< 0.05	NA
Ethyl methanesulfonate	< 0.01	NA	< 0.01	NA
Famphur	< 0.1	NA	< 0.1	NA
Fluoranthene	< 0.01	NA	< 0.01	NA
Fluorene	< 0.01	NA	< 0.01	NA

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
Hexachlorobenzene	< 0.01	NA	< 0.01	NA
Hexachlorobutadiene	< 0.01	NA	< 0.01	NA
Hexachlorocyclopentadiene	< 0.05	NA	< 0.05	NA
Hexachloroethane	< 0.01	NA	< 0.01	NA
Hexachlorophene	<	NA	<	NA
Hexachloropropene	< 0.1	NA	< 0.1	NA
Indeno(1,2,3-CD)Pyrene	< 0.01	NA	< 0.01	NA
Isosafrole	< 0.02	NA	< 0.02	NA
M-Dichlorobenzene	< 0.01	NA	< 0.01	NA
Methapyrilene	< 0.05	NA	< 0.05	NA
Methyl methanesulfonate	< 0.01	NA	< 0.01	NA
Methyl parathion	< 0.05	NA	< 0.05	NA
Naphthalene	< 0.01	NA	< 0.01	NA
Nitrobenzene	< 0.01	NA	< 0.01	NA
N-Nitrosodiethylamine	< 0.01	NA	< 0.01	NA
N-Nitrosodimethylamine	< 0.01	NA	< 0.01	NA
N-Nitrosodi-n-butylamine	< 0.01	NA	< 0.01	NA
N-Nitroso-Di-N-Propylamine	< 0.01	NA	< 0.01	NA
N-Nitrosodiphenylamine	< 0.01	NA	< 0.01	NA
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	NA	< 0.01	NA
N-Nitrosomethylethylamine	< 0.01	NA	< 0.01	NA
N-Nitrosomorpholine	< 0.01	NA	< 0.01	NA
N-Nitrosopiperidine	< 0.01	NA	< 0.01	NA
N-Nitrosopyrrolidine	< 0.01	NA	< 0.01	NA
O,O,O-Triethyl phosphorothioate	< 0.05	NA	< 0.05	NA
o-Toluidine	< 0.02	NA	< 0.02	NA
Parathion	< 0.05	NA	< 0.05	NA
p-Dimethylaminoazobenzene	< 0.02	NA	< 0.02	NA
Pentachlorobenzene	< 0.01	NA	< 0.01	NA
Pentachloroethane	< 0.05	NA	< 0.05	NA
Pentachloronitrobenzene	< 0.05	NA	< 0.05	NA
Pentachlorophenol	< 0.05	NA	< 0.05	NA
Phenacetin	< 0.02	NA	< 0.02	NA
Phenanthrene	< 0.01	NA	< 0.01	NA
Phenol	< 0.01	NA	< 0.01	NA
Phorate	< 0.05	NA	< 0.05	NA
P-Nitroaniline	< 0.05	NA	< 0.05	NA
p-Phenylene diamine	< 0.1	NA	< 0.1	NA

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-1-2689	OBL-MW-1-0070R	OBL-MW-2-2689	OBL-MW-2-0070R
Pronamide	< 0.02	NA	< 0.02	NA
Pyrene	< 0.01	NA	< 0.01	NA
Pyridine	< 0.02	NA	< 0.02	NA
Safrole	< 0.02	NA	< 0.02	NA
Tetraethyldithiopyrophosphate	< 0.05	NA	< 0.05	NA
Thionazin	< 0.05	NA	< 0.05	NA

Notes:

(a) mg/l = milligrams per liter.

(b) < = not detected at indicated detection limit

(c) NA = Not analyzed

(d) J = Estimated value

(e) VOCs = Volatile Organic Compounds

(f) SVOCs - Semi-Volatile Organic Compounds

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
Miscellaneous (mg/l)[a]				
Total Suspended Solids	< 4	< 4	NA	< 4
Inorganics (mg/l)				
Cyanide, Total	0.26	0.17	0.17	0.38
Cyanide, Microdiffusion	0.151 J	0.143 J	0.099	0.022 J
Cyanide, Weak Acid Dissociable	0.03 J	< 0.1	0.11	0.034
Fluoride	< 0.1	< 0.1	NA	0.93
Arsenic, Dissolved	< 0.005	< 0.005	NA	< 0.005
Arsenic, Total	< 0.01	< 0.01	NA	< 0.01
Barium, Dissolved	< 0.2	< 0.2	NA	0.27
Barium, Total	< 0.2	< 0.2	NA	< 0.2
Cadmium, Dissolved	< 0.002	< 0.002	NA	< 0.002
Cadmium, Total	< 0.002	< 0.002	NA	< 0.002
Chromium, Dissolved	< 0.005	< 0.005	NA	0.019
Chromium, Total	< 0.005	< 0.005	NA	0.019
Lead, Dissolved	< 0.003	< 0.003	NA	< 0.003
Lead, Total	< 0.003	< 0.003	NA	< 0.003
Selenium, Dissolved	< 0.005	< 0.005	NA	< 0.005
Selenium, Total	< 0.005	< 0.005	NA	< 0.005
VOCs[c]				
1,1,1,2-Tetrachloroethane	< 0.005	< 0.005	NA	< 0.005
1,1,1-Trichloroethane	< 0.005	< 0.005	NA	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.005	NA	< 0.005
1,1,2-Trichloroethane	< 0.005	< 0.005	NA	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	NA	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	NA	< 0.005
1,2,3-Trichloropropane	< 0.005	< 0.005	NA	< 0.005
1,2-Dibromo-3-chloropropane	< 0.01	< 0.01	NA	< 0.01
1,2-Dibromoethane	< 0.005	< 0.005	NA	< 0.005
1,2-Dichloroethane	< 0.005	< 0.005	NA	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005	NA	< 0.005
1,4-Dioxane	< 0.5	< 0.5	NA	< 0.5
2-Butanone	< 0.02	< 0.02	NA	< 0.02
2-Hexanone	< 0.02	< 0.02	NA	< 0.02
4-Methyl-2-Pentanone	< 0.02	< 0.02	NA	< 0.02
Acetone	< 0.02	< 0.02	NA	< 0.02
Acetonitrile	< 0.1	< 0.1	NA	< 0.1

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
Acrolein	< 0.1	< 0.1	NA	< 0.1
Acrylonitrile	< 0.1	< 0.1	NA	< 0.1
Allyl chloride	< 0.01	< 0.01	NA	< 0.01
Benzene	< 0.005	< 0.005	NA	< 0.005
Bromodichloromethane	< 0.005	< 0.005	NA	< 0.005
Bromoform	< 0.005	< 0.005	NA	< 0.005
Bromomethane	< 0.01	< 0.01	NA	< 0.01
Carbon Disulfide	< 0.005	< 0.005	NA	< 0.005
Carbon Tetrachloride	< 0.005	< 0.005	NA	< 0.005
Chlorobenzene	< 0.005	< 0.005	NA	< 0.005
Chloroethane	< 0.01	< 0.01	NA	< 0.01
Chloroform	< 0.005	< 0.005	NA	< 0.005
Chloromethane	< 0.01	< 0.01	NA	< 0.01
Chloroprene	< 0.005	< 0.005	NA	< 0.005
cis-1,2-Dichloroethene	< 0.0025	< 0.0025	NA	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	< 0.005	NA	< 0.005
Dibromochloromethane	< 0.005	< 0.005	NA	< 0.005
Dibromomethane	< 0.005	< 0.005	NA	< 0.005
Dichlorodifluoromethane	< 0.01	< 0.01	NA	< 0.01
Dichloromethane	< 0.005	< 0.005	NA	< 0.005
Ethyl methacrylate	< 0.005	< 0.005	NA	< 0.005
Ethylbenzene	< 0.005	< 0.005	NA	< 0.005
Iodomethane	< 0.005	< 0.005	NA	< 0.005
Isobutyl alcohol	< 0.2	< 0.2	NA	< 0.2
Methacrylonitrile	< 0.005	< 0.005	NA	< 0.005
Methyl methacrylate	< 0.005	< 0.005	NA	< 0.005
Propionitrile	< 0.02	< 0.02	NA	< 0.02
Styrene	< 0.005	< 0.005	NA	< 0.005
Tetrachloroethene	< 0.005	< 0.005	NA	< 0.005
Toluene	< 0.005	< 0.005	NA	< 0.005
Trans-1,2-Dichloroethene	< 0.0025	< 0.0025	NA	< 0.0025
Trans-1,3-Dichloropropene	< 0.005	< 0.005	NA	< 0.005
trans-1,4-Dichloro-2-butene	< 0.005	< 0.005	NA	< 0.005
Trichloroethylene	< 0.005	< 0.005	NA	< 0.005
Trichlorofluoromethane	< 0.01	< 0.01	NA	< 0.01
Vinyl Acetate	< 0.01	< 0.01	NA	< 0.01
Vinyl Chloride	< 0.01	< 0.01	NA	< 0.01
Xylene (Total)	< 0.005	< 0.005	NA	< 0.005

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SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
SVOCs[6]				
1,2,4,5-Tetrachlorobenzene	< 0.01	< 0.01	NA	< 0.01
1,2,4-Trichlorobenzene	< 0.01	< 0.01	NA	< 0.01
1,2-Dichlorobenzene	< 0.01	< 0.01	NA	< 0.01
1,3,5-Trinitrobenzene	< 0.05	< 0.05	NA	< 0.05
1,3-Dinitrobenzene	< 0.01	< 0.01	NA	< 0.01
1,4-Dichlorobenzene	< 0.01	< 0.01	NA	< 0.01
1,4-Naphthoquinone	< 0.05	< 0.05	NA	< 0.05
1-Naphthylamine	< 0.01	< 0.01	NA	< 0.01
2,3,4,6-Tetrachlorophenol	< 0.05	< 0.05	NA	< 0.05
2,4,5-Trichlorophenol	< 0.01	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol	< 0.01	< 0.01	NA	< 0.01
2,4-Dichlorophenol	< 0.01	< 0.01	NA	< 0.01
2,4-Dimethylphenol	< 0.01	< 0.01	NA	< 0.01
2,4-Dinitrophenol	< 0.05	< 0.05	NA	< 0.05
2,4-Dinitrotoluene	< 0.01	< 0.01	NA	< 0.01
2,6-Dichlorophenol	< 0.01	< 0.01	NA	< 0.01
2,6-Dinitrotoluene	< 0.01	< 0.01	NA	< 0.01
2-Acetylaminofluorene	< 0.1	< 0.1	NA	< 0.1
2-Chloronaphthalene	< 0.01	< 0.01	NA	< 0.01
2-Chlorophenol	< 0.01	< 0.01	NA	< 0.01
2-Methyl-4,6-Dinitrophenol	< 0.05	< 0.05	NA	< 0.05
2-Methylnaphthalene	< 0.01	< 0.01	NA	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	< 0.01	NA	< 0.01
2-Naphthylamine	< 0.01	< 0.01	NA	< 0.01
2-Nitroaniline	< 0.05	< 0.05	NA	< 0.05
2-Nitrophenol	< 0.01	< 0.01	NA	< 0.01
2-Picoline	< 0.02	< 0.02	NA	< 0.02
3,3'-Dichlorobenzidine	< 0.05	< 0.05	NA	< 0.05
3,3'-Dimethylbenzidine	< 0.05	< 0.05	NA	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 0.01	NA	< 0.01
3-Methylcholanthrene	< 0.02	< 0.02	NA	< 0.02
3-Methylphenol & 4-Methylphenol	< 0.02	< 0.02	NA	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	< 0.01	NA	< 0.01
3-Nitroaniline	< 0.05	< 0.05	NA	< 0.05
4-Aminobiphenyl	< 0.05	< 0.05	NA	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	< 0.01	NA	< 0.01
4-Chloro-3-Methylphenol	< 0.01	< 0.01	NA	< 0.01

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
4-Chloroaniline	< 0.01	< 0.01	NA	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	< 0.01	NA	< 0.01
4-Nitrophenol	< 0.05	< 0.05	NA	< 0.05
4-Nitroquinoline-1-oxide	< 0.1	< 0.1	NA	< 0.1
5-Nitro-o-toluidine	< 0.02	< 0.02	NA	< 0.02
7,12-Dimethylbenz(a)anthracene	< 0.02	< 0.02	NA	< 0.02
a,a-Dimethylphenethylamine	< 0.05	< 0.05	NA	< 0.05
Acenaphthene	< 0.01	< 0.01	NA	< 0.01
Acenaphthylene	< 0.01	< 0.01	NA	< 0.01
Acetophenone	< 0.01	< 0.01	NA	< 0.01
Aniline	< 0.01	< 0.01	NA	< 0.01
Anthracene	< 0.01	< 0.01	NA	< 0.01
Aramite	< 0.02	< 0.02	NA	< 0.02
Benz(B)Fluoranthene	< 0.01	< 0.01	NA	< 0.01
Benzo(a)Anthracene	< 0.01	< 0.01	NA	< 0.01
Benzo(a)Pyrene	< 0.01	< 0.01	NA	< 0.01
Benzo(g,h,i)Perylene	< 0.01	< 0.01	NA	< 0.01
Benzo(k)Fluoranthene	< 0.01	< 0.01	NA	< 0.01
Benzyl Alcohol	< 0.01	< 0.01	NA	< 0.01
Benzyl Butyl Phthalate	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroethyl)Ether	< 0.01	< 0.01	NA	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	< 0.01	NA	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	< 0.01	NA	< 0.01
Chrysene	< 0.01	< 0.01	NA	< 0.01
Dibenzo(a,h)Anthracene	< 0.01	< 0.01	NA	< 0.01
Dibenzofuran	< 0.01	< 0.01	NA	< 0.01
Diethyl Phthalate	< 0.01	< 0.01	NA	< 0.01
Dimethoate	< 0.02	< 0.02	NA	< 0.02
Dimethyl Phthalate	< 0.01	< 0.01	NA	< 0.01
Di-n-Butyl Phthalate	< 0.01	< 0.01	NA	< 0.01
Di-n-Octylphthalate	< 0.01	< 0.01	NA	< 0.01
Dinoseb	< 0.02	< 0.02	NA	< 0.02
Disulfoton	< 0.05	< 0.05	NA	< 0.05
Ethyl methanesulfonate	< 0.01	< 0.01	NA	< 0.01
Famphur	< 0.1	< 0.1	NA	< 0.1
Fluoranthene	< 0.01	< 0.01	NA	< 0.01
Fluorene	< 0.01	< 0.01	NA	< 0.01

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
Hexachlorobenzene	< 0.01	< 0.01	NA	< 0.01
Hexachlorobutadiene	< 0.01	< 0.01	NA	< 0.01
Hexachlorocyclopentadiene	< 0.05	< 0.05	NA	< 0.05
Hexachloroethane	< 0.01	< 0.01	NA	< 0.01
Hexachlorophene	<	<	NA	<
Hexachloropropene	< 0.1	< 0.1	NA	< 0.1
Indeno(1,2,3-CD)Pyrene	< 0.01	< 0.01	NA	< 0.01
Isosafrole	< 0.02	< 0.02	NA	< 0.02
M-Dichlorobenzene	< 0.01	< 0.01	NA	< 0.01
Methapyrilene	< 0.05	< 0.05	NA	< 0.05
Methyl methanesulfonate	< 0.01	< 0.01	NA	< 0.01
Methyl parathion	< 0.05	< 0.05	NA	< 0.05
Naphthalene	< 0.01	< 0.01	NA	< 0.01
Nitrobenzene	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiethylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodimethylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodi-n-butylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitroso-Di-N-Propylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosodiphenylamine/Diphenylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosomethylethylamine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosomorpholine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosopiperidine	< 0.01	< 0.01	NA	< 0.01
N-Nitrosopyrrolidine	< 0.01	< 0.01	NA	< 0.01
O,O,O-Triethyl phosphorothioate	< 0.05	< 0.05	NA	< 0.05
o-Toluidine	< 0.02	< 0.02	NA	< 0.02
Parathion	< 0.05	< 0.05	NA	< 0.05
p-Dimethylaminoazobenzene	< 0.02	< 0.02	NA	< 0.02
Pentachlorobenzene	< 0.01	< 0.01	NA	< 0.01
Pentachloroethane	< 0.05	< 0.05	NA	< 0.05
Pentachloronitrobenzene	< 0.05	< 0.05	NA	< 0.05
Pentachlorophenol	< 0.05	< 0.05	NA	< 0.05
Phenacetin	< 0.02	< 0.02	NA	< 0.02
Phenanthrene	< 0.01	< 0.01	NA	< 0.01
Phenol	< 0.01	< 0.01	NA	< 0.01
Phorate	< 0.05	< 0.05	NA	< 0.05
P-Nitroaniline	< 0.05	< 0.05	NA	< 0.05
p-Phenylene diamine	< 0.1	< 0.1	NA	< 0.1

Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-3-0070R	OBL-MW-4-2689
Pronamide	< 0.02	< 0.02	NA	< 0.02
Pyrene	< 0.01	< 0.01	NA	< 0.01
Pyridine	< 0.02	< 0.02	NA	< 0.02
Safrole	< 0.02	< 0.02	NA	< 0.02
Tetraethyldithiopyrophosphate	< 0.05	< 0.05	NA	< 0.05
Thionazin	< 0.05	< 0.05	NA	< 0.05

Notes:

(a) mg/l = milligrams per liter.

(b) < = not detected at indicated detection limit

(c) NA = Not analyzed

(d) J = Estimated value

(e) VOCs = Volatile Organic Compounds

(f) SVOCs - Semi-Volatile Organic Compounds

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
Miscellaneous (mg/l)[a]			
Total Suspended Solids	NA	< 4	NA
Inorganics (mg/l)			
Cyanide, Total	0.16	< 0.01	< 0.01
Cyanide, Microdiffusion	0.095	< 0.005 J	< 0.005
Cyanide, Weak Acid Dissociable	0.11	< 0.01	< 0.01
Fluoride	NA	< 0.1	NA
Arsenic, Dissolved	NA	< 0.005	NA
Arsenic, Total	NA	< 0.01	NA
Barium, Dissolved	NA	< 0.2	NA
Barium, Total	NA	< 0.2	NA
Cadmium, Dissolved	NA	< 0.002	NA
Cadmium, Total	NA	< 0.002	NA
Chromium, Dissolved	NA	< 0.005	NA
Chromium, Total	NA	< 0.005	NA
Lead, Dissolved	NA	< 0.003	NA
Lead, Total	NA	< 0.003	NA
Selenium, Dissolved	NA	< 0.005	NA
Selenium, Total	NA	< 0.005	NA
VOCs[c]			
1,1,1,2-Tetrachloroethane	NA	< 0.005	NA
1,1,1-Trichloroethane	NA	< 0.005	NA
1,1,2,2-Tetrachloroethane	NA	< 0.005	NA
1,1,2-Trichloroethane	NA	< 0.005	NA
1,1-Dichloroethane	NA	< 0.005	NA
1,1-Dichloroethene	NA	< 0.005	NA
1,2,3-Trichloropropane	NA	< 0.005	NA
1,2-Dibromo-3-chloropropane	NA	< 0.01	NA
1,2-Dibromoethane	NA	< 0.005	NA
1,2-Dichloroethane	NA	< 0.005	NA
1,2-Dichloropropane	NA	< 0.005	NA
1,4-Dioxane	NA	< 0.5	NA
2-Butanone	NA	< 0.02	NA
2-Hexanone	NA	< 0.02	NA
4-Methyl-2-Pentanone	NA	< 0.02	NA
Acetone	NA	< 0.02	NA
Acetonitrile	NA	< 0.1	NA

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
Acrolein	NA	< 0.1	NA
Acrylonitrile	NA	< 0.1	NA
Allyl chloride	NA	< 0.01	NA
Benzene	NA	< 0.005	NA
Bromodichloromethane	NA	< 0.005	NA
Bromoform	NA	< 0.005	NA
Bromomethane	NA	< 0.01	NA
Carbon Disulfide	NA	< 0.005	NA
Carbon Tetrachloride	NA	< 0.005	NA
Chlorobenzene	NA	< 0.005	NA
Chloroethane	NA	< 0.01	NA
Chloroform	NA	< 0.005	NA
Chloromethane	NA	< 0.01	NA
Chloroprene	NA	< 0.005	NA
cis-1,2-Dichloroethene	NA	< 0.0025	NA
Cis-1,3-Dichloropropene	NA	< 0.005	NA
Dibromochloromethane	NA	< 0.005	NA
Dibromomethane	NA	< 0.005	NA
Dichlorodifluoromethane	NA	< 0.01	NA
Dichloromethane	NA	< 0.005	NA
Ethyl methacrylate	NA	< 0.005	NA
Ethylbenzene	NA	< 0.005	NA
Iodomethane	NA	< 0.005	NA
Isobutyl alcohol	NA	< 0.2	NA
Methacrylonitrile	NA	< 0.005	NA
Methyl methacrylate	NA	< 0.005	NA
Propionitrile	NA	< 0.02	NA
Styrene	NA	< 0.005	NA
Tetrachloroethene	NA	< 0.005	NA
Toluene	NA	< 0.005	NA
Trans-1,2-Dichloroethene	NA	< 0.0025	NA
Trans-1,3-Dichloropropene	NA	< 0.005	NA
trans-1,4-Dichloro-2-butene	NA	< 0.005	NA
Trichloroethylene	NA	< 0.005	NA
Trichlorofluoromethane	NA	< 0.01	NA
Vinyl Acetate	NA	< 0.01	NA
Vinyl Chloride	NA	< 0.01	NA
Xylene (Total)	NA	< 0.005	NA

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
SVOCs[f]			
1,2,4,5-Tetrachlorobenzene	NA	< 0.01	NA
1,2,4-Trichlorobenzene	NA	< 0.01	NA
1,2-Dichlorobenzene	NA	< 0.01	NA
1,3,5-Trinitrobenzene	NA	< 0.05	NA
1,3-Dinitrobenzene	NA	< 0.01	NA
1,4-Dichlorobenzene	NA	< 0.01	NA
1,4-Naphthoquinone	NA	< 0.05	NA
1-Naphthylamine	NA	< 0.01	NA
2,3,4,6-Tetrachlorophenol	NA	< 0.05	NA
2,4,5-Trichlorophenol	NA	< 0.01	NA
2,4,6-Trichlorophenol	NA	< 0.01	NA
2,4-Dichlorophenol	NA	< 0.01	NA
2,4-Dimethylphenol	NA	< 0.01	NA
2,4-Dinitrophenol	NA	< 0.05	NA
2,4-Dinitrotoluene	NA	< 0.01	NA
2,6-Dichlorophenol	NA	< 0.01	NA
2,6-Dinitrotoluene	NA	< 0.01	NA
2-Acetylaminofluorene	NA	< 0.1	NA
2-Chloronaphthalene	NA	< 0.01	NA
2-Chlorophenol	NA	< 0.01	NA
2-Methyl-4,6-Dinitrophenol	NA	< 0.05	NA
2-Methylnaphthalene	NA	< 0.01	NA
2-Methylphenol (O-Cresol)	NA	< 0.01	NA
2-Naphthylamine	NA	< 0.01	NA
2-Nitroaniline	NA	< 0.05	NA
2-Nitrophenol	NA	< 0.01	NA
2-Picoline	NA	< 0.02	NA
3,3'-Dichlorobenzidine	NA	< 0.05	NA
3,3'-Dimethylbenzidine	NA	< 0.05	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 0.01	NA
3-Methylcholanthrene	NA	< 0.02	NA
3-Methylphenol & 4-Methylphenol	NA	< 0.02	NA
3-Methylphenol/4-Methylphenol	NA	< 0.01	NA
3-Nitroaniline	NA	< 0.05	NA
4-Aminobiphenyl	NA	< 0.05	NA
4-Bromophenyl Phenyl Ether	NA	< 0.01	NA
4-Chloro-3-Methylphenol	NA	< 0.01	NA

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
4-Chloroaniline	NA	< 0.01	NA
4-Chlorophenyl Phenyl Ether	NA	< 0.01	NA
4-Nitrophenol	NA	< 0.05	NA
4-Nitroquinoline-1-oxide	NA	< 0.1	NA
5-Nitro-o-toluidine	NA	< 0.02	NA
7,12-Dimethylbenz(a)anthracene	NA	< 0.02	NA
a,a-Dimethylphenethylamine	NA	< 0.05	NA
Acenaphthene	NA	< 0.01	NA
Acenaphthylene	NA	< 0.01	NA
Acetophenone	NA	< 0.01	NA
Aniline	NA	< 0.01	NA
Anthracene	NA	< 0.01	NA
Aramite	NA	< 0.02	NA
Benz(B)Fluoranthene	NA	< 0.01	NA
Benzo(a)Anthracene	NA	< 0.01	NA
Benzo(a)Pyrene	NA	< 0.01	NA
Benzo(g,h,i)Perylene	NA	< 0.01	NA
Benzo(k)Fluoranthene	NA	< 0.01	NA
Benzyl Alcohol	NA	< 0.01	NA
Benzyl Butyl Phthalate	NA	< 0.01	NA
Bis(2-Chloroethoxy)Methane	NA	< 0.01	NA
Bis(2-Chloroethyl)Ether	NA	< 0.01	NA
Bis(2-Chloroisopropyl)Ether	NA	< 0.01	NA
Bis(2-Ethylhexyl)Phthalate	NA	< 0.01	NA
Chrysene	NA	< 0.01	NA
Dibenzo(a,h)Anthracene	NA	< 0.01	NA
Dibenzofuran	NA	< 0.01	NA
Diethyl Phthalate	NA	< 0.01	NA
Dimethoate	NA	< 0.02	NA
Dimethyl Phthalate	NA	< 0.01	NA
Di-n-Butyl Phthalate	NA	< 0.01	NA
Di-n-Octylphthalate	NA	< 0.01	NA
Dinoseb	NA	< 0.02	NA
Disulfoton	NA	< 0.05	NA
Ethyl methanesulfonate	NA	< 0.01	NA
Famphur	NA	< 0.1	NA
Fluoranthene	NA	< 0.01	NA
Fluorene	NA	< 0.01	NA

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Sample Designation / Parameter	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
Hexachlorobenzene	NA	< 0.01	NA
Hexachlorobutadiene	NA	< 0.01	NA
Hexachlorocyclopentadiene	NA	< 0.05	NA
Hexachloroethane	NA	< 0.01	NA
Hexachlorophene	NA	<	NA
Hexachloropropene	NA	< 0.1	NA
Indeno(1,2,3-CD)Pyrene	NA	< 0.01	NA
Isosafrole	NA	< 0.02	NA
M-Dichlorobenzene	NA	< 0.01	NA
Methapyrilene	NA	< 0.05	NA
Methyl methanesulfonate	NA	< 0.01	NA
Methyl parathion	NA	< 0.05	NA
Naphthalene	NA	< 0.01	NA
Nitrobenzene	NA	< 0.01	NA
N-Nitrosodiethylamine	NA	< 0.01	NA
N-Nitrosodimethylamine	NA	< 0.01	NA
N-Nitrosodi-n-butylamine	NA	< 0.01	NA
N-Nitroso-Di-N-Propylamine	NA	< 0.01	NA
N-Nitrosodiphenylamine	NA	< 0.01	NA
N-Nitrosodiphenylamine/Diphenylamine	NA	< 0.01	NA
N-Nitrosomethylethylamine	NA	< 0.01	NA
N-Nitrosomorpholine	NA	< 0.01	NA
N-Nitrosopiperidine	NA	< 0.01	NA
N-Nitrosopyrrolidine	NA	< 0.01	NA
O,O,O-Triethyl phosphorothioate	NA	< 0.05	NA
o-Toluidine	NA	< 0.02	NA
Parathion	NA	< 0.05	NA
p-Dimethylaminoazobenzene	NA	< 0.02	NA
Pentachlorobenzene	NA	< 0.01	NA
Pentachloroethane	NA	< 0.05	NA
Pentachloronitrobenzene	NA	< 0.05	NA
Pentachlorophenol	NA	< 0.05	NA
Phenacetin	NA	< 0.02	NA
Phenanthrene	NA	< 0.01	NA
Phenol	NA	< 0.01	NA
Phorate	NA	< 0.05	NA
P-Nitroaniline	NA	< 0.05	NA
p-Phenylene diamine	NA	< 0.1	NA

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Table 4-75

SWMU No. 3 (Old Brick Landfill)
Phase I RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation	OBL-MW-4-0070R	OBL-MW-5-2689	OBL-MW-5-0070R
Pronamide	NA	< 0.02	NA
Pyrene	NA	< 0.01	NA
Pyridine	NA	< 0.02	NA
Safrole	NA	< 0.02	NA
Tetraethyldithiopyrophosphate	NA	< 0.05	NA
Thionazin	NA	< 0.05	NA

Notes:

(a) mg/l = milligrams per liter.

(b) < = not detected at indicated detection limit

(c) NA = Not analyzed

(d) J = Estimated value

(e) VOCs = Volatile Organic Compounds

(f) SVOCs - Semi-Volatile Organic Compounds

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Table 4-76

SWMU No. 3 (Old Brick Landfill)
Phase II RFI Groundwater Analytical Results

Alcoa Badin, NC Works RFI

Parameter / Sample Designation / Sample Date	OBL-MW-6-2510 9/6/00
Inorganics (mg/l)[a]	
Free Cyanide by Microdiffusion	< 0.01
Cyanide, Weak Acid Dissociable	< 0.01
Cyanide, Total	< 0.01

[a] mg/l = milligrams per liter

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Table 4-77

Soil ScreeningTable
SWMU No. 3 (Old Brick Landfill)

Alcoa Badin, NC Works RFI

Parameter	Units	Number of Detects	Number Analyzed	Minimum Detection	Maximum Detection	USEPA Region III Industrial RBC[a]	USEPA Region III Residential RBC	USEPA SSL[b] DAF[c] = 20	North Carolina SSL DAF = 20	Ind. RBC	Res. RBC	USEPA SSL DAF = 20	NC SSL DAF = 20
Metals													
Arsenic	mg/kg [d]	7	7	20.8	36.3	3.8	0.43	29	29.2	✓	✓	✓	✓
Barium	mg/kg	7	7	37.5	359	140000	5500	1600	1648				
Chromium	mg/kg	7	7	37.8	96.4	6100	230	38	38			✓	✓
Lead	mg/kg	7	7	6.9	27.3	1000	400	NA	267				
Selenium	mg/kg	2	7	1.2	1.9	10000	390	5	5.2				
Other													
Fluoride	mg/kg	3	7	1.2	1.6	120000	4700	NA	NA				
Pesticides/Herbicides													
None Detected													
SVOCs [e]													
None Detected													
VOCs [f]													
2-Butanone	mg/kg	1	7	0.026	0.026	1200000	47000	NA	0.8				
Acetone	mg/kg	10	11	0.049	3.9	200000	7800	16	2.81				✓

Notes:

[a] RBC = Risk-Based Concentration

[b] SSL = Soil Screening Level

[c] DAF = Diluation Attenuation Factor

[d] mg/kg = milligrams per kilogram

[e] SVOCs = Semi-Volatile Organic Compounds

[f] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

All arsenic concentrations are less than background concentrations.

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Table 4-78
Groundwater Screening Table
SWMU No. 3 (Old Brick Landfill)
Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection	Maximum Detection	North Carolina 2L Standard	USEPA MCL	NC Standard	USEPA MCL
Metals									
Arsenic, Total	1	6	mg/l[a]	0.013	0.013	0.05	0.05		
Arsenic, Dissolved	1	6	mg/l	0.011	0.011	0.05	0.05		
Barium, Dissolved	3	6	mg/l	0.27	0.4	2	2		
Chromium, Total	1	6	mg/l	0.019	0.019	0.05	NA		
Chromium, Dissolved	1	6	mg/l	0.019	0.019	0.05	NA		
Cyanide, Microdiffusion	7	11	mg/l	0.0054	0.573	0.154	0.2	✓	✓
Cyanide, Total	7	11	mg/l	0.16	1.1	0.154	0.2	✓	✓
Cyanide, Weak Acid Dissociable	6	11	mg/l	0.03	0.58	0.154	0.2	✓	✓
Other Parameters									
Flouride	1	6	mg/l	0.93	0.93	2	4		
SVOCs [b]									
None Detected									
VOCs [c]									
None Detected									

[a] mg/l = milligrams per liter

[b] SVOCs = Semi-Volatile Organic Compounds

[c] VOCs = Volatile Organic Compounds

✓ = Maximum concentration of constituent exceeds screening value

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Table 4-79

Surface Water Screening Table
Badin Lake - Old Brick Landfill Area

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Frequency of Detection	Units	Minimum Detection	Maximum Detection	North Carolina[a] Human Health 2B Standards	USEPA[b] WQC	NC 2B Standard	USEPA AWQC
Barium	1	1	100%	mg/l	0.017	0.017	1	1		
Cadmium	1	1	100%	mg/l	0.000071	0.000071	NA	NA		
Sodium	1	1	100%	mg/l	8.6	8.6	NA	NA		
Nitrate/Nitrite	1	1	100%	mg/l	0.35	0.35	10	10		
PCBs[c] None Detected										
PAHs[d] None Detected										
Cyanide[e] None Detected										

Notes:

[a] NC 2B Standards for the protection of human health (Class W-IV Waters 15A NCAC 02B.0216 (3) (g) (i, ii) (NCDENR, 2000)

[b] USEPA Recommended Water Quality Criteria (WQC) for the protection of human health (for consumption of water and organisms) (EPA, 1999)

[c] PCBs = Polychlorinated Biphenyls

[d] PAHs = Polyaromatic Hydrocarbons

[e] VOCs = Volatile Organic Compounds

✓ = Maximum detected concentration exceeds screening value

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Table 4-80

Sediment Screening Table
Badin Lake - Old Brick Landfill Area

Alcoa Badin, NC Works RFI

Constituent	Number Detected	Number Analyzed	Units	Minimum Detection		Maximum Detection		USEPA Region III Industrial Soil RBC[a]	Ind RBC
Arsenic	1	1	mg/kg	37		37		3.8	✓
Barium	1	1	mg/kg	68		68		140000	
Cadmium	1	1	mg/kg	2.7		2.7		2000	
Chromium	1	1	mg/kg	25		25		6100	
Iron CN	1	1	mg/kg	37		37		NA	
Lead	1	1	mg/kg	7.4		7.4		400	
CYANIDE, AMENABLE	1	1	mg/kg	14		14		NA	
Cyanide, Total	1	1	mg/kg	40		40		40880	
Cyanide, Weak Acid Dissociable	1	1	mg/kg	1.2		1.2		40880	
Benzo(a)anthracene	1	1	mg/kg	0.021	J	0.021	J	7.8	
Benzo(a)pyrene	1	1	mg/kg	0.03	J	0.03	J	0.78	
Benzo(b)fluoranthene	1	1	mg/kg	0.079	J	0.079	J	7.8	
Benzo(g,h,i)perylene	1	1	mg/kg	0.041	J	0.041	J	61000	
Benzo(k)fluoranthene	1	1	mg/kg	0.021	J	0.021	J	78	
Chrysene	1	1	mg/kg	0.027	J	0.027	J	780	
Dibenzo(a,h)anthracene	1	1	mg/kg	0.03	J	0.03	J	0.78	
Fluoranthene	1	1	mg/kg	0.033	J	0.033	J	82000	
Indeno(1,2,3-cd)pyrene	1	1	mg/kg	0.035	J	0.035	J	7.8	
Phenanthrene	1	1	mg/kg	0.011	J	0.011	J	61000	
Pyrene	1	1	mg/kg	0.021	J	0.021	J	61000	

Notes:

[a] Risk-Based Concentration (USEPA, 2000) for industrial soil; soil screening criteria are conservative for less frequently contacted medium of sediment.

Detected concentration of arsenic in sediment is below OBL-area background soil arsenic level of 86.5 mg/kg.

✓ = Maximum detected concentration exceeds screening value.

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FIGURES

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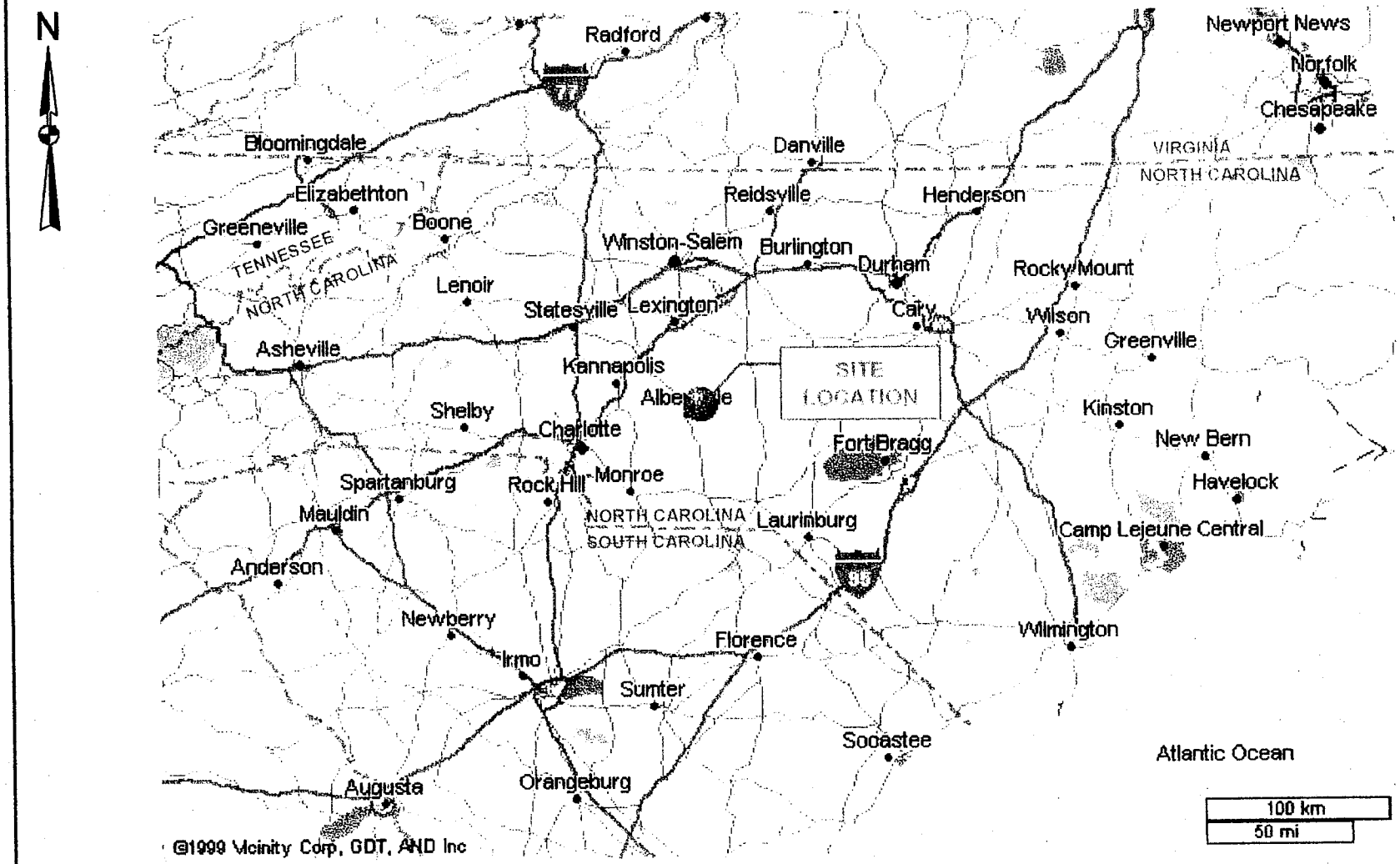

Site Vicinity Map

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 1-1
DATE: March 2001	CHECKED: MEP	

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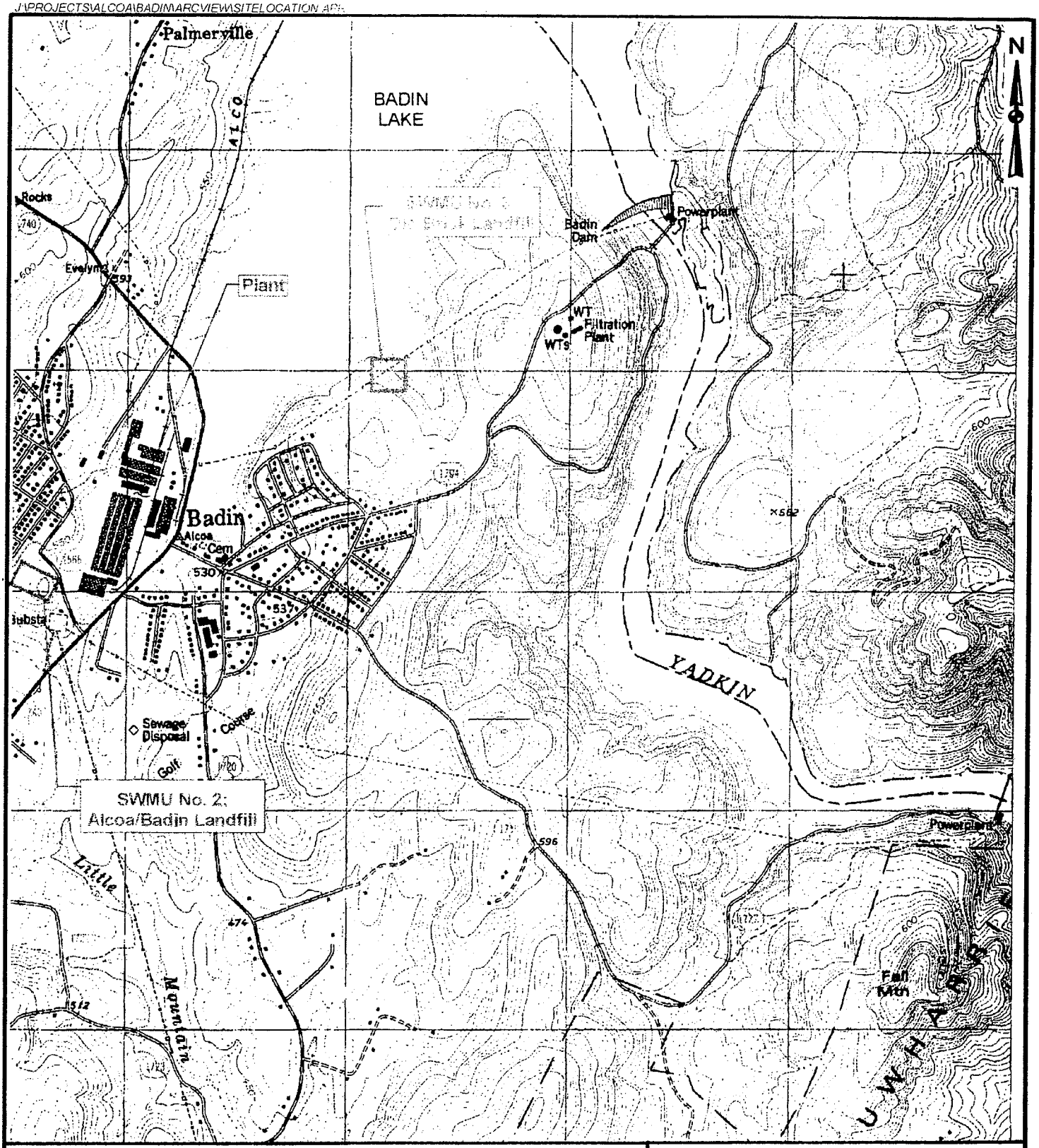

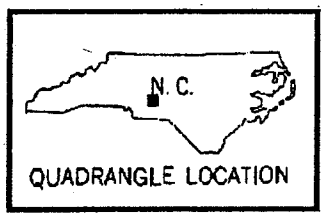

BADIN, N. C.
NE/4 ALBEMARLE 15' QUADRANGLE
N3522.5–W8000/7.5
1981
PHOTOINSPECTED 1983
DMA 4954 I NE–SERIES V842

2000 0 2000 Feet

Site Location

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 1-2
DATE: March 2001	CHECKED: MEP	

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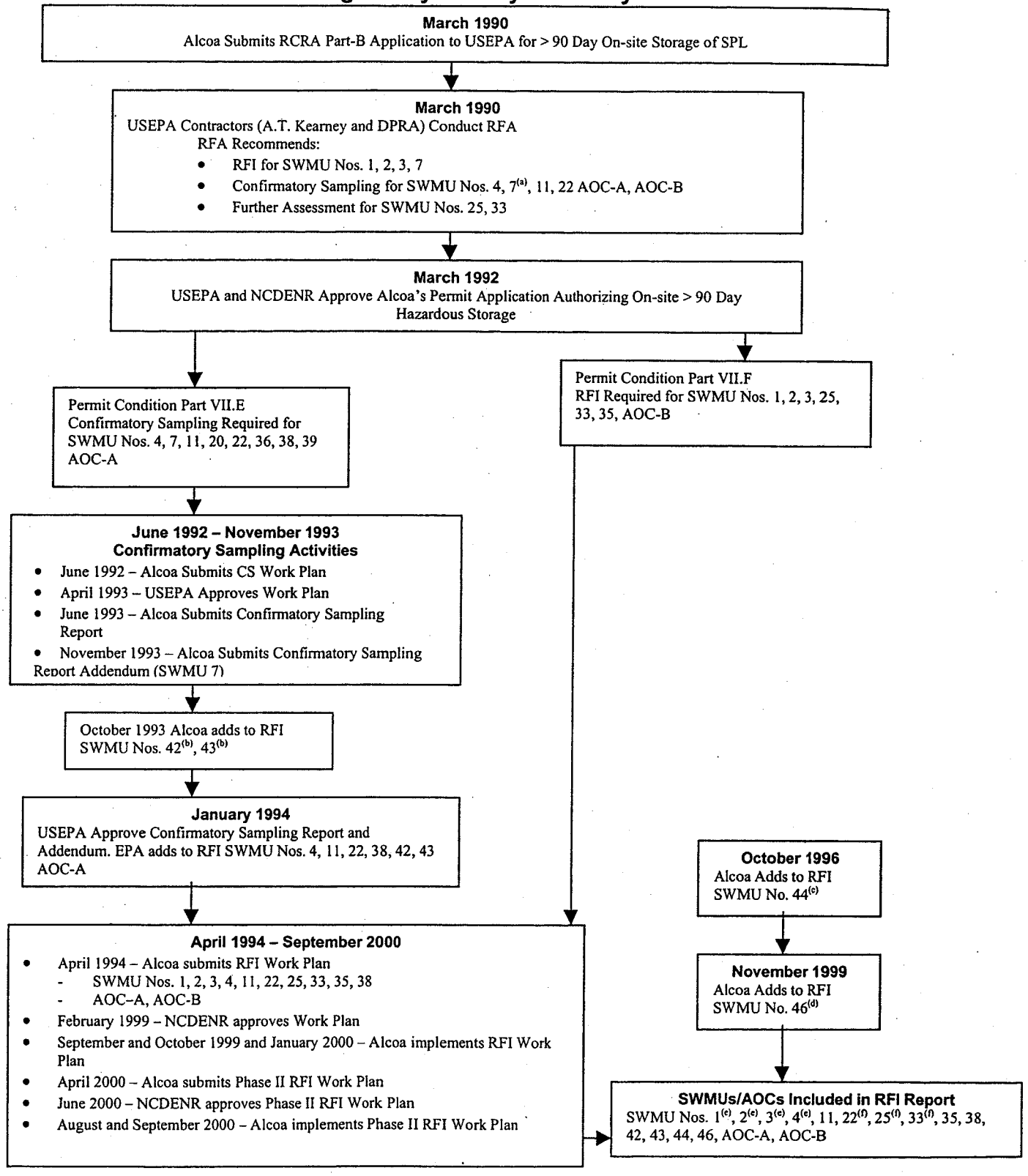
Figure 1-3
Regulatory History Summary



Notes:
(a) The RFA recommended sampling of the air compressor portion of SWMU No. 7 Aerated Lagoon.
(b) SWMUs 42 and 43 were added to the RFI by EPA based on information provided by Alcoa in a letter dated October 7, 1993.
(c) SWMU No. 44 was identified by Alcoa and reported to NCDENR in a letter dated October 10, 1996.
(d) SWMU No. 46 was identified by Alcoa and reported to NCDENR in a letter dated November 22, 1999.
(e) All or portions of RFI work done by Alcoa prior to implementing voluntary Interim Measures.
(f) SWMU subjected to voluntary or interim measures prior to RFI implementation.

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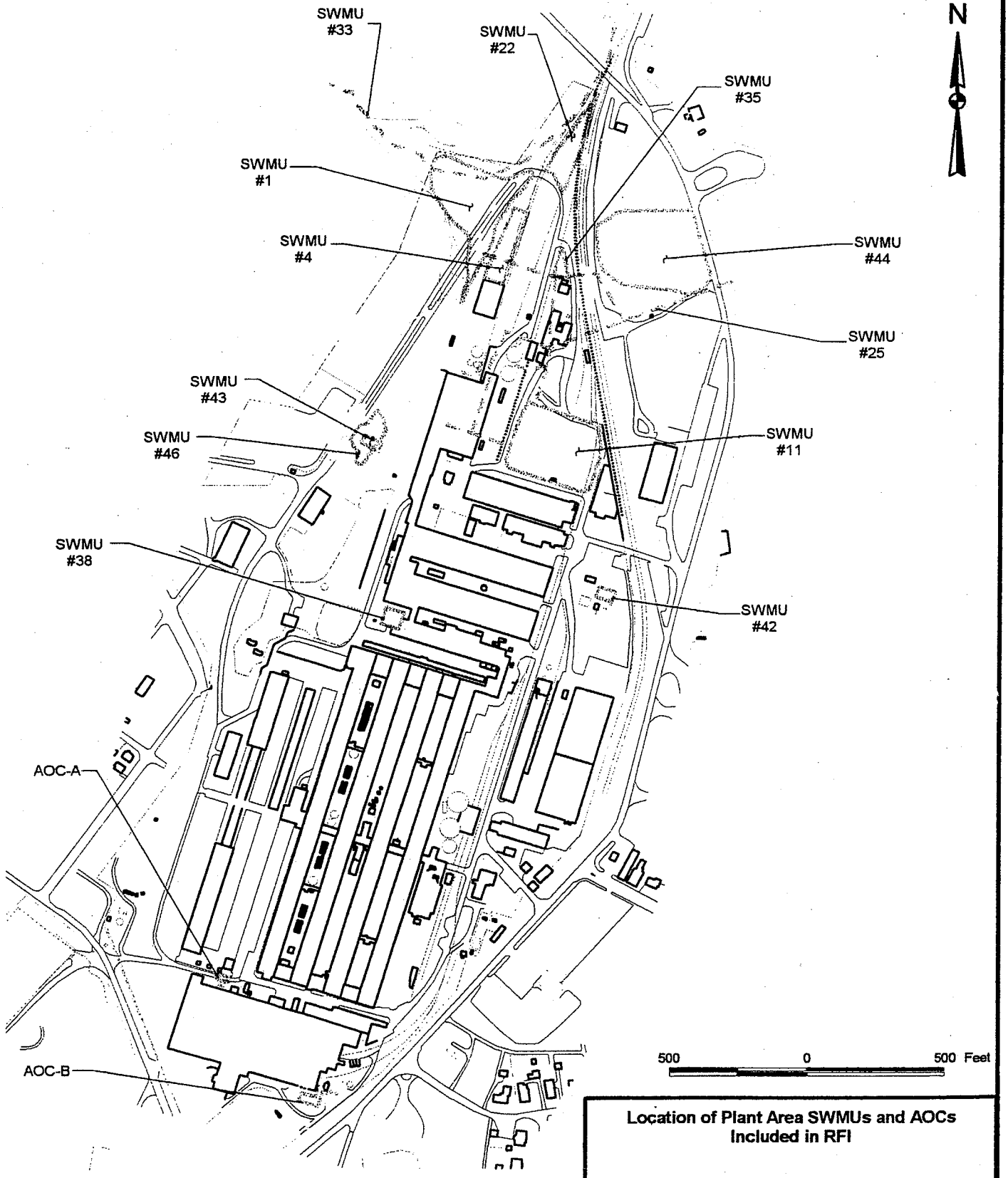

LEGEND:

- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundaries

Note:
Refer to Table 1-1 for SWMU/AOC Descriptions.

Location of Plant Area SWMUs and AOCs Included in RFI

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 1-4
DATE: March 2001	CHECKED: MEP	

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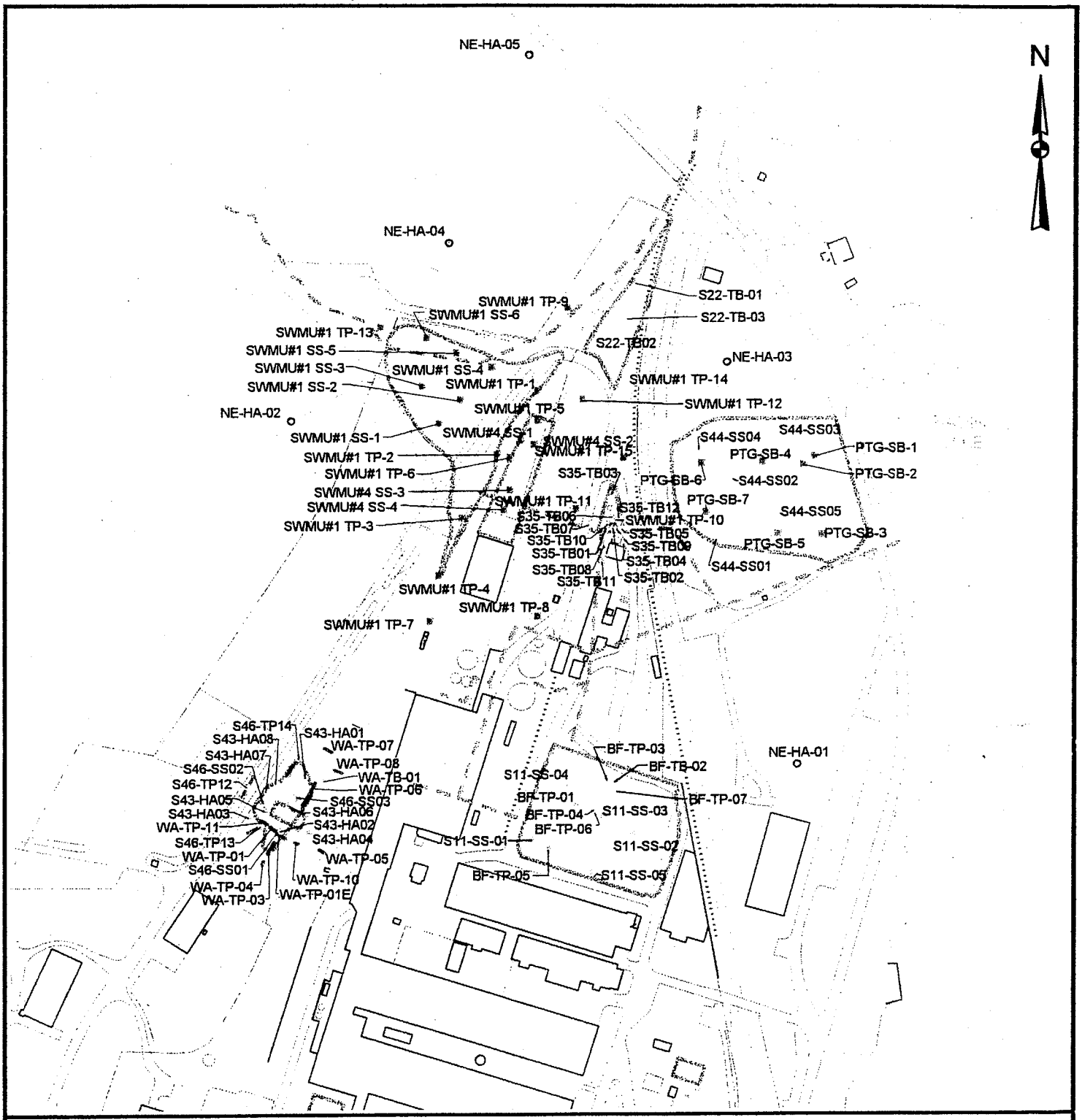

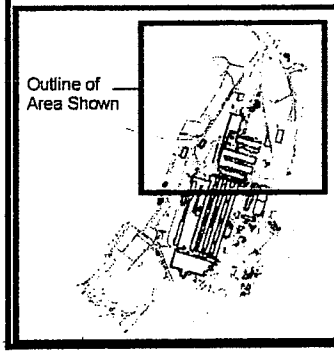

LEGEND:

- Phase I RFI Soil Sample Location
- Phase I RFI Background Soil Sample Location
- Historical Soil Sample Location (1996)
- SWMU No.46 Phase I Test Pit
- Phase II RFI Soil Sample Location
- SWMU No.46 Phase II Test Pit
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundary

Note:
AOC-A and AOC-B are shown on Figure 2-2.

Soil Sample Location Map for SWMUs in Plant Area

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 2-1
DATE: March 2001	CHECKED: MEP	

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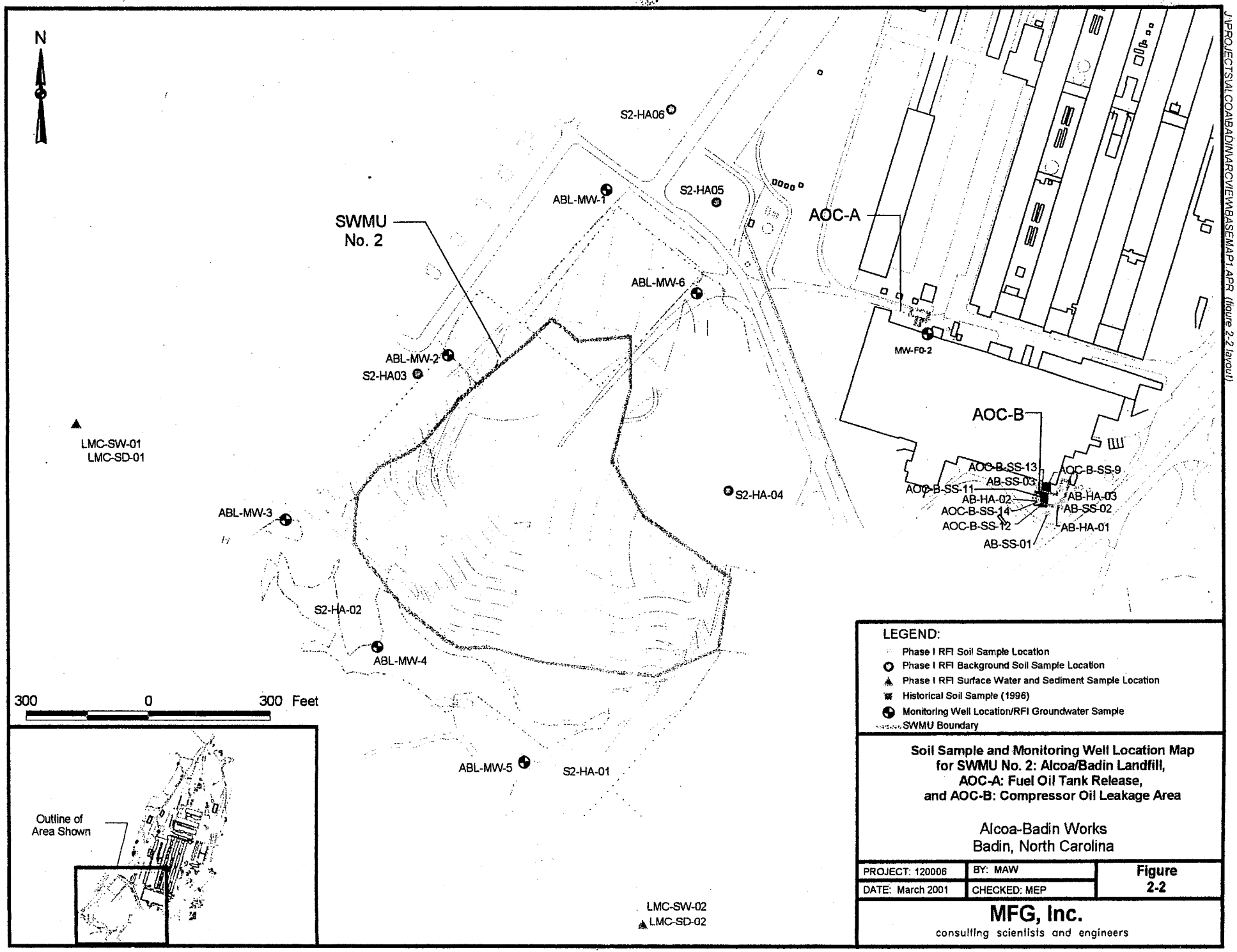

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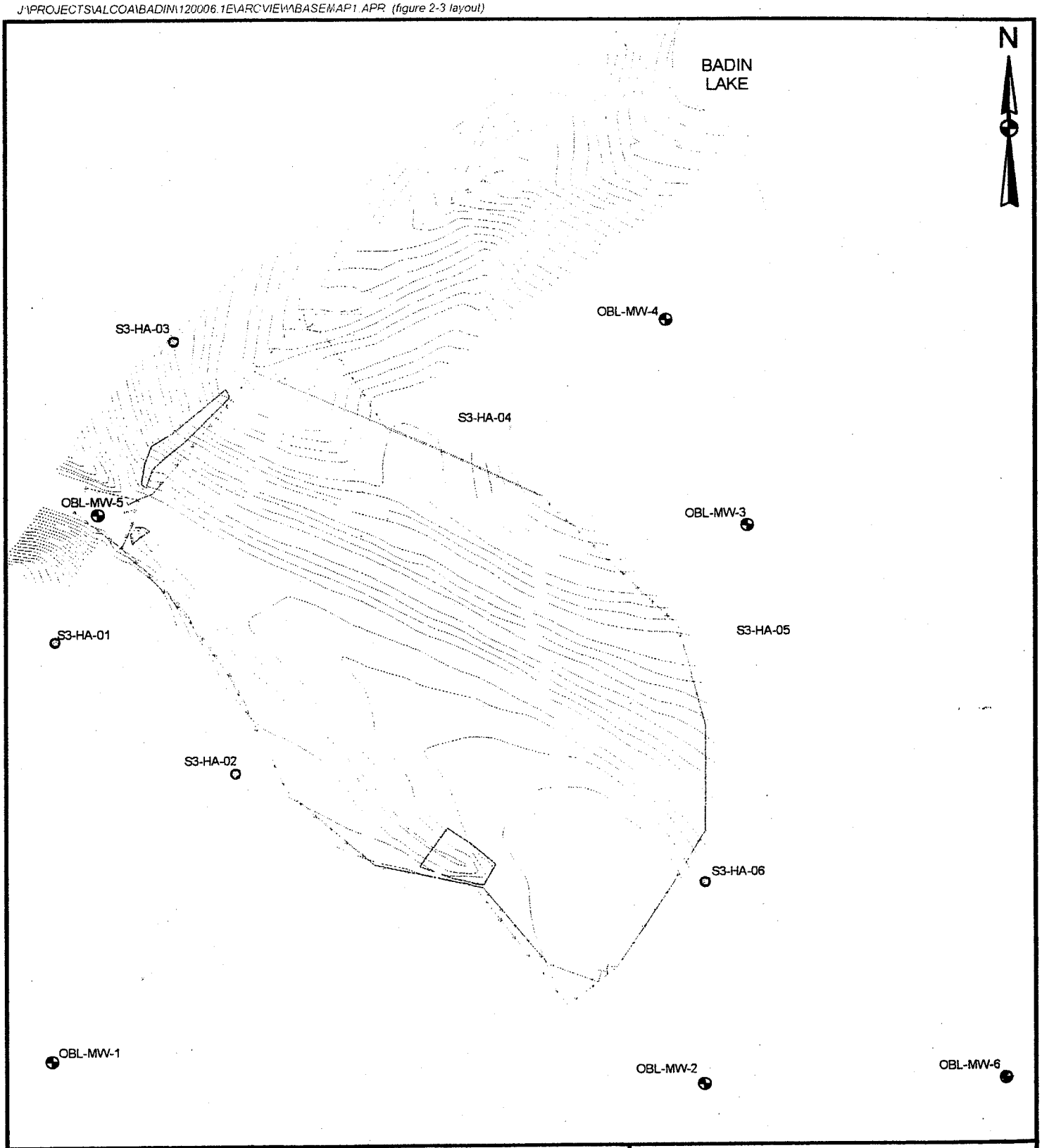

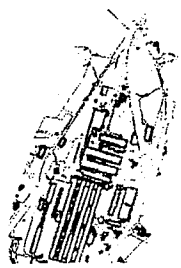

OUTLINE OF AREA SHOWN

LEGEND:

- Phase I RFI Soil Sample Location
- Phase I Background Soil Sample Location
- Monitoring Well Location/Phase I RFI Groundwater Sample
- Phase II Monitoring Well Sample Location (installed during Phase II)

100 0 100 Feet

Soil and Groundwater Sample Location Map for SWMU No. 3: Old Brick Landfill

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 2-3
DATE: March 2001	CHECKED: MEP	

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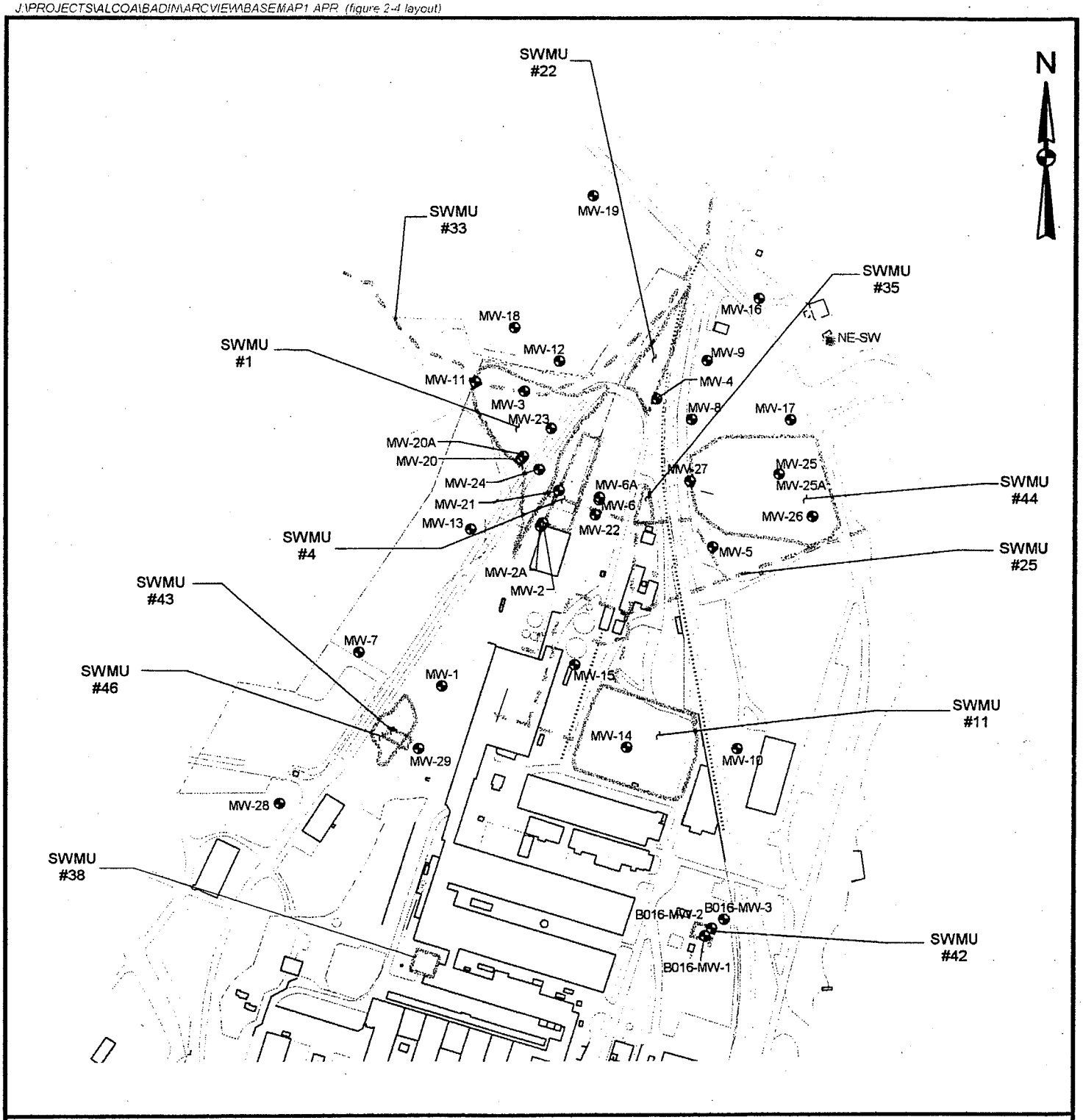

Groundwater Sample Location Map For SWMUs/AOCs in Plant Area

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 2-4
DATE: March 2001	CHECKED: MEP	

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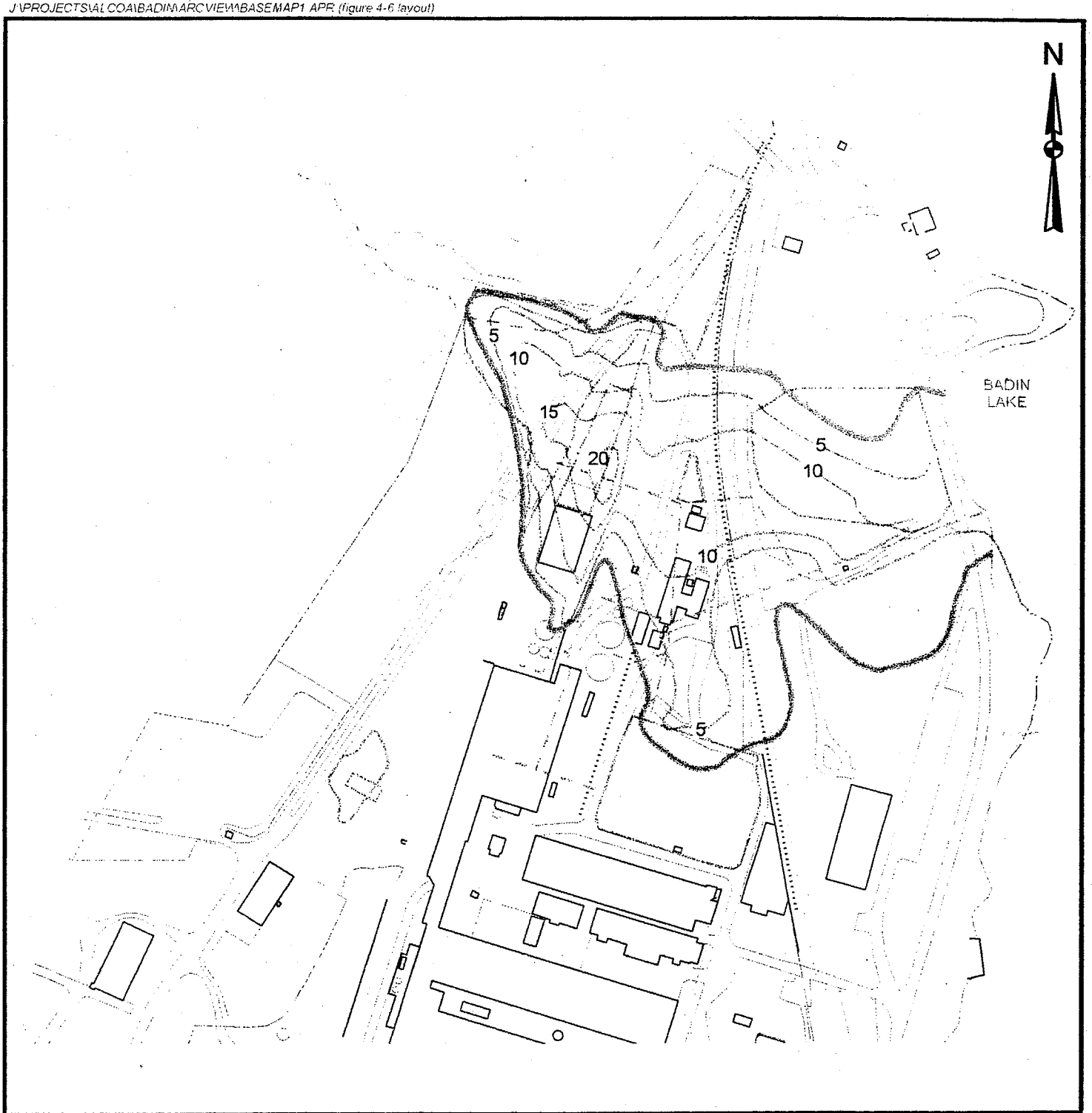

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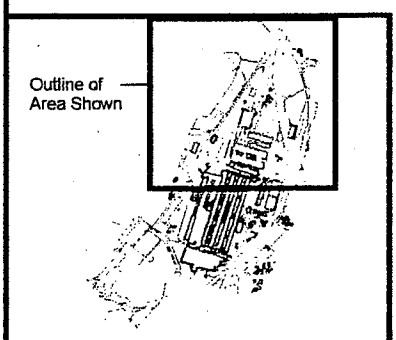

LEGEND:

- Fill Thickness Contour (feet)
- Interpreted Limits of Fill
- **Run-On Diversion (SWMU #33)**
- **U.G. Conveyance Line (SWMU #25)**
- **SWMU Boundaries**

Note:
Adapted from Law Environmental,
Fill Thickness Map, March 1994

Fill Area in Main Plant Area

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-6**
DATE: March 2001	CHECKED: MEP	

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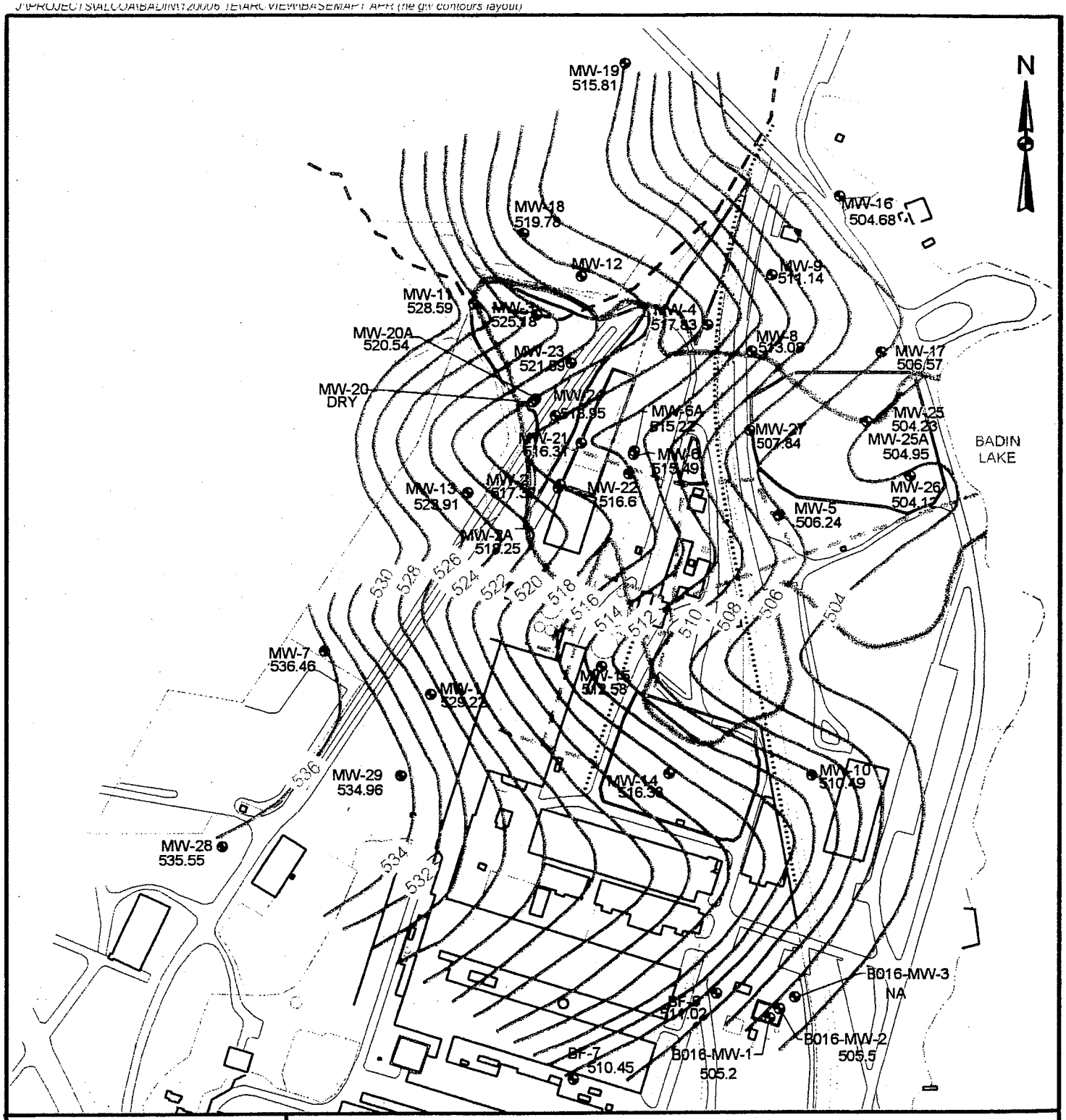
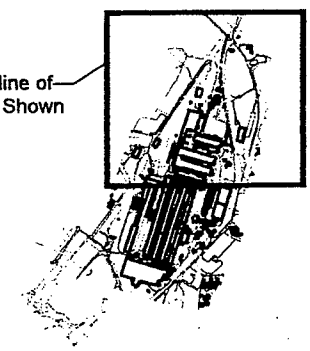


Outline of Area Shown



LEGEND:

- Groundwater Elevation Contour (ft-msl)
- Phase 2 Monitoring Well Location
- Monitoring Well Location
- Location of Ancestral Ravine (Law, 1994)
- SWMU Boundaries
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)

300 0 300 Feet

Groundwater Elevation Map in Plant Area September 5, 2000

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-7**
DATE: March 2001	CHECKED: MEP	

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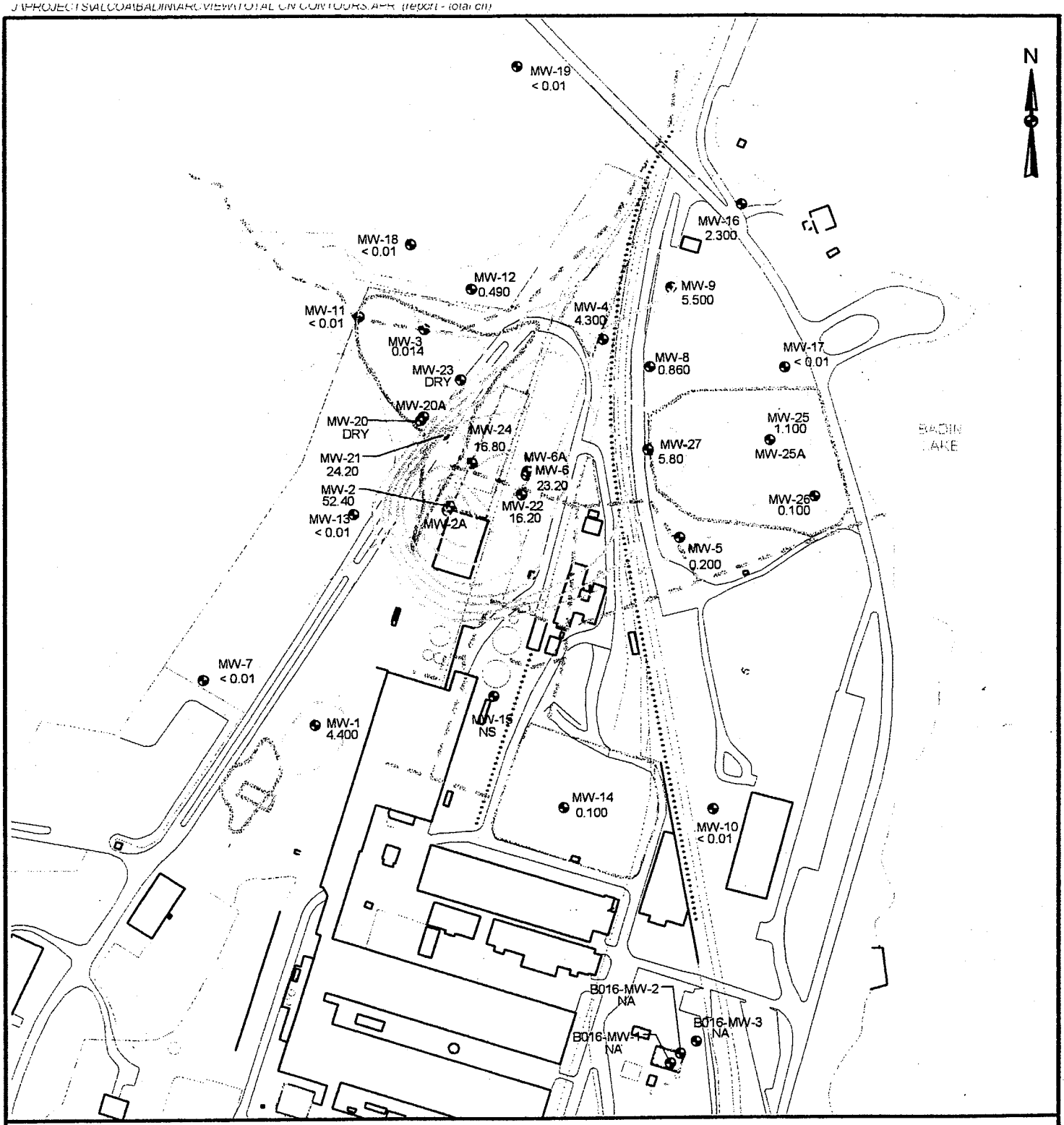

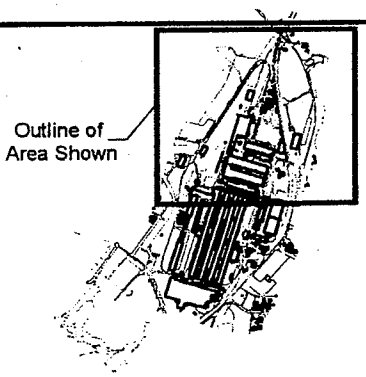

LEGEND:

- Total Cyanide Isoconcentration Contour
- Monitoring Well Location/RFI Groundwater Sample
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundary

Note:
All analytical results are in mg/l.

North End

Total Cyanide Isoconcentration Contours September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT:120006	BY: MAW	Figure 4-8
DATE: March 2001	CHECKED: MEP	

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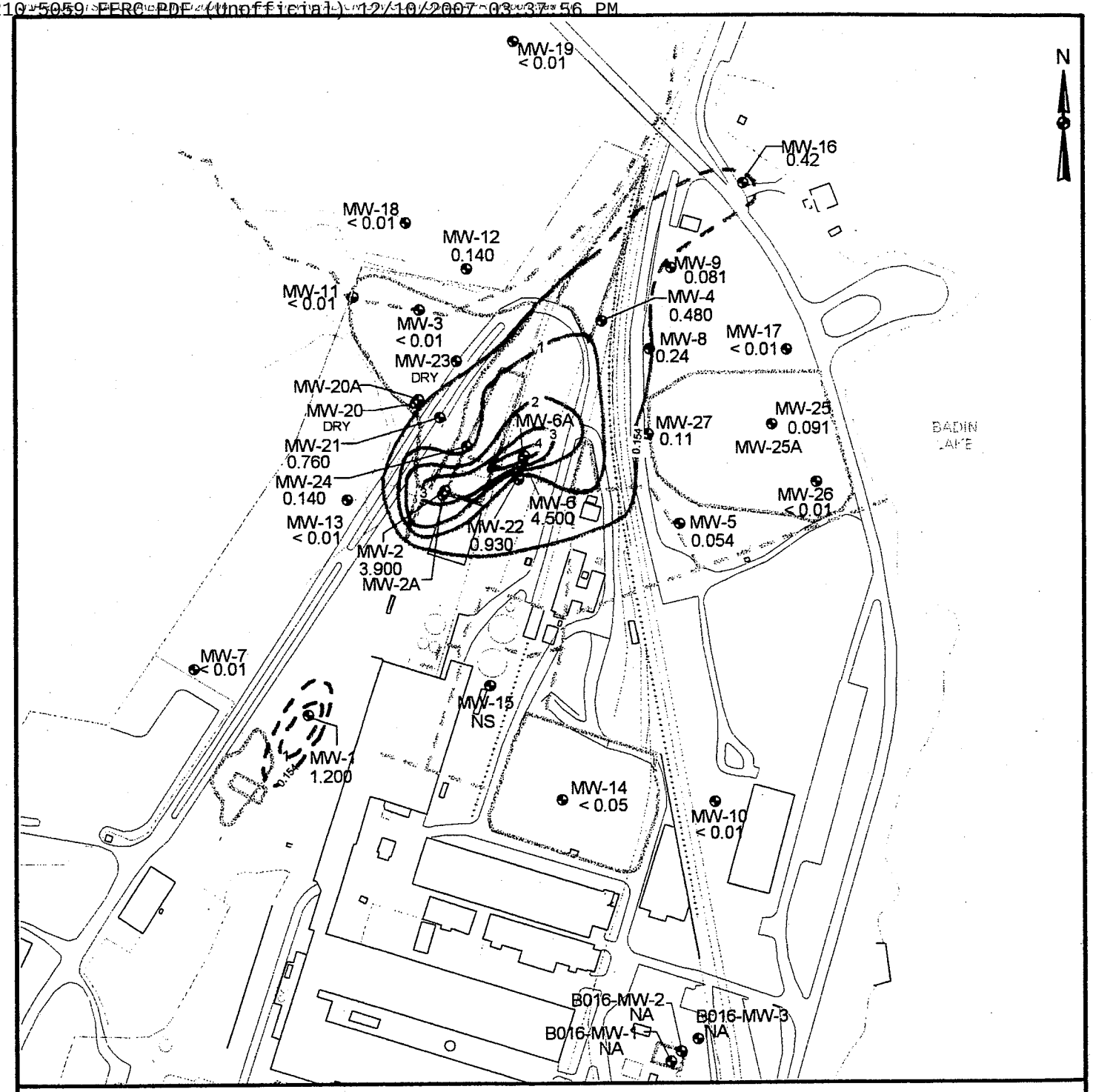

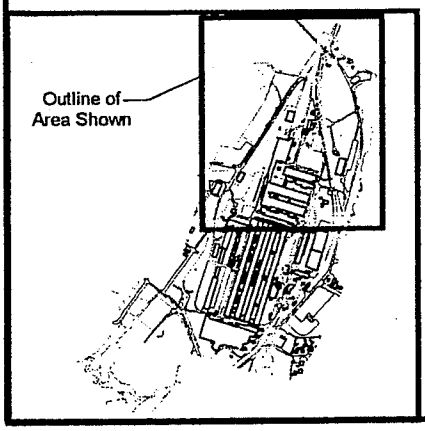

LEGEND:

- Weak Acid Dissociable Cyanide Isoconcentration Contour
- Monitoring Well Location/RFI Groundwater Sample
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundaries

300 0 300 Feet

Note:
All analytical results are mg/l.

North End

Weak Acid Dissociable Cyanide Isoconcentration Contours September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-9
DATE: March 2001	CHECKED: MEP	

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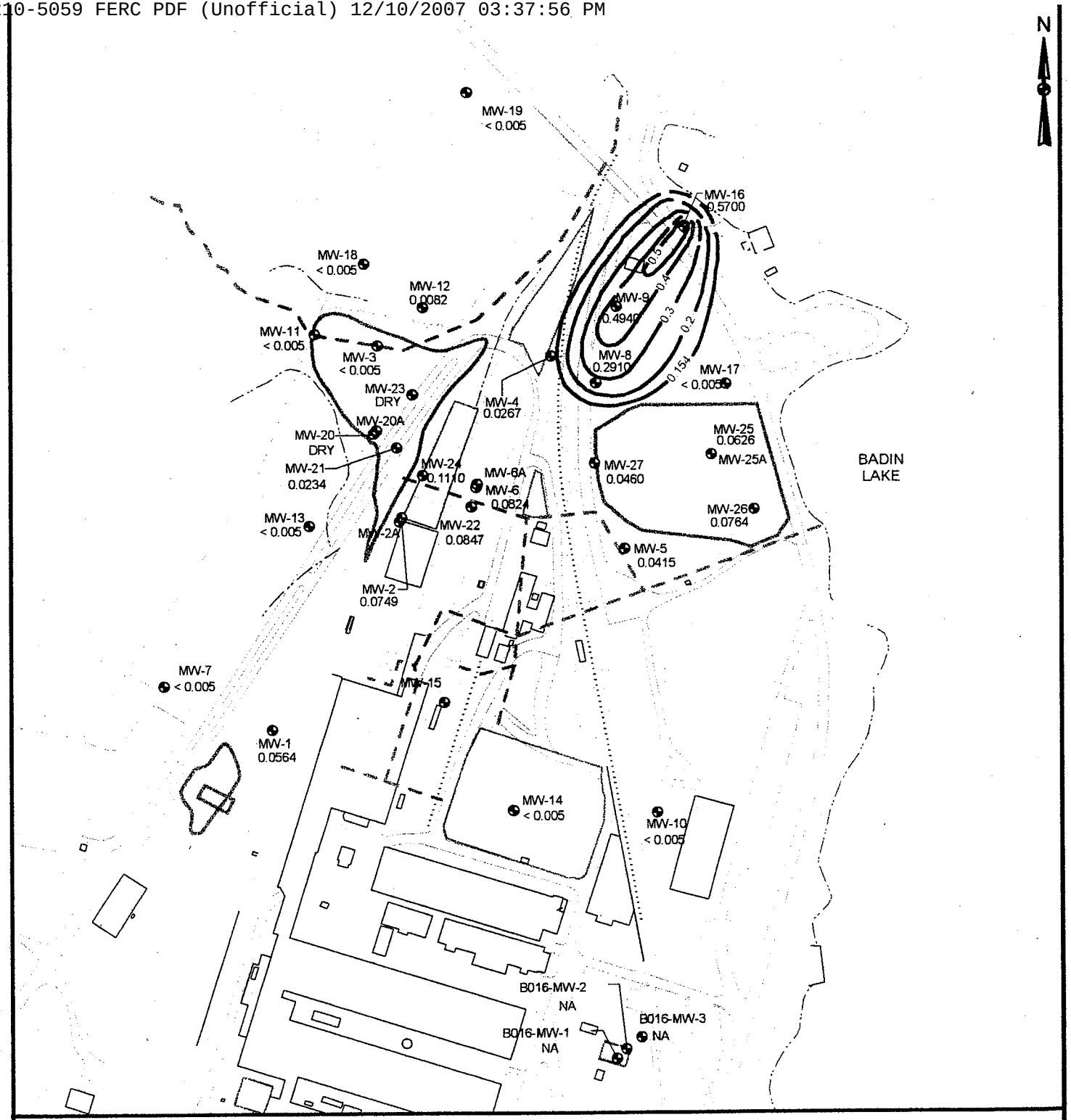

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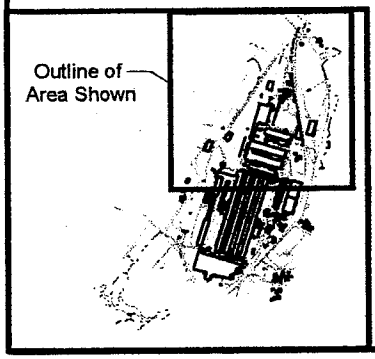

LEGEND:

- Microdiffusion Cyanide Isoconcentration Contour
- Monitoring Well Location/RFI Groundwater Sample
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundary

Note:
All results are in mg/l.

North End
Microdiffusion Cyanide Isoconcentration Contours
September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-10
DATE: March 2001	CHECKED: MEP	

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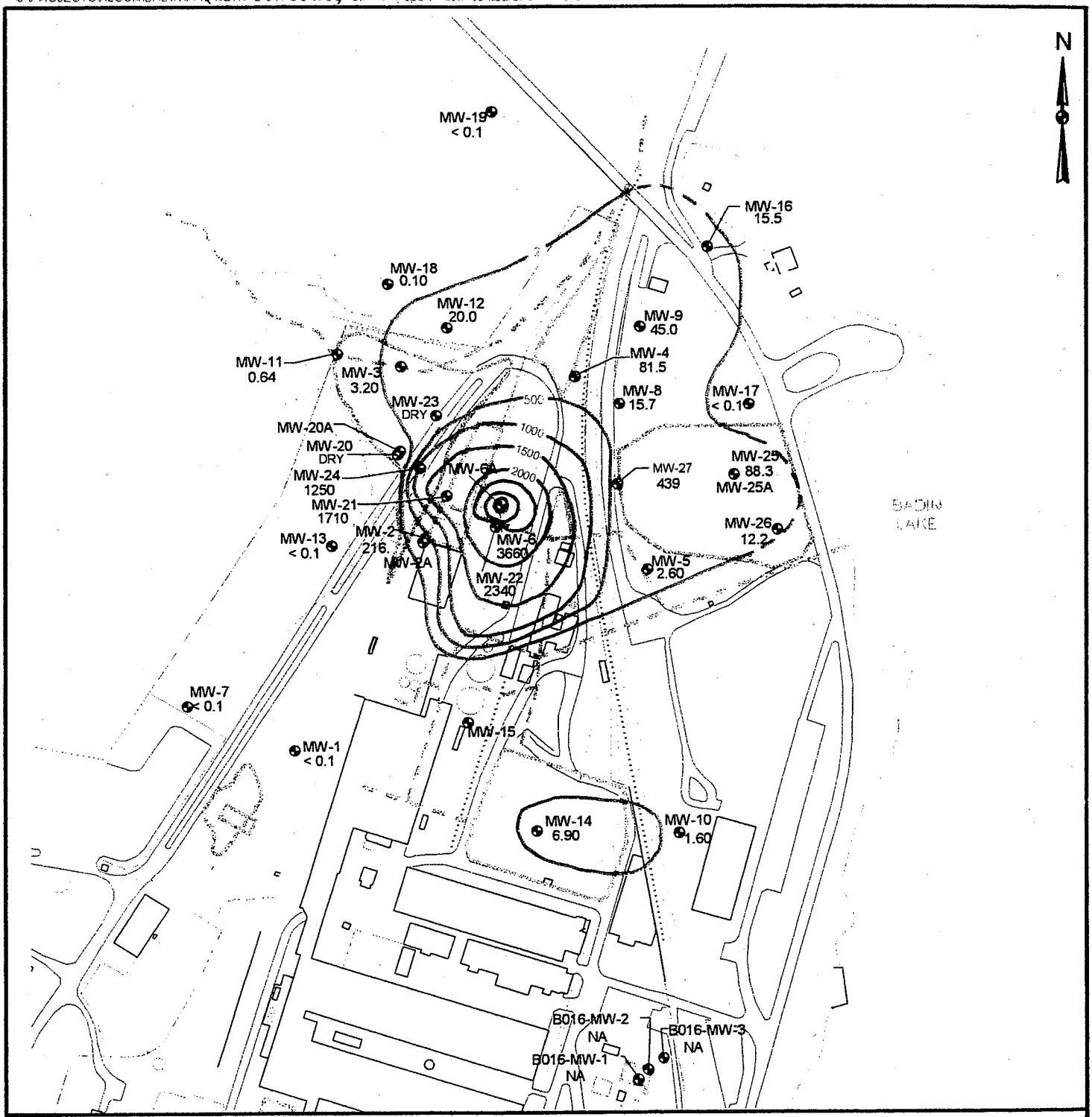

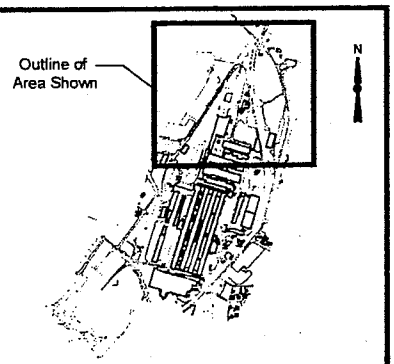

Legend:

- Fluoride Isoconcentration Contours
- Monitoring Well Location/RFI Groundwater Sample
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundary

300 0 300 Feet

Note:
All analytical results are in mg/l.

North End
Fluoride Isoconcentration Contours
September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: M.W.	Figure 4-11
DATE: March 2001	CHECKED:	

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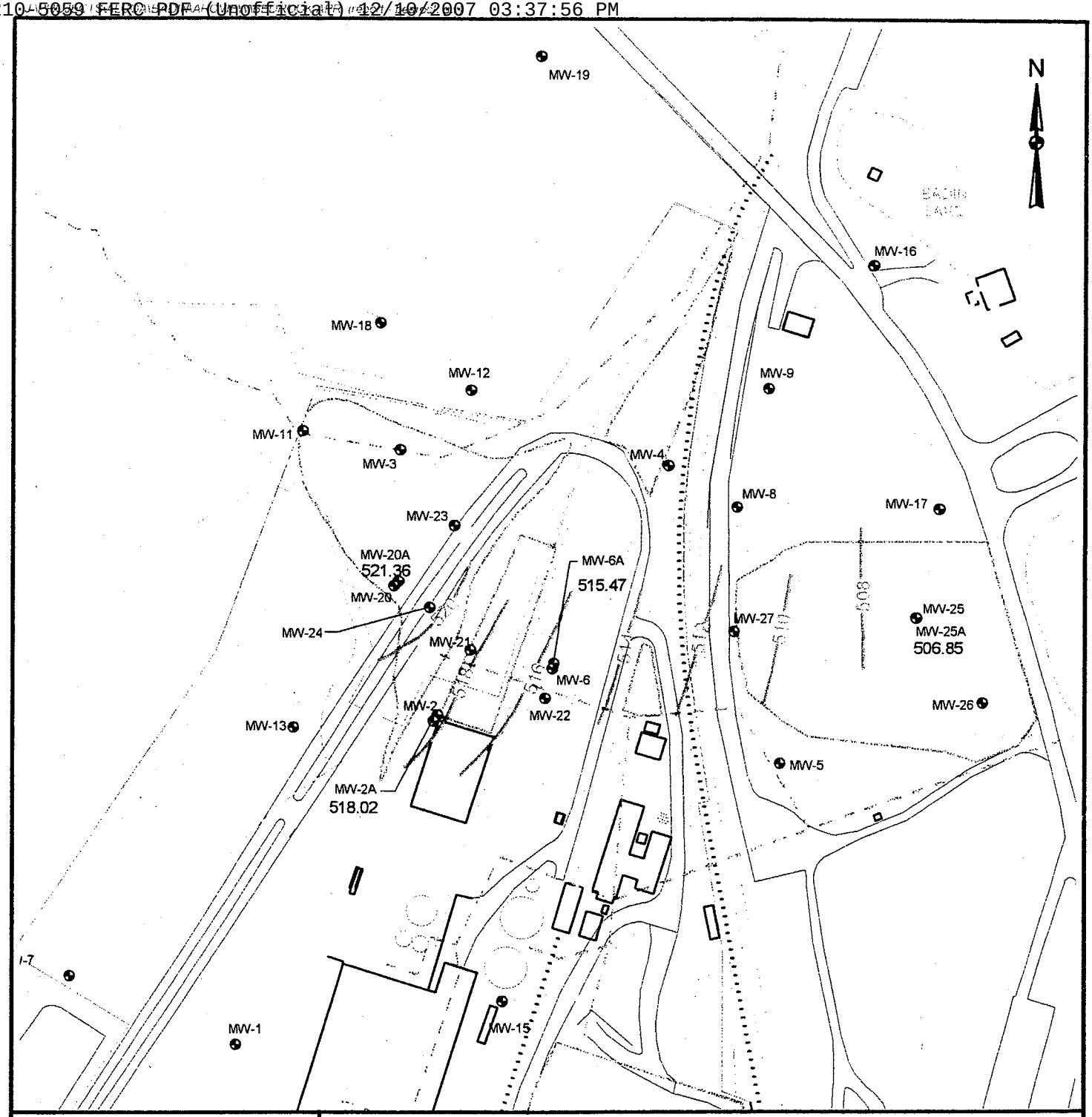

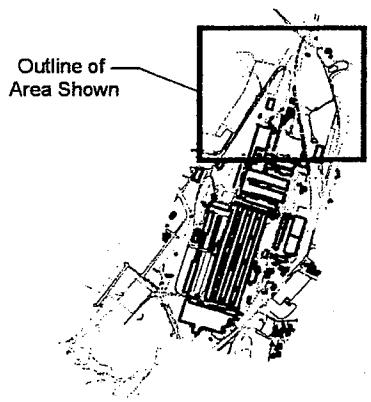

LEGEND:

- Potentiometric Contour (ft-msl)
- Monitoring Well Location
- SWMU Boundary
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)

Bedrock Groundwater
Potentiometric Contour Map of Plant Area
September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-12**
DATE: March 2001	CHECKED: MEP	

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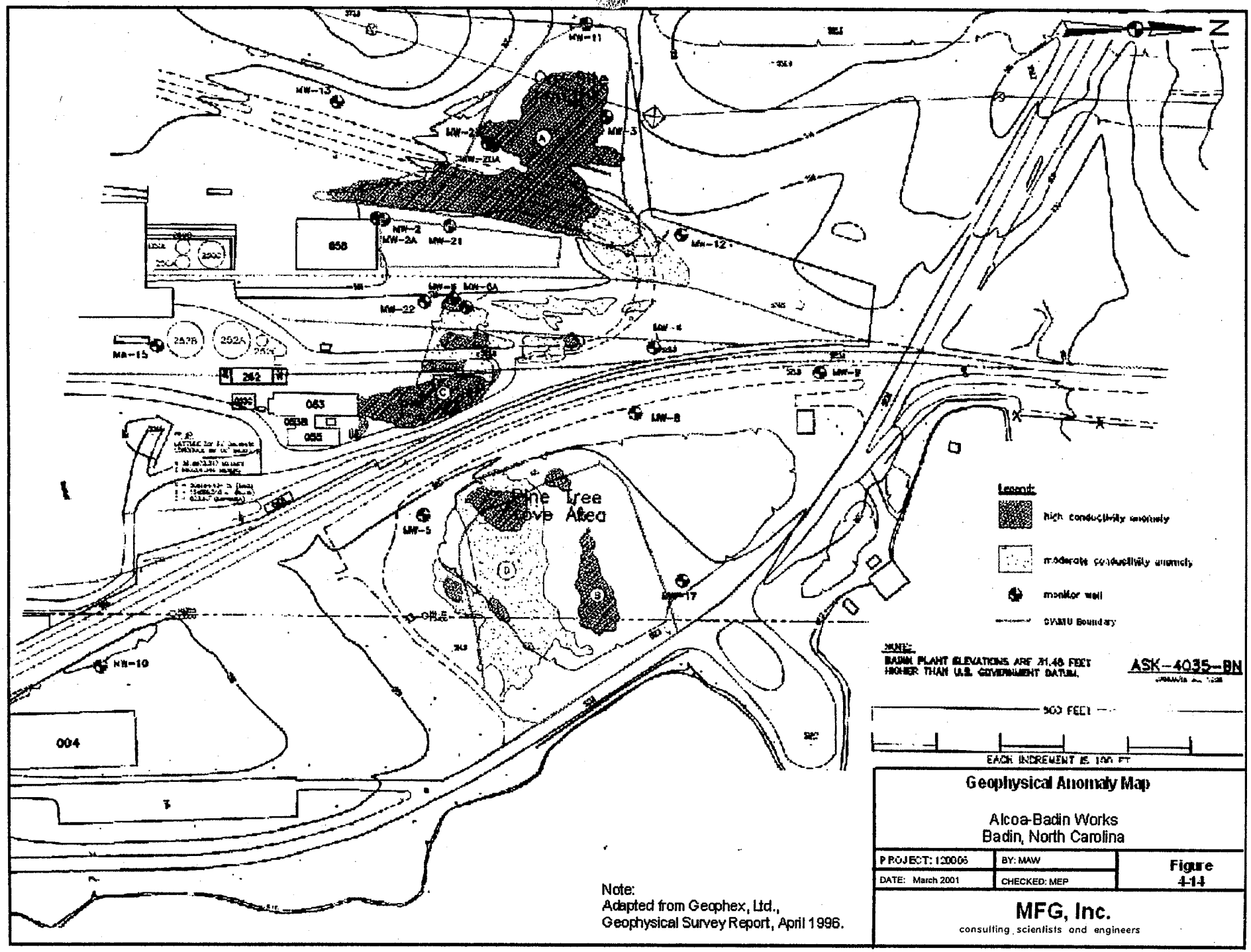

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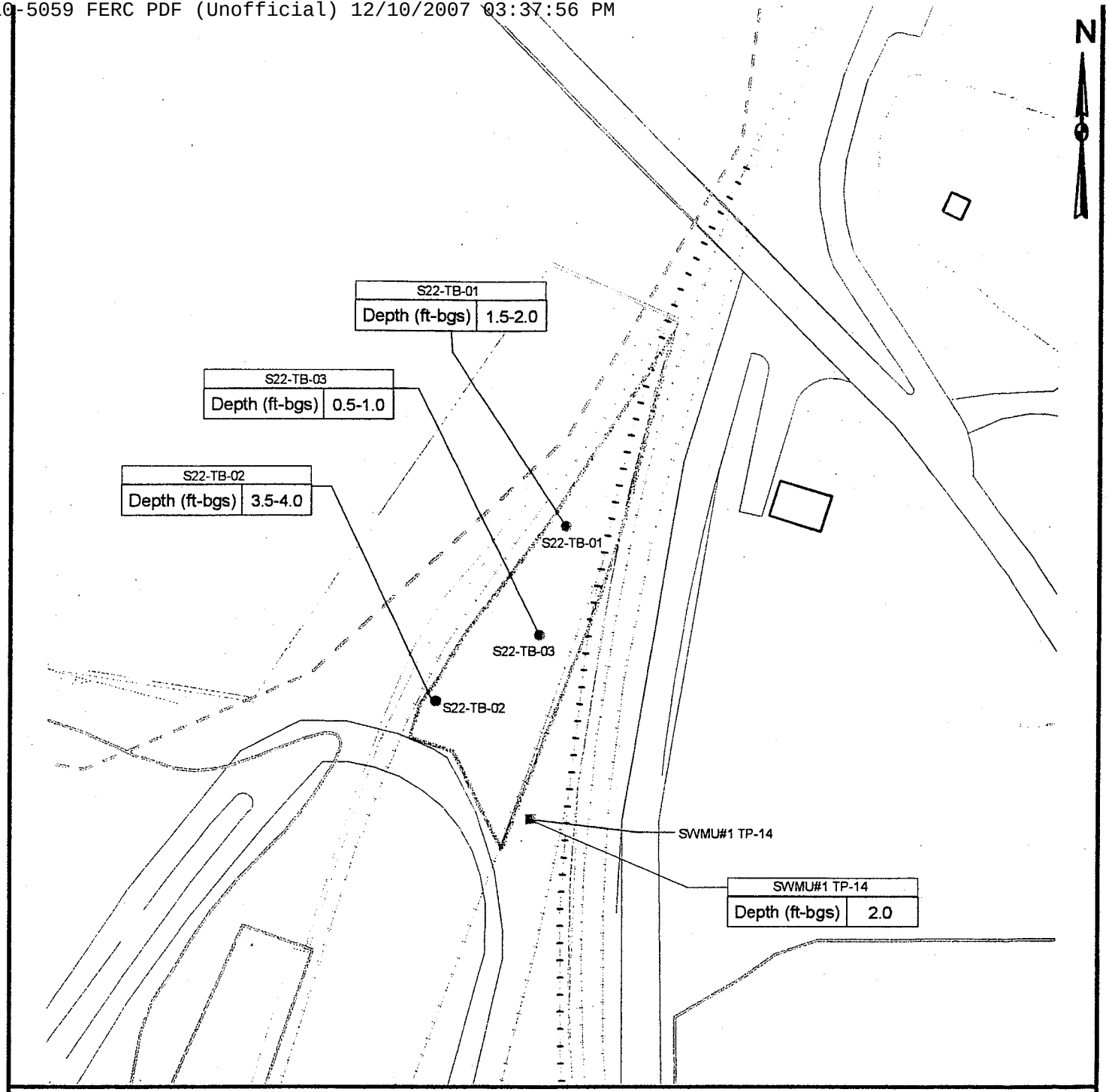

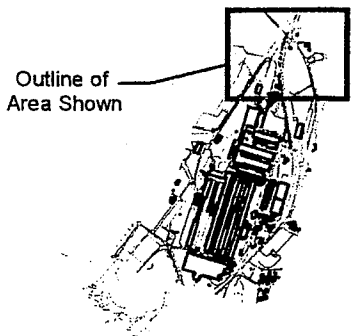

LEGEND:

- Historical Soil Sample Location (1996)
- Phase I RFI Soil Sample Location
- SWMU No.22 Boundary
- U.G. Conveyance Line (SWMU #25)
- Run-On Diversion (SWMU #33)
- SWMU Boundary

SWMU No. 22: Old Scrap Yard
Plan View and Soil Boring Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-17
DATE: March 2001	CHECKED: MEP	

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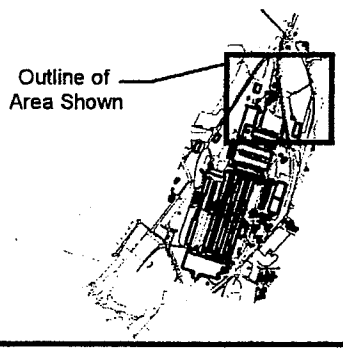
200 0 200 Feet



LEGEND:

- U.G. Conveyance Line (SWMU #25)
- Re-routed/Slip Lined Section of Storm Sewer System
- Run-On Diversion (SWMU #33)
- SWMU Boundaries

SWMU No. 25: Underground Conveyance Line to NPDES Outfall 009
Plan View Map

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: M.W.	**Figure 4-18**
DATE: March 2001	CHECKED: MEP	

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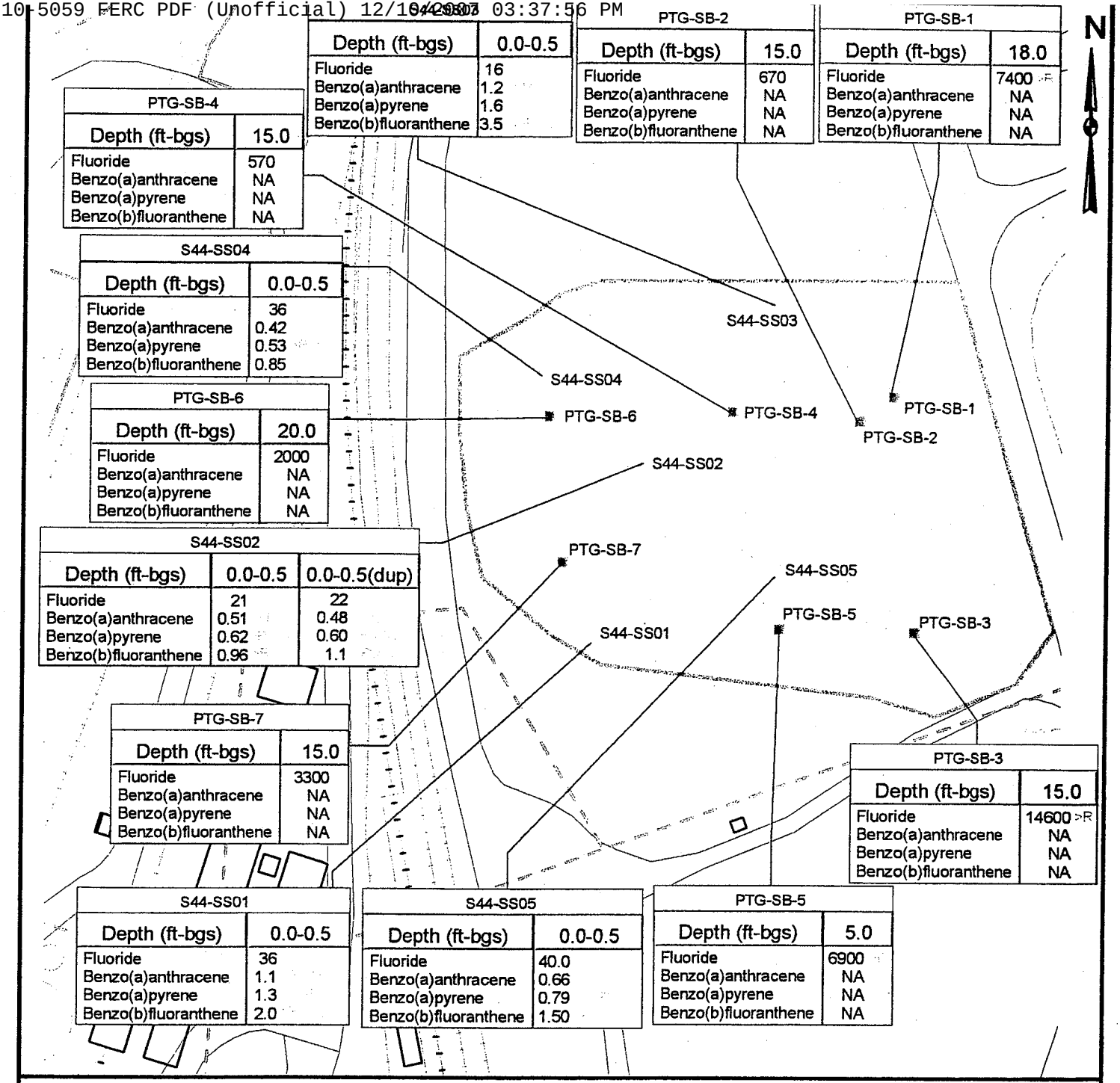
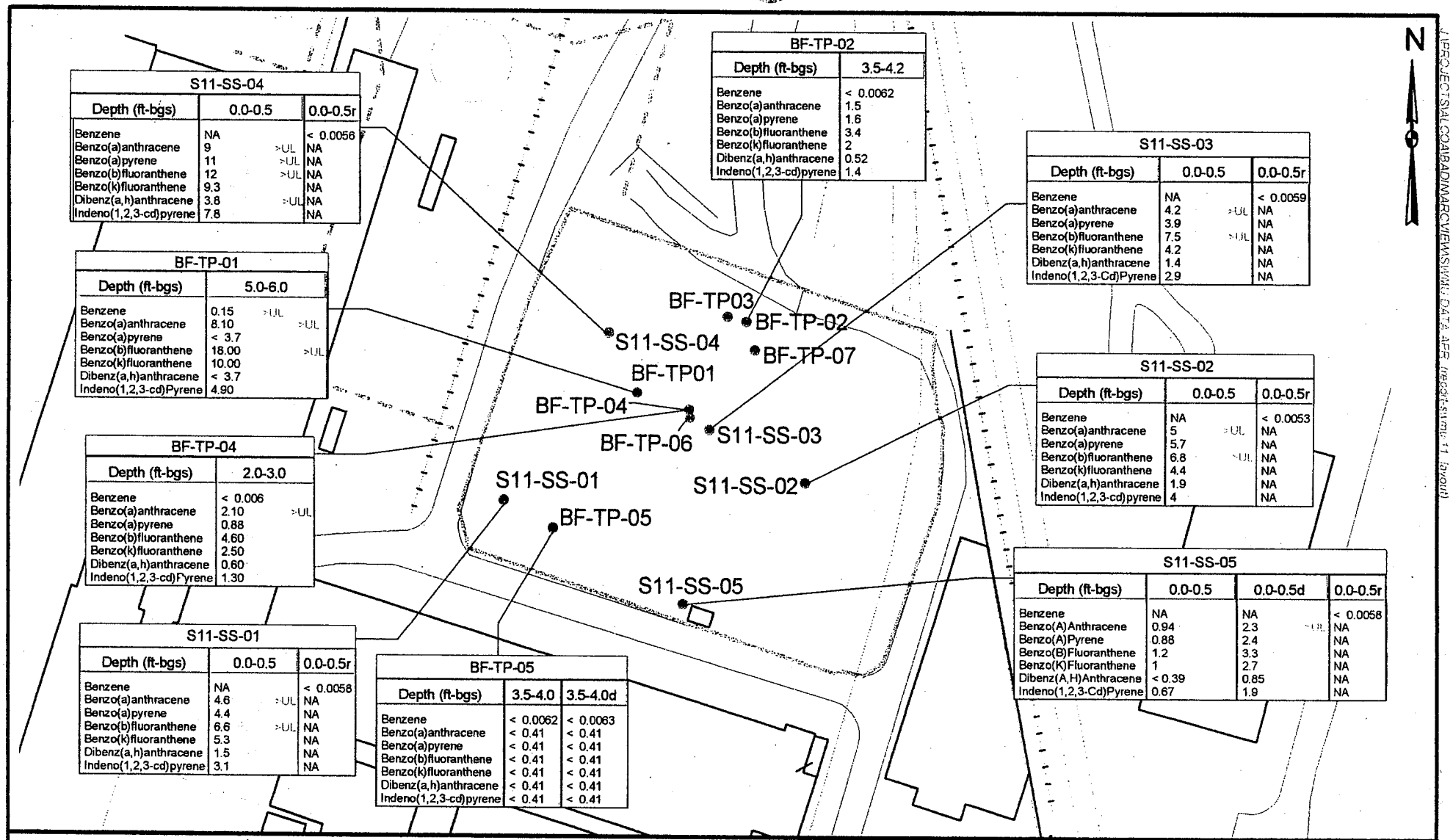




S11-SS-04			
Depth (ft-bgs)	0.0-0.5		0.0-0.5r
Benzene	NA		< 0.0056
Benzo(a)anthracene	9	>UL	NA
Benzo(a)pyrene	11	>UL	NA
Benzo(b)fluoranthene	12	>UL	NA
Benzo(k)fluoranthene	9.3		NA
Dibenz(a,h)anthracene	3.8	>UL	NA
Indeno(1,2,3-cd)pyrene	7.8		NA

BF-TP-02	
Depth (ft-bgs)	3.5-4.2
Benzene	< 0.0062
Benzo(a)anthracene	1.5
Benzo(a)pyrene	1.6
Benzo(b)fluoranthene	3.4
Benzo(k)fluoranthene	2
Dibenz(a,h)anthracene	0.52
Indeno(1,2,3-cd)pyrene	1.4

S11-SS-03			
Depth (ft-bgs)	0.0-0.5		0.0-0.5r
Benzene	NA		< 0.0059
Benzo(a)anthracene	4.2	>UL	NA
Benzo(a)pyrene	3.9		NA
Benzo(b)fluoranthene	7.5	>UL	NA
Benzo(k)fluoranthene	4.2		NA
Dibenz(a,h)anthracene	1.4		NA
Indeno(1,2,3-Cd)Pyrene	2.9		NA

BF-TP-01		
Depth (ft-bgs)	5.0-6.0	
Benzene	0.15	>UL
Benzo(a)anthracene	8.10	>UL
Benzo(a)pyrene	< 3.7	
Benzo(b)fluoranthene	18.00	>UL
Benzo(k)fluoranthene	10.00	
Dibenz(a,h)anthracene	< 3.7	
Indeno(1,2,3-cd)Pyrene	4.90	

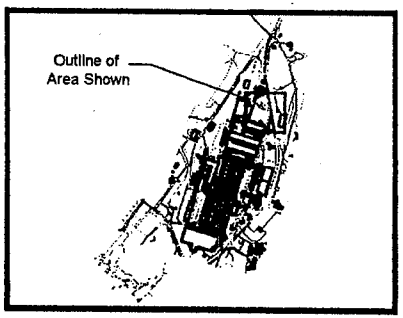
S11-SS-02			
Depth (ft-bgs)	0.0-0.5		0.0-0.5r
Benzene	NA		< 0.0053
Benzo(a)anthracene	5	>UL	NA
Benzo(a)pyrene	5.7		NA
Benzo(b)fluoranthene	6.8	>UL	NA
Benzo(k)fluoranthene	4.4		NA
Dibenz(a,h)anthracene	1.9		NA
Indeno(1,2,3-cd)pyrene	4		NA

BF-TP-04	
Depth (ft-bgs)	2.0-3.0
Benzene	< 0.006
Benzo(a)anthracene	2.10 >UL
Benzo(a)pyrene	0.88
Benzo(b)fluoranthene	4.60
Benzo(k)fluoranthene	2.50
Dibenz(a,h)anthracene	0.60
Indeno(1,2,3-cd)Pyrene	1.30

S11-SS-05				
Depth (ft-bgs)	0.0-0.5	0.0-0.5d		0.0-0.5r
Benzene	NA	NA		< 0.0058
Benzo(A)Anthracene	0.94	2.3	>UL	NA
Benzo(A)Pyrene	0.88	2.4		NA
Benzo(B)Fluoranthene	1.2	3.3		NA
Benzo(K)Fluoranthene	1	2.7		NA
Dibenz(A,H)Anthracene	< 0.39	0.85		NA
Indeno(1,2,3-Cd)Pyrene	0.67	1.9		NA

S11-SS-01			
Depth (ft-bgs)	0.0-0.5		0.0-0.5r
Benzene	NA		< 0.0058
Benzo(a)anthracene	4.6	>UL	NA
Benzo(a)pyrene	4.4		NA
Benzo(b)fluoranthene	6.6	>UL	NA
Benzo(k)fluoranthene	5.3		NA
Dibenz(a,h)anthracene	1.5		NA
Indeno(1,2,3-cd)pyrene	3.1		NA

BF-TP-05		
Depth (ft-bgs)	3.5-4.0	3.5-4.0d
Benzene	< 0.0062	< 0.0063
Benzo(a)anthracene	< 0.41	< 0.41
Benzo(a)pyrene	< 0.41	< 0.41
Benzo(b)fluoranthene	< 0.41	< 0.41
Benzo(k)fluoranthene	< 0.41	< 0.41
Dibenz(a,h)anthracene	< 0.41	< 0.41
Indeno(1,2,3-cd)pyrene	< 0.41	< 0.41



LEGEND:

- Phase I RFI Soil Sample Location
- SWMU No.11 Boundary
- U.G. Conveyance Line (SWMU #25)

Notes:
All analytical results are in mg/kg.
d = Duplicate sample
r = Resampled at indicated depth.

Indicates results exceeds USEPA Industrial RBC
Indicates results exceeds USEPA Residential RBC
Indicates results exceeds North Carolina SSL
>UL Indicates result exceeds USEPA SSL.

100 0 100 Feet

SWMU No. 11: Waste Oil Accumulation Area/ Miscellaneous Storage Area/ Pot Pad Burning Area/Old Bake Furnace Site

Plan View Map and Soil Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-22
DATE: March 2001	CHECKED: MEP	

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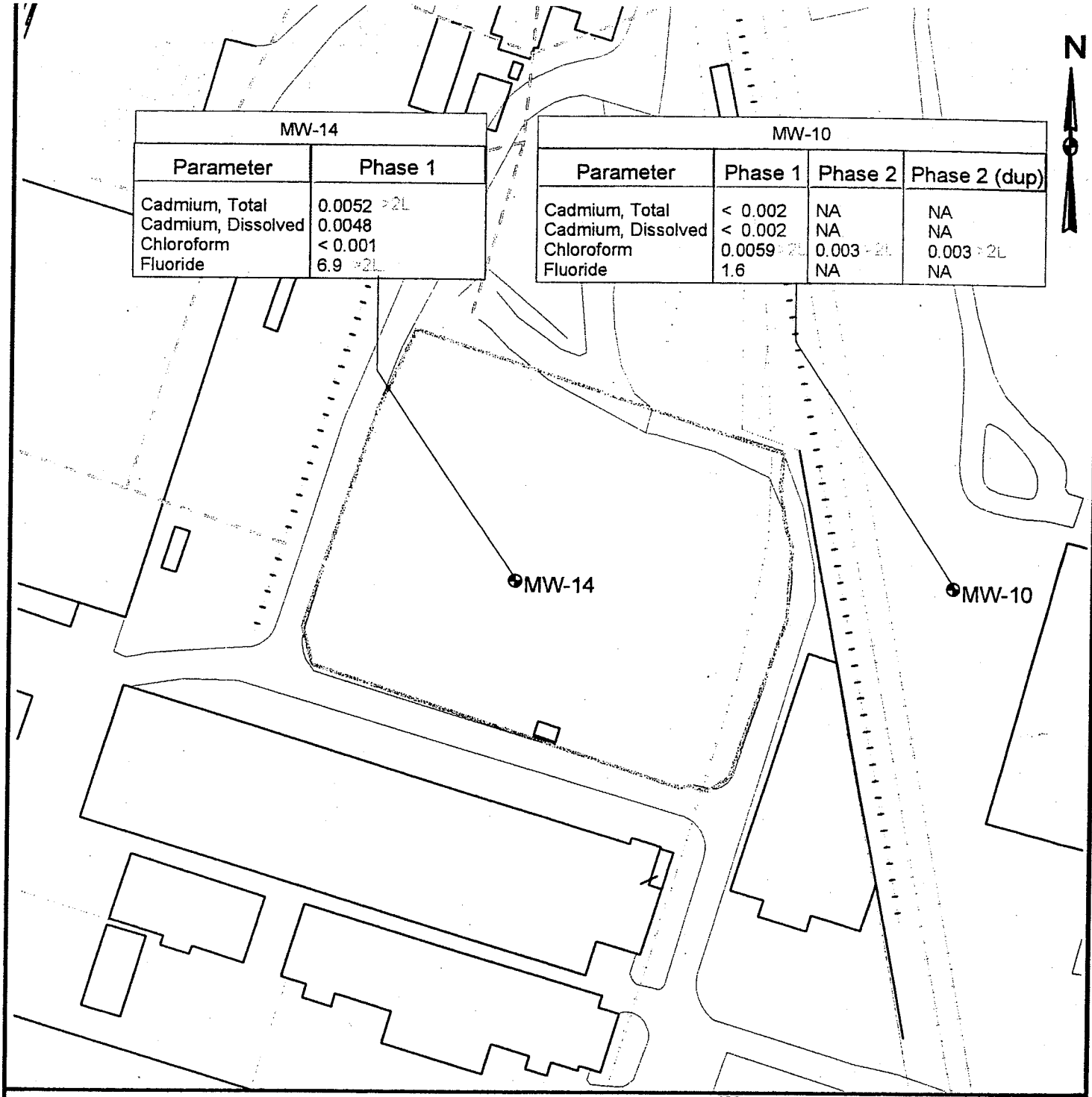

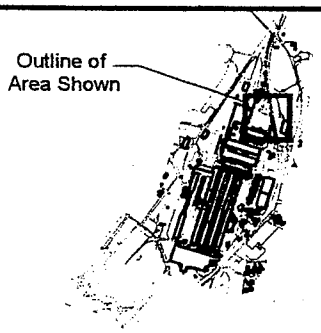

LEGEND:

- Monitoring Well Location/RFI Groundwater Sample
- SWMU No.11 Boundary
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundaries
- >2L Indicates result exceeds North Carolina groundwater protection standard
- Indicates result exceeds USEPA Maximum Contaminant Levels

Note:
All analytical results are in mg/l.

SWMU No. 11: Waste Oil Accumulation Area/ Miscellaneous Storage Area/ Pot Pad Burning Area/ Old Bake Furnace Site
Plan View and Groundwater Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-23**
DATE: March 2001	CHECKED: MEP	

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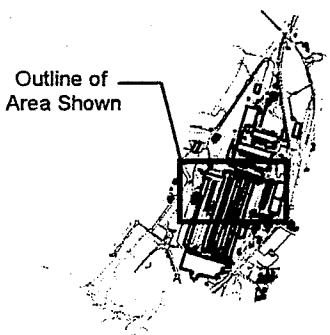

LEGEND:

- Phase I RFI Soil Sample Location
- SWMU No.38 Boundary
- SWMU Boundary

SWMU No.38: Old Rotary Station
Plan View Map and Soil Sample Location

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-24**
DATE: March 2001	CHECKED: MEP	

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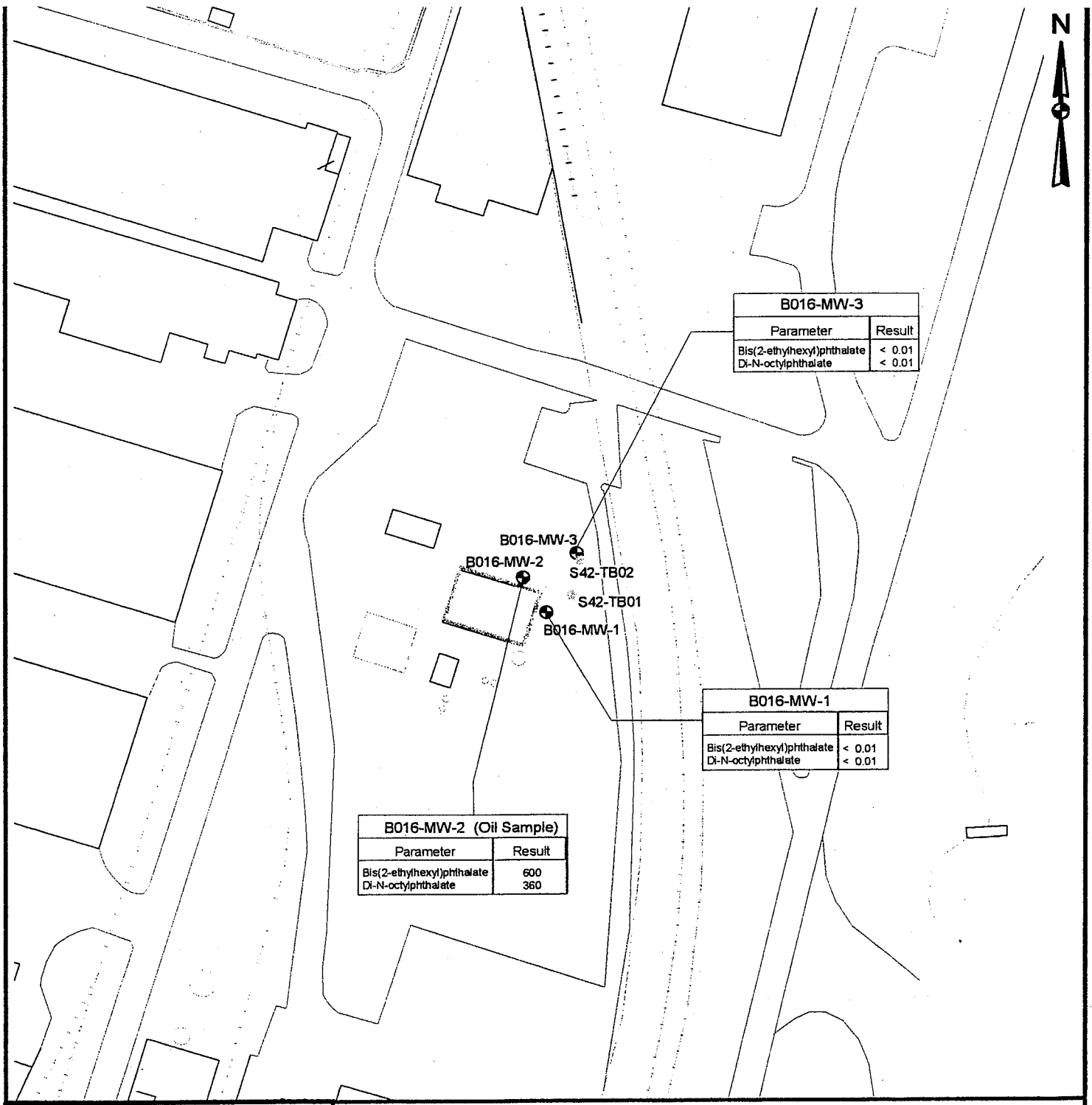

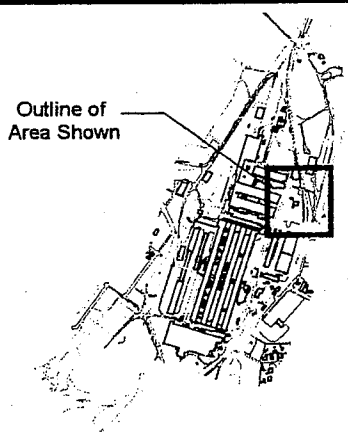

LEGEND:

- Phase 1 Test Boring Location
- Monitoring Well Location/RFI Sample
- SWMU No. 42 Boundary
- SWMU Boundary

100 0 100 Feet

Notes:

1. All results in mg/L.
2. The sample from monitoring well B016-MW-2 is a free product (lubricating oil) sample.

SWMU No. 42: Building 016
Plan View Map, Groundwater Sample Locations, and Oil Sample Location

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-25**
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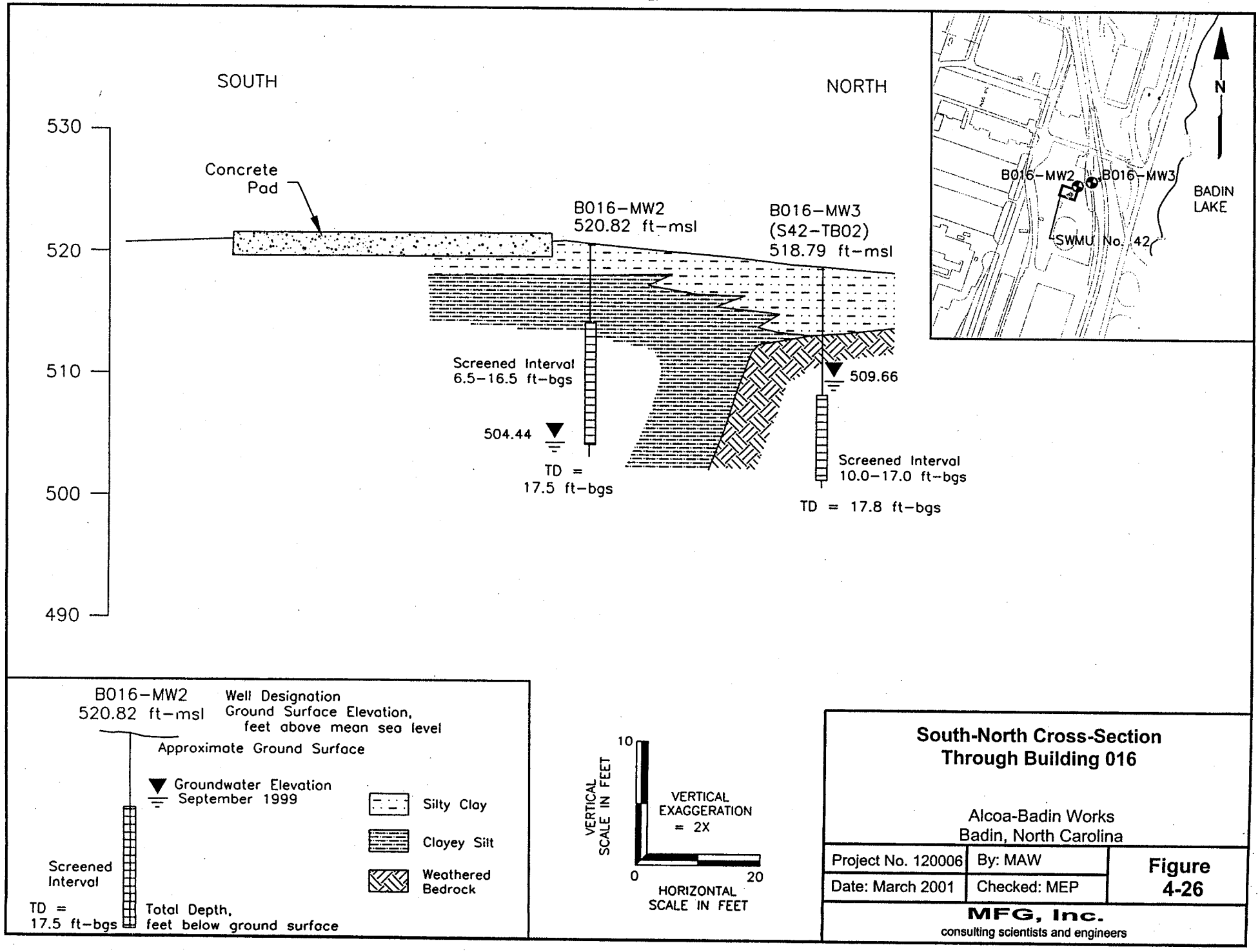

South-North Cross-Section Through Building 016

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: MAW	**Figure 4-26**
Date: March 2001	Checked: MEP	

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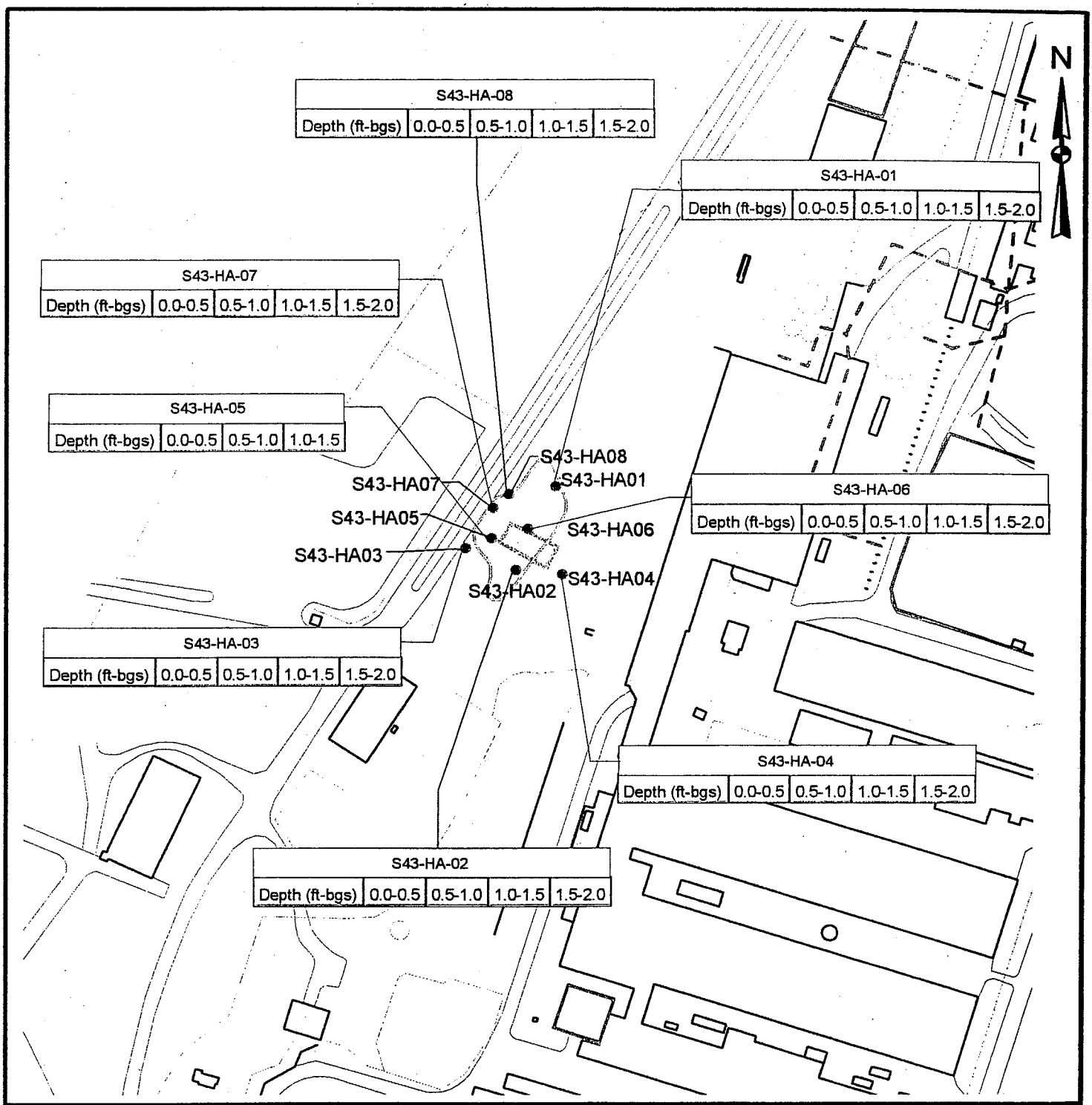

LEGEND:

- Phase I RFI Soil Sample Location
- SWMU No. 43 Boundary
- U.G. Conveyance Line (SWMU #25)
- SWMU No. 46 Boundary

SWMU No. 43: Overhead Crane Rebuild Structure
Plan View and Soil Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-27**
DATE: March 2001	CHECKED: MEP	

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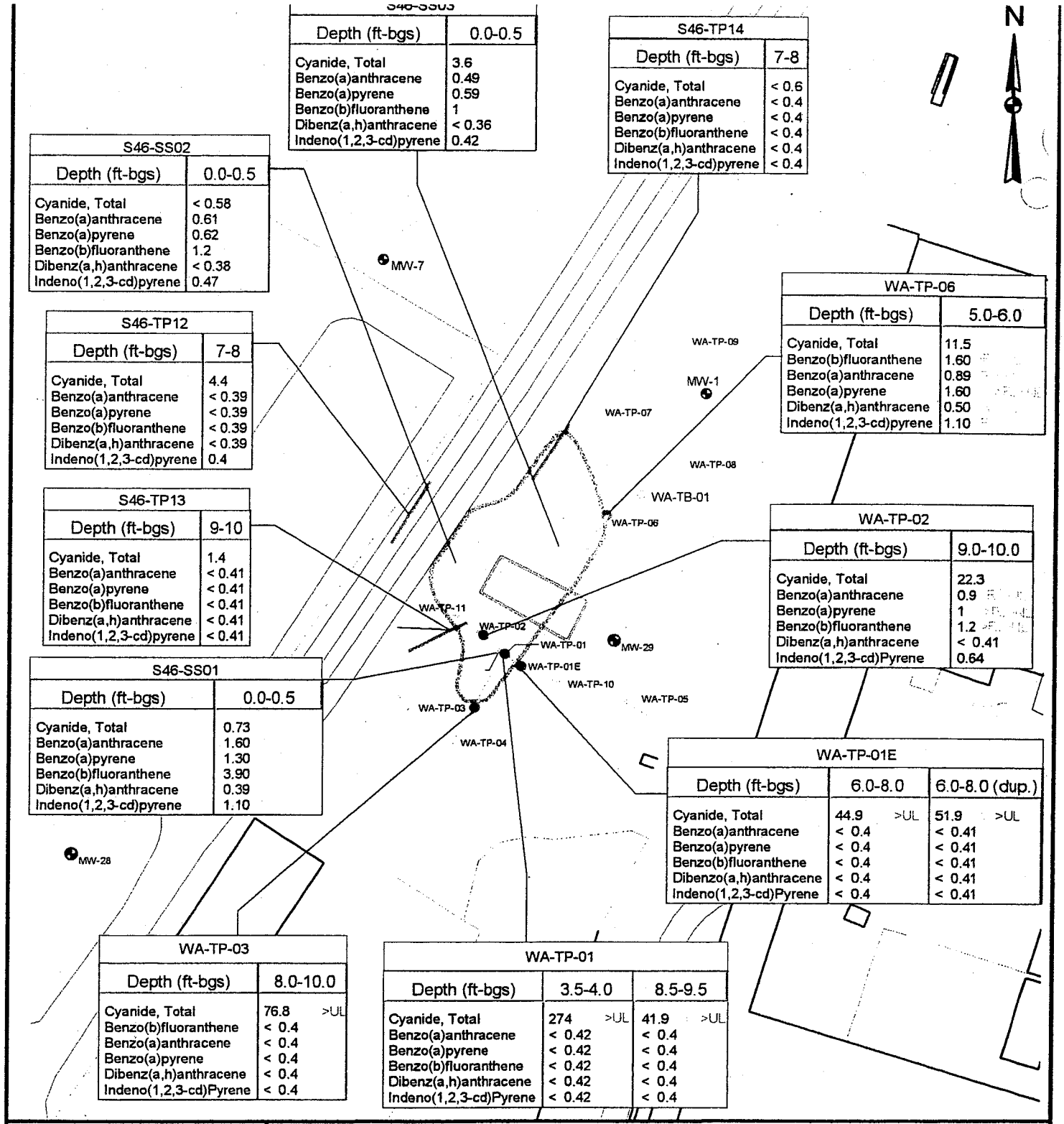

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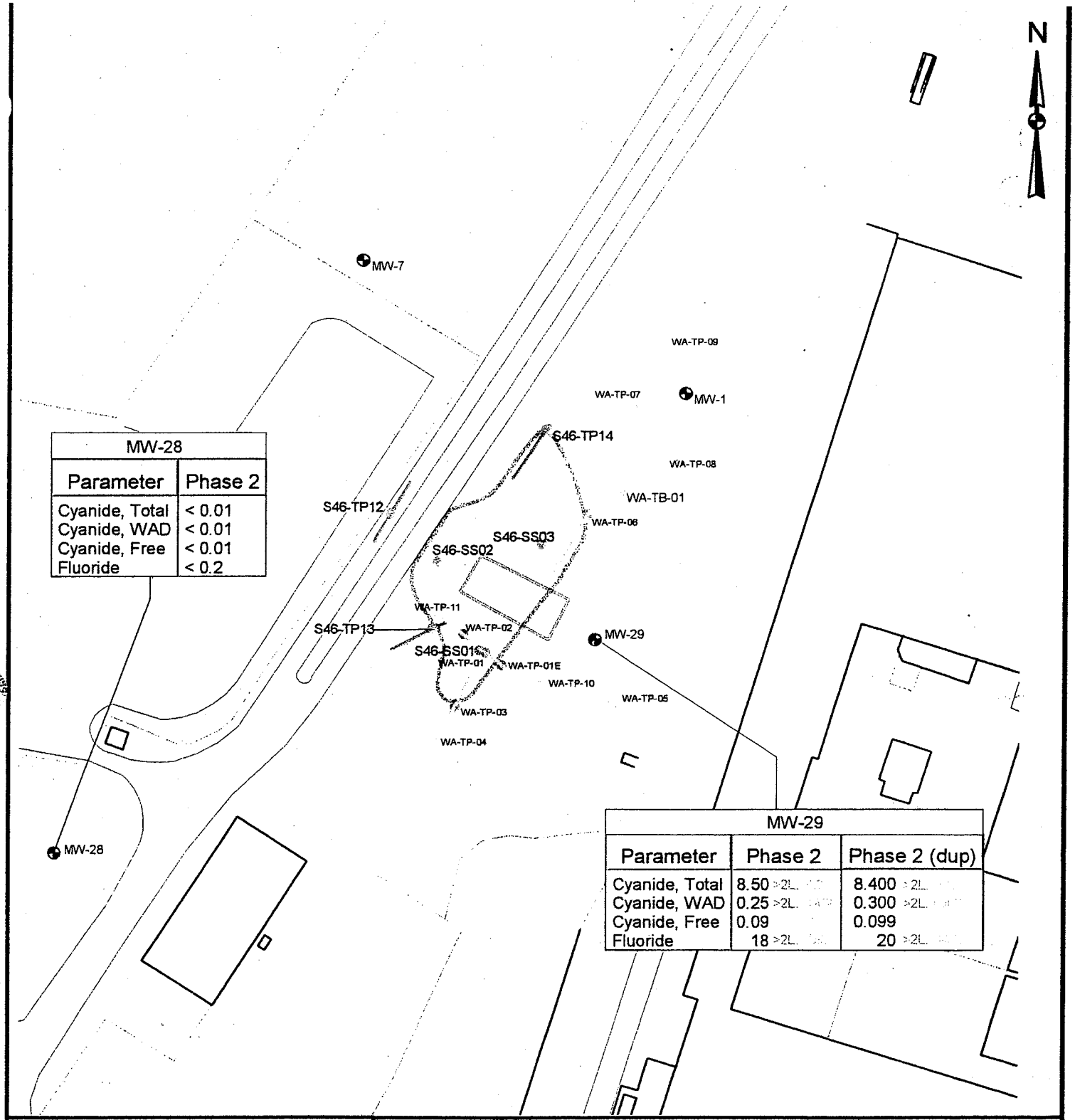
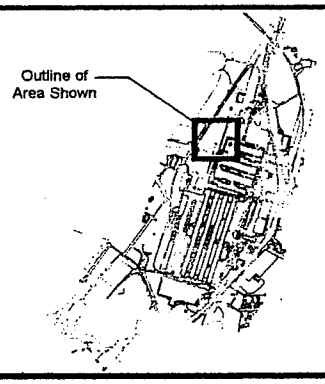


MW-28	
Parameter	Phase 2
Cyanide, Total	< 0.01
Cyanide, WAD	< 0.01
Cyanide, Free	< 0.01
Fluoride	< 0.2

MW-29		
Parameter	Phase 2	Phase 2 (dup)
Cyanide, Total	8.50 >2L	8.400 >2L
Cyanide, WAD	0.25 >2L	0.300 >2L
Cyanide, Free	0.09	0.099
Fluoride	18 >2L	20 >2L



LEGEND:

- Phase 2 Monitoring Well Location
- Phase 2 Soil Sample Location
- Phase 2 Test Pit Location
- Phase 1 Soil Sample Location
- Phase 1 Test Boring Location
- Existing Monitoring Well Location
- SWMU #46 Boundary
- SWMU Boundary

2L Indicates result exceeds North Carolina groundwater protection standard

Indicates result exceeds USEPA Maximum Contaminant Levels

Notes:
All analytical results are in mg/L.
Arsenic concentrations are less than Background values.

100 0 100 Feet

SWMU No. 46: West SPL Area
Groundwater Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: M.W.	Figure 4-29
DATE: March 2001	CHECKED:	

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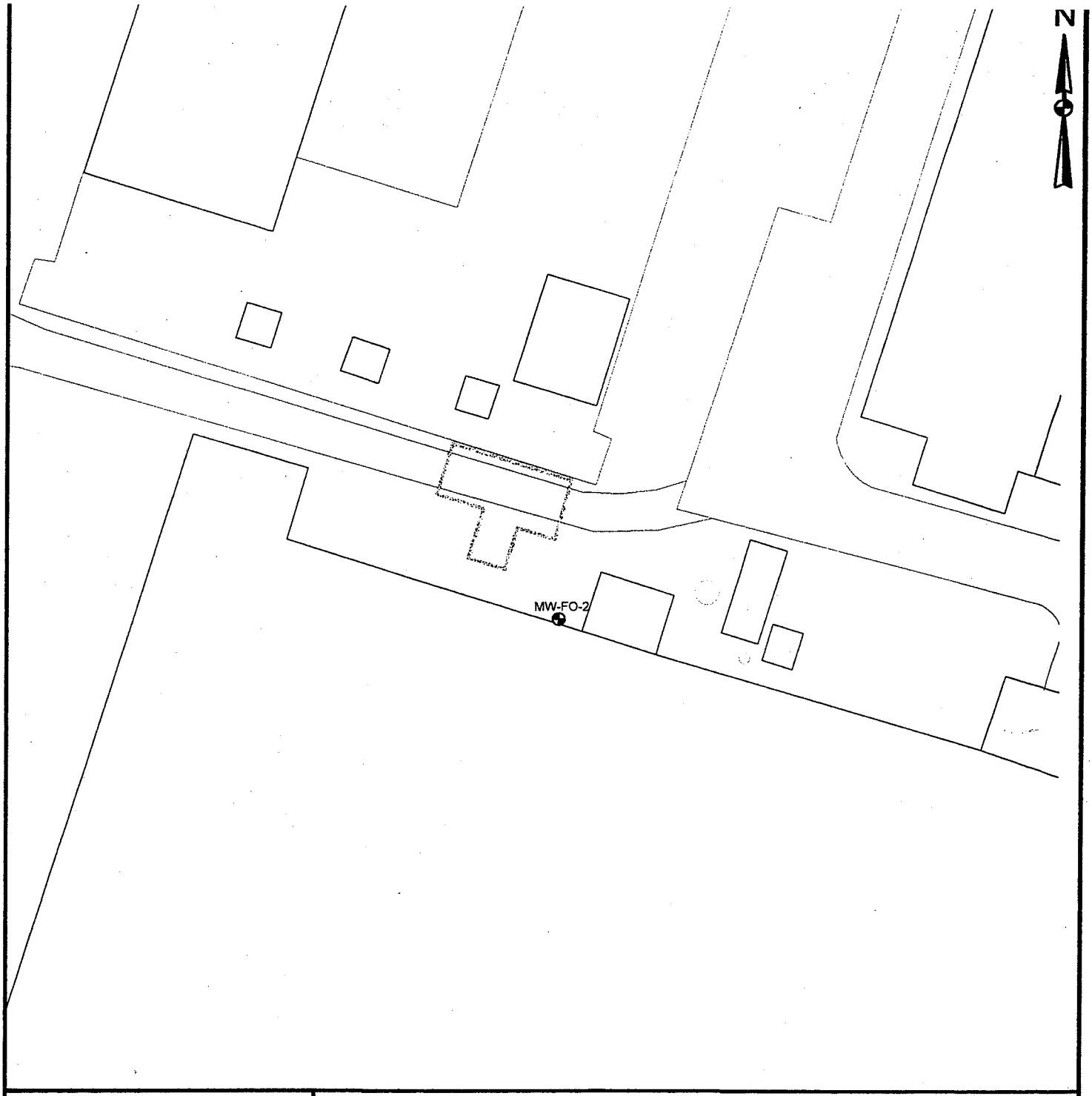

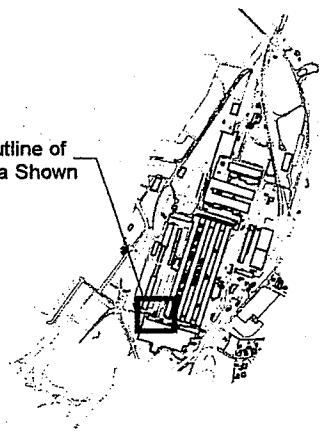

LEGEND:

- Monitoring Well Location /RFI Groundwater Sample Location
- AOC-A Boundary

50 0 50 Feet

AOC-A: Fuel Oil Tank Release
Plan View and Groundwater Sample Location

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-30
DATE: March 2001	CHECKED: MEP	

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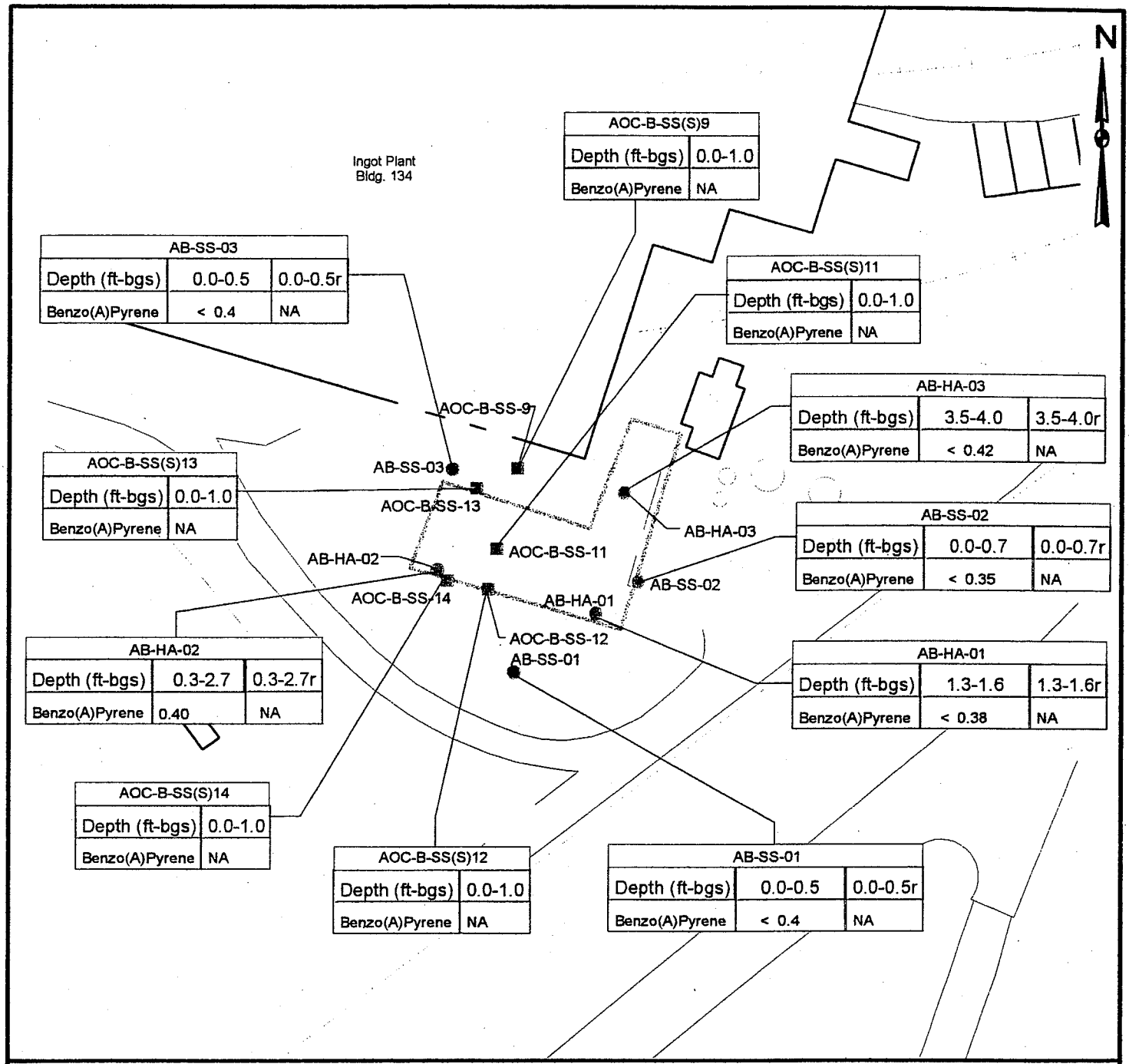
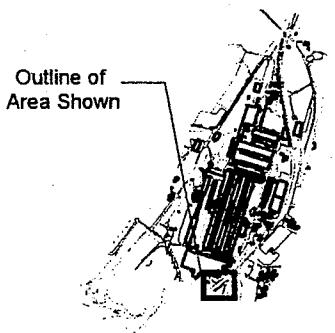


LEGEND:

- Phase I RFI Soil Sample Location
- Historical Soil Sample Location (1996)/Used in RFI Risk Assessment
- AOC-B Boundary
- Indicates results exceeds USEPA Residential RBC
- Indicates results exceeds North Carolina SSL



50 0 50 Feet

Note:
All analytical results are in mg/kg.

AOC-B: Compressor Oil Leakage Area
Plan View and Soil Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-31
DATE: March 2001	CHECKED: MEP	

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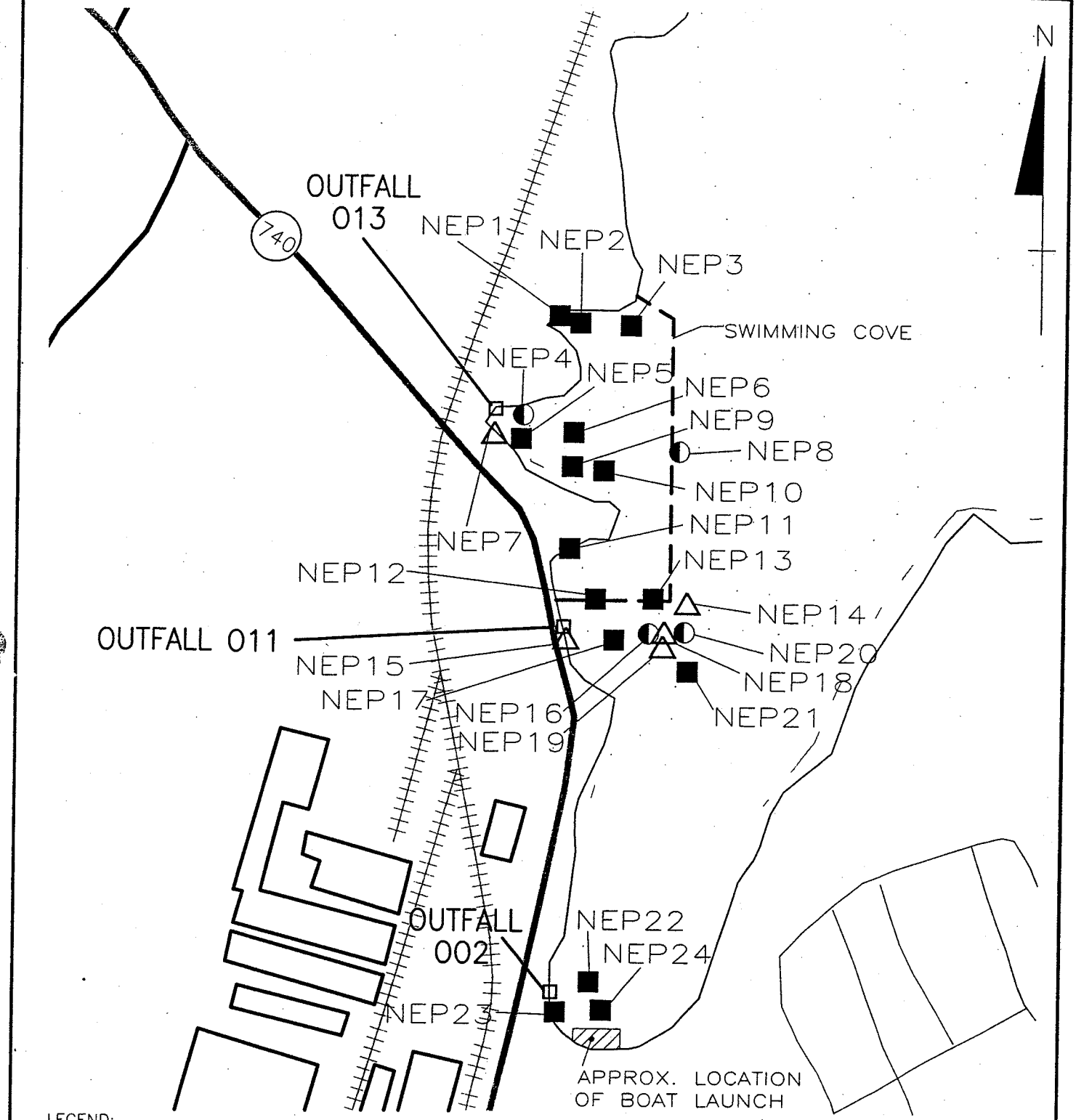

LEGEND:

- ■ SEDIMENT SAMPLE LOCATION
- △ SURFACE WATER SAMPLE LOCATION
- ◐ SEDIMENT & SURFACE WATER SAMPLE LOCATION

REFERENCE:
DRAWING USED FROM WOODWARD-CLYDE, FRANKLIN, TN
DATED 6/13/97, LAKE1OF.DWG, FIGURE 1

SCALE

500 0 500 FEET

Badin Lake Surface Water and Sediment Sample Locations (Plant Area)

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: MAW	**Figure 4-32**
Date: March 2001	Checked: MEP	

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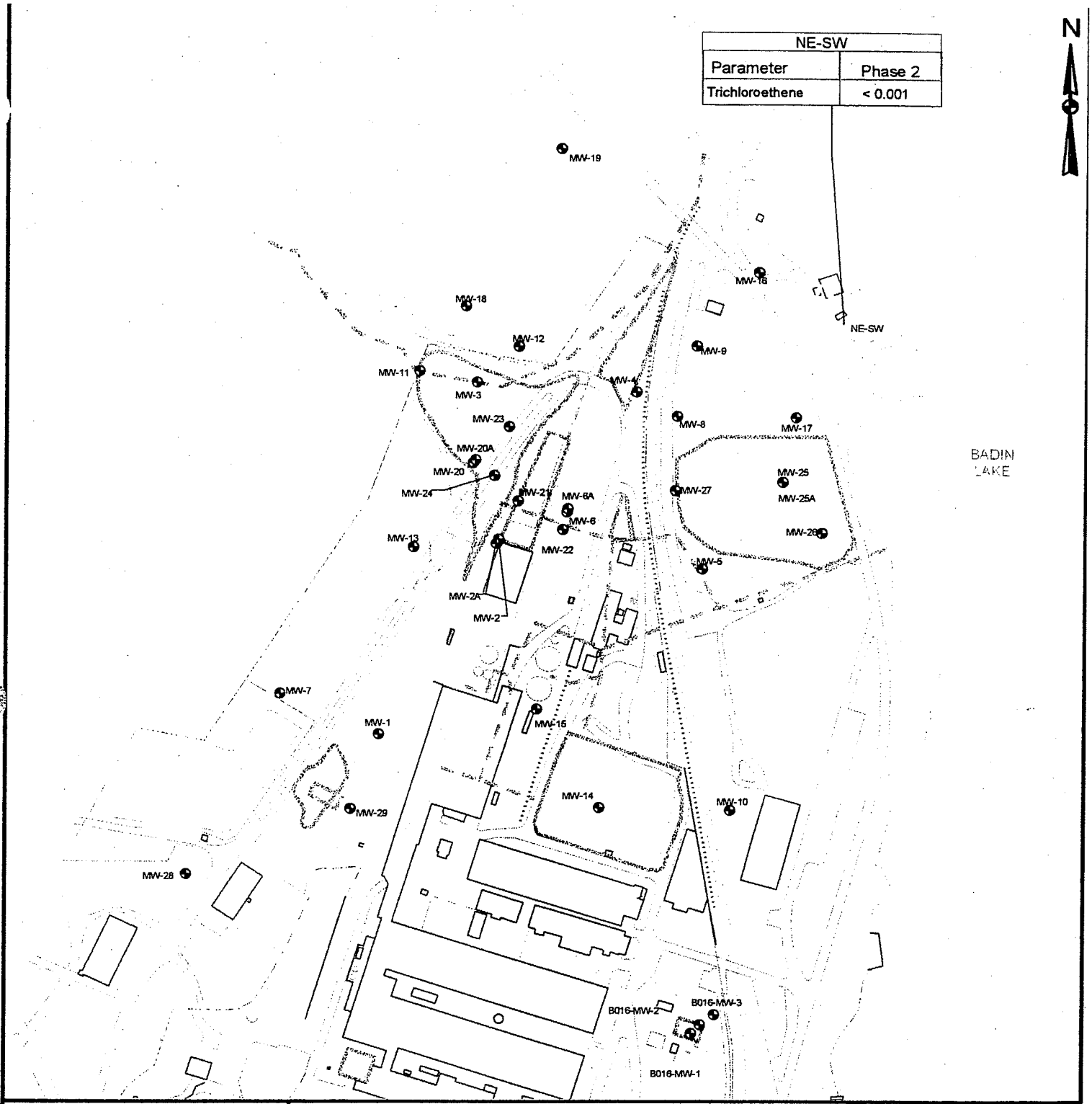

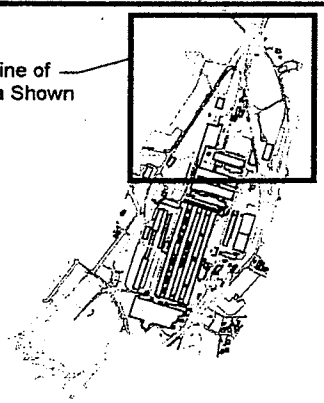

LEGEND:

- Phase II Surface Water Sample Location
- Monitoring Well Location/RFI Groundwater Sample
- Run-On Diversion (SWMU #33)
- U.G. Conveyance Line (SWMU #25)
- SWMU Boundaries

Note:

All analytical results are in mg/l.

Badin Lake
Phase II RFI Surface Water Sample Location

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-33
DATE: March 2001	CHECKED: MEP	

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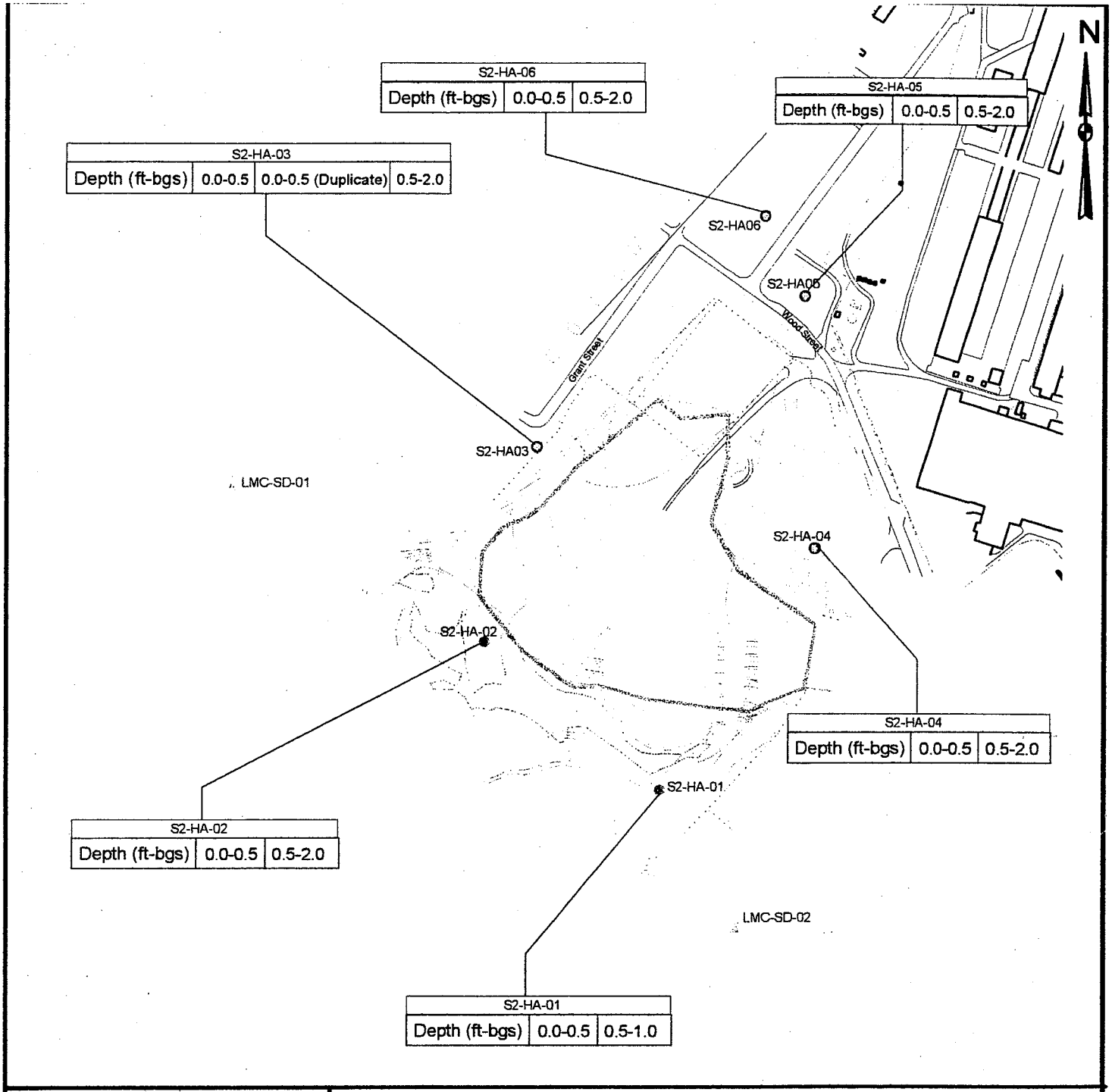

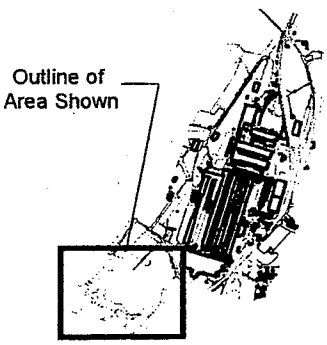

LEGEND:

- Phase I RFI Background Soil Sample Location
- Phase I RFI Soil Sample Location
- Phase I RFI Sediment Sample Location
- SWMU No.2 Boundary

Note:
All detected concentrations of COIs
are less than screening values or background.

400 0 400 Feet

SWMU No. 2 : Alcoa/Badin Landfill
Plan View and Soil Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-34
DATE: March 2001	CHECKED: MEP	

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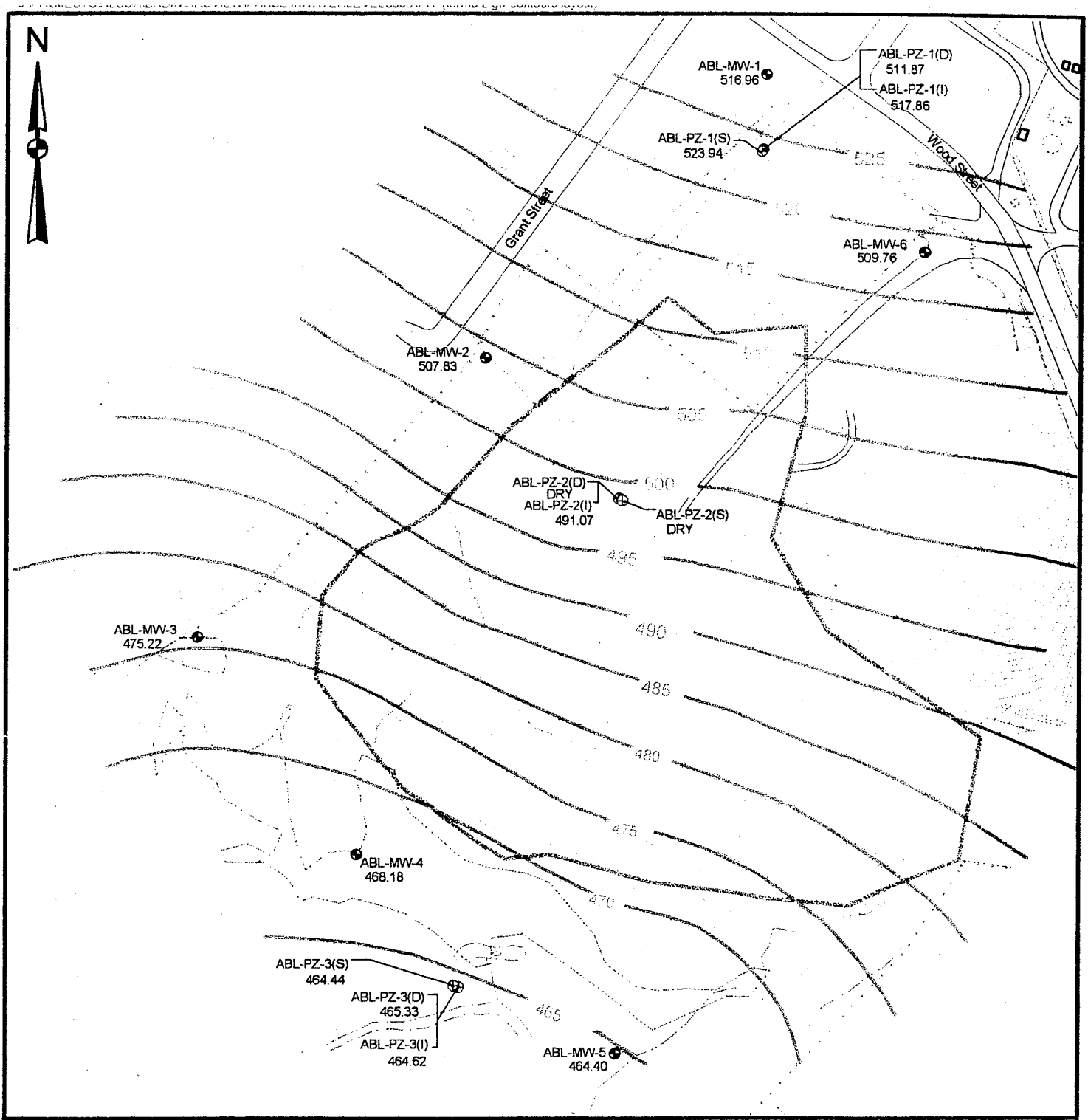

SWMU No. 2: Alcoa/Badin Landfill
Water Table Elevation Contour Map
September 1999

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-36**
DATE: March 2001	CHECKED: MEP	

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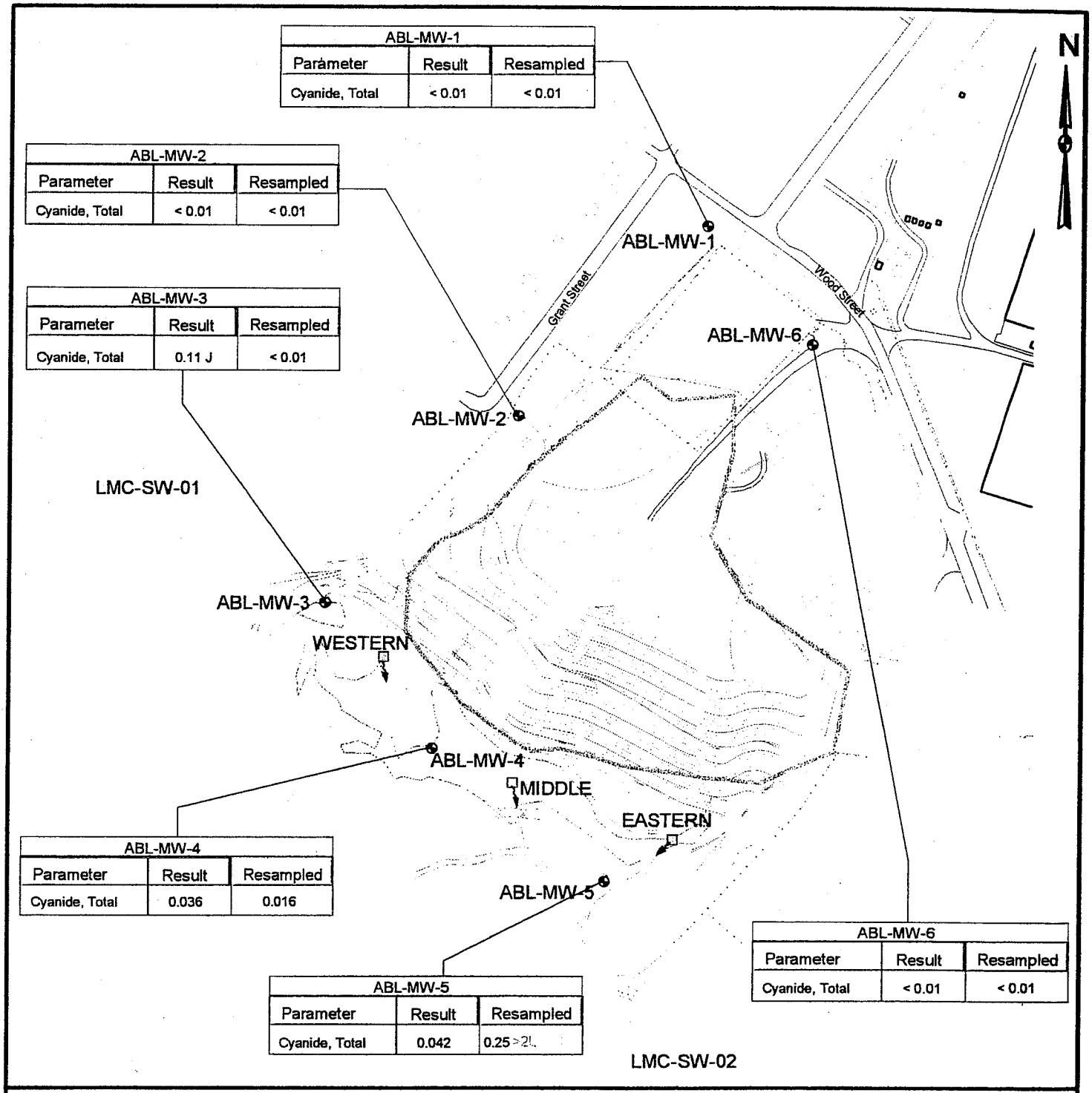

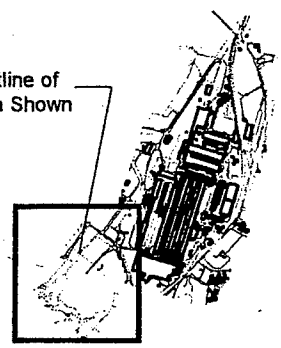

LEGEND:

- Monitoring Well Location/RFI Groundwater Sample
  Phase I RFI Surface Water Sample Location
- Seep Location (indicating flow direction)
  Seep Collection System
- SWMU #2 Boundary
- >2L Indicates result exceeds North Carolina groundwater protection standard
- Indicates result exceeds USEPA Maximum Contaminant Levels

Notes:

All analytical results are in mg/l.

300 0 300 Feet

SWMU No. 2 : Alcoa/Badin Landfill
Plan View and Groundwater Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-37
DATE: March 2001	CHECKED: MEP	

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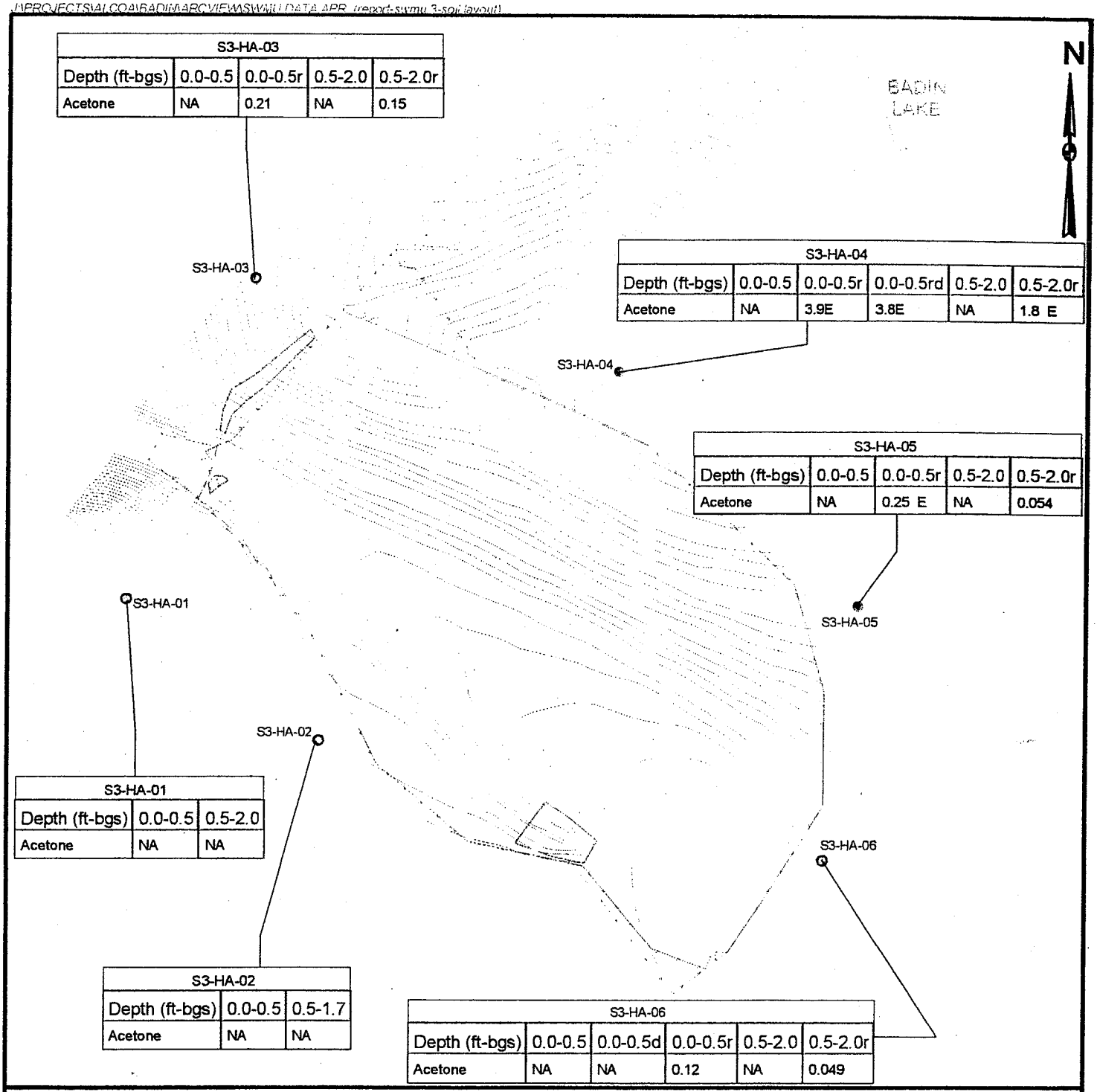


S3-HA-03				
Depth (ft-bgs)	0.0-0.5	0.0-0.5r	0.5-2.0	0.5-2.0r
Acetone	NA	0.21	NA	0.15

S3-HA-04					
Depth (ft-bgs)	0.0-0.5	0.0-0.5r	0.0-0.5rd	0.5-2.0	0.5-2.0r
Acetone	NA	3.9E	3.8E	NA	1.8 E

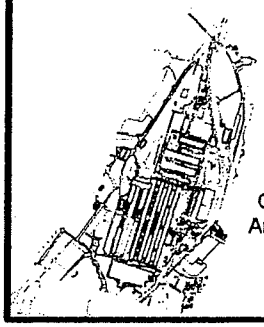
S3-HA-05				
Depth (ft-bgs)	0.0-0.5	0.0-0.5r	0.5-2.0	0.5-2.0r
Acetone	NA	0.25 E	NA	0.054

S3-HA-01		
Depth (ft-bgs)	0.0-0.5	0.5-2.0
Acetone	NA	NA

S3-HA-02		
Depth (ft-bgs)	0.0-0.5	0.5-1.7
Acetone	NA	NA

S3-HA-06					
Depth (ft-bgs)	0.0-0.5	0.0-0.5d	0.0-0.5r	0.5-2.0	0.5-2.0r
Acetone	NA	NA	0.12	NA	0.049

100 0 100 Feet



LEGEND:

- ○ Phase I RFI Background Soil Sample Location
- ● Phase I RFI Soil Sample Location
  Indicates results exceeds North Carolina SSL

Notes:

1. All analytical results are in mg/kg.
2. NA = not analyzed
3. Arsenic and Chromium concentrations are less than background.

SWMU No. 3: Old Brick Landfill
Plan View Map and Soil Sample Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	Figure 4-38
DATE: March 2001	CHECKED: MEP	

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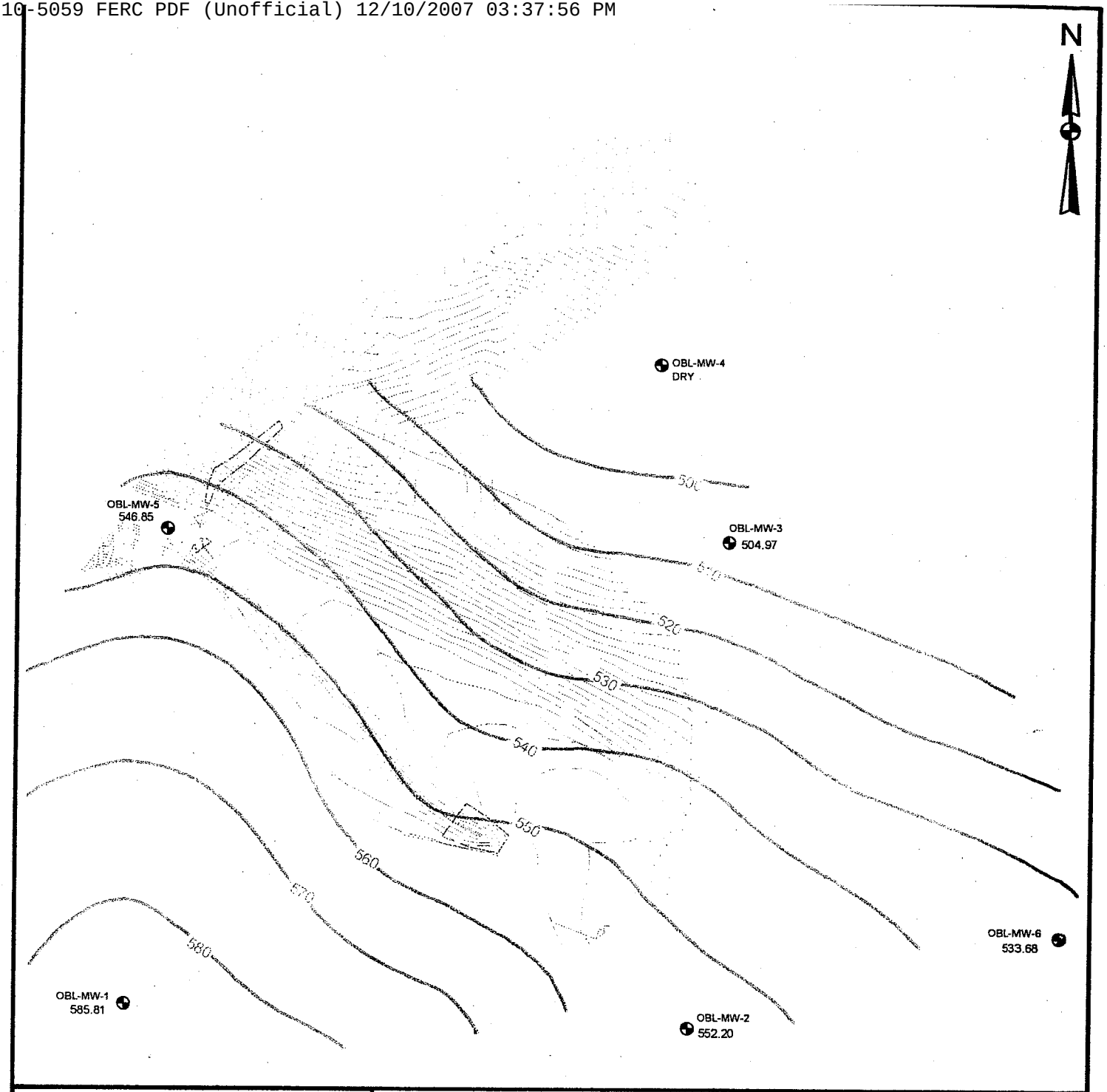

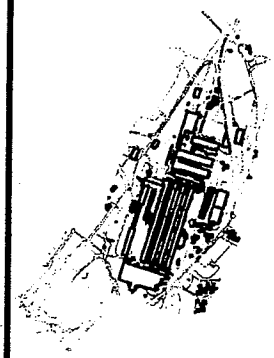

Outline of Area Shown

LEGEND:

- Groundwater Elevation Contour [ft-msl]
- Phase II RFI Monitoring Well Location
- Monitoring Well Location

120 0 120 Feet

SWMU No. 3: Old Brick Landfill
Groundwater Potentiometric Contour Map
September 5, 2000

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: MAW	**Figure 4-39**
DATE: March 2001	CHECKED: BMB	

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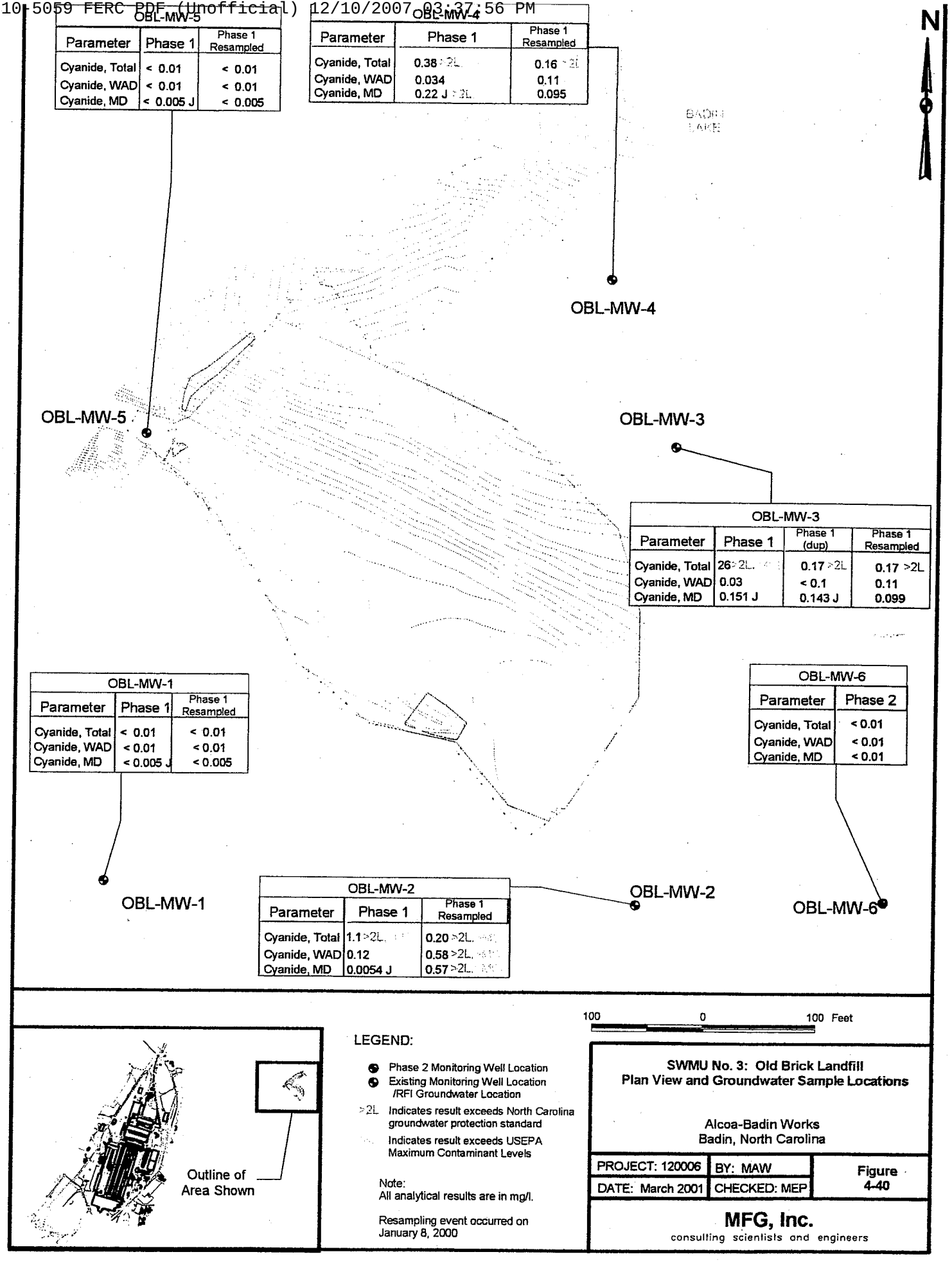

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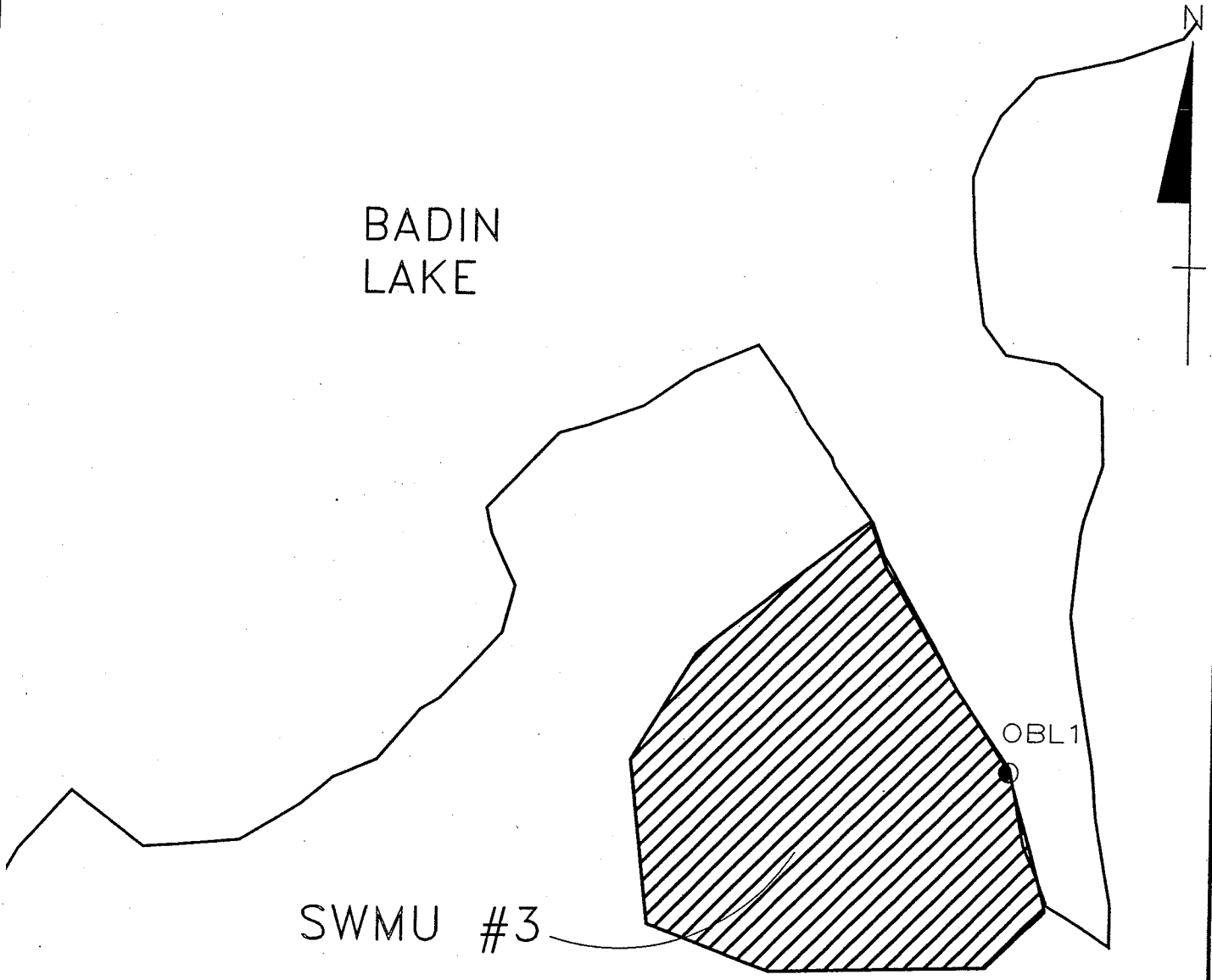

LEGEND:

◐ SEDIMENT & SURFACE WATER SAMPLE LOCATION

REFERENCE:
DRAWING USED FROM WOODWARD-CLYDE, FRANKLIN, TN
DATED 6/13/97, LAKE1OF.DWG, FIGURE 1

SCALE

300 0 300 FEET

Badin Lake Surface Water and Sediment Sample Locations (SWMU No. 3)

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: MAW	**Figure 4-41**
Date: March 2001	Checked: MEP	

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M F G
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800 Vinial Street, Building A
Pittsburgh, PA 15212-1528

412/321-2278
Fax: 412/321-2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 1 March 2000

SUBJECT: **Data Validation of: Total and Free Cyanide**

Re: Quanterra, Inc.
Package No.: A0A100119

Aqueous Samples:

ABL-MW-1-0050R
ABL-MW-2-0060R
ABL-MW-3-0060R
ABL-MW-4-0060R
ABL-MW-5-0060R
MW-5-0040R
MW-5-0040DR
MW-8-0040R
MW-9-0040R
MW-10-0040R
MW-16-0050R
MW-17-0050R
MW-18-0040R
MW-19-0040R
MW-25-0050R
MW-25A-0050R
MW-26-0050R

Field Duplicates:

Sample MW-5-0040DR is a field duplicate of sample MW-5-0040R.

Overview

This set of samples collected on January 4 through 6, 2000 for the Alcoa Badin Site contains seventeen (17) groundwater samples, including one (1) field duplicate pair. The samples were analyzed for total cyanide by USEPA SW-846 Method 9012A, free cyanide by Standard Method 18 4500-CN-I and ASTM D4282-83.

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Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

Free Cyanide by SM18

The January 17, 2000 laboratory control sample percent recovery was less than 10 percent. As a result, associated positive values were qualified as estimated "J" while non-detect results were rejected.

Minor Issues

Total Cyanide

The percent recovery for the matrix spike prepared on January 14, 2000 was low. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The absolute difference between results for sample MW-5-0040R and it's field duplicate MW-5-0040DR were outside control limits. As a result, the values in these samples were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Free Cyanide by SM18

The MSD percent recovery was low associated with the samples prepared on January 14, 2000. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The LCSD percent recovery was less than 80 percent and RPD between the LCS/LCSD percent recoveries associated with the samples prepared on January 17, 2000 exceeded control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The reporting limit for sample MW-9-0040R did not accurately reflect the 100X dilution at which the sample was run. This was corrected on the validated data summary. In addition, the laboratory reported a positive value below this corrected reporting limit result for this sample. The positive value was retained but qualified as estimated "J" on the validated data summary.

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Free Cyanide by ASTM D4282-83

The percent recovery for the LCS performed on January 13, 2000 was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Notes

Note that the MS/MSD percent recoveries associated with the free (ASTM 4282-83) cyanide analyses were less than control limits. However, the original sample results were greater than four times the spike added and no action was taken on this basis.

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Not all of the laboratory duplicate results for the free cyanide by ASTM 4282-83 were provided with the data package. However, a review of the raw data showed these to be acceptable.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the free cyanide samples prepared on January 17, 2000. However, a laboratory control sample is prepared with each batch and the results of the LCS was acceptable, except as noted above.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable except as noted above. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Lot# A0A100119

	ABL-MW-1-0050R	ABL-MW-2-0060R	ABL-MW-3-0060R	ABL-MW-4-0060R	ABL-MW-5-0060R	MW-10-0040R	MW-16-0050R	MW-17-0050R	MW-18-0040R
Sampled	1/5/00	1/6/00	1/6/00	1/6/00	1/6/00	1/4/00	1/5/00	1/5/00	1/4/00
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CYANIDE, FREE	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	**0.0579** J	0.005 UJ	**0.369** J	0.005 UJ	0.005 U
Cyanide, Total	0.01 U	0.01 U	0.01 U	**0.016**	**0.25**	0.01 U	**2.2**	0.01 UJ	0.01 UJ
Cyanide, WAD	0.01 R	0.01 R	0.01 R	0.01 R	**0.099** J	0.01 R	**0.49** J	0.01 UJ	0.01 UJ

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Data Summary
Lot# A0A100119

	MW-19-0040R	MW-25-0050R	MW-25A-0050R	MW-26-0050R	MW-5-0040DR	MW-5-0040R	MW-8-0040R	MW-9-0040R
Sampled	1/4/00	1/5/00	1/5/00	1/5/00	1/4/00	1/4/00	1/4/00	1/4/00
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CYANIDE, FREE	0.005 U	**0.0309 J**	**0.0629 J**	**0.0134 J**	**0.018**	**0.019**	**0.0747**	**0.42**
Cyanide, Total	0.01 UJ	**0.76**	**0.53**	**0.042**	0.01 UJ	**0.092 J**	**0.56 J**	**4.0 J**
Cyanide, WAD	0.01 UJ	**0.068 J**	**0.11 J**	**0.024 J**	**0.034 J**	**0.039 J**	**0.1 J**	**0.91 J**

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Results as Reported by the Laboratory

IT GROUP

Client Sample ID: MW-19-0040R

General Chemistry

Lot-Sample #...: A0A100119-001 Work Order #...: D783V Matrix.....: WATER
Date Sampled...: 01/04/00 09:55 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0017030	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0017031	

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IT GROUP

Client Sample ID: MW-8-0040R

General Chemistry

Lot-Sample #...: A0A100119-002 Work Order #...: D783W Matrix.....: WATER
Date Sampled...: 01/04/00 13:45 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.10	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	74.7	10.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 2			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.56	0.050	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-5-0040R

General Chemistry

Lot-Sample #...: A0A100119-003 Work Order #...: D783X Matrix.....: WATER
Date Sampled...: 01/04/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.039	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	19.0	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.092	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-5-0040DR

General Chemistry

Lot-Sample #...: A0A100119-004 Work Order #...: D7840 Matrix.....: WATER
Date Sampled...: 01/04/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.034	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	18.0	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-18-0040R

General Chemistry

Lot-Sample #...: A0A100119-005 Work Order #...: D7841 Matrix.....: WATER
Date Sampled...: 01/04/00 09:55 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013087	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

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IT GROUP

Client Sample ID: MW-9-0040R

General Chemistry

Lot-Sample #...: A0A100119-006 Work Order #...: D7842 Matrix.....: WATER
Date Sampled...: 01/04/00 14:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.91	0.50	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 100			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	420	50.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	4.0	1.0	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 100			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-10-0040R

General Chemistry

Lot-Sample #...: A0A100119-007 Work Order #...: D7843 Matrix.....: WATER
Date Sampled...: 01/05/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

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IT GROUP

Client Sample ID: MW-17-0050R

General Chemistry

Lot-Sample #...: A0A100119-008 Work Order #...: D7845 Matrix.....: WATER
Date Sampled...: 01/05/00 10:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-25A-0050R

General Chemistry

Lot-Sample #...: A0A100119-009 Work Order #...: D7846 Matrix.....: WATER
Date Sampled...: 01/05/00 13:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.11	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	62.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	0.53	0.040	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 4		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: MW-25-0050R

General Chemistry

Lot-Sample #...: A0A100119-010 Work Order #...: D7848 Matrix.....: WATER
Date Sampled...: 01/05/00 13:35 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.068	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	
Cyanide (Free)	30.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	0.76	0.040	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 4			Analysis Time..: 00:00	MS Run #.....:	

IT GROUP

Client Sample ID: MW-26-0050R

General Chemistry

Lot-Sample #...: A0A100119-011 Work Order #...: D7849 Matrix.....: WATER
Date Sampled...: 01/05/00 10:15 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.024	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	
Cyanide (Free)	13.4	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	0.042	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	

IT GROUP

Client Sample ID: ABL-MW-1-0050R

General Chemistry

Lot-Sample #...: A0A100119-012 Work Order #...: D784A Matrix.....: WATER
Date Sampled...: 01/05/00 17:00 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-4-0060R

General Chemistry

Lot-Sample #...: A0A100119-013 Work Order #...: D784C Matrix.....: WATER
Date Sampled...: 01/06/00 16:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	**0.016**	**0.010**	**mg/L**	**SW846 9012**	**01/17-01/18/00**	**0018120**
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-2-0060R

General Chemistry

Lot-Sample #...: A0A100119-014 Work Order #...: D784E Matrix.....: WATER
Date Sampled...: 01/06/00 10:30 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-3-0060R

General Chemistry

Lot-Sample #...: A0A100119-015 Work Order #...: D784F Matrix.....: WATER
Date Sampled...: 01/06/00 14:45 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

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IT GROUP

Client Sample ID: ABL-MW-5-0060R

General Chemistry

Lot-Sample #...: A0A100119-016 Work Order #...: D784G Matrix.....: WATER
Date Sampled...: 01/06/00 17:20 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.099	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	
Cyanide (Free)	57.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	0.25	0.020	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 2			Analysis Time..: 00:00	MS Run #.....:	

IT GROUP

Client Sample ID: MW-16-0050R

General Chemistry

Lot-Sample #...: A0A100119-017 Work Order #...: D784J Matrix.....: WATER
Date Sampled...: 01/05/00 12:30 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.49	0.040	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 4		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	369	50.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 10		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	2.2	0.20	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 20		Analysis Time..: 00:00	MS Run #.....:		

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Support Documentation

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A100119 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		Work Order #: D7CCG102	LCS Lot-Sample#: A0A120000-373		
	97	(70 - 130)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7E3P102	LCS Lot-Sample#: A0A130000-358		
	71	(70 - 130)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7H0D102	LCS Lot-Sample#: A0A170000-129		
	106 ✓	(70 - 130)	SM18 4500-CN-I	01/14-01/18/00	0017129
	LCSD	Dilution Factor: 1	(LCSD) = 106 > RPD = 20%		
		Analysis Time..: 00:00	LCS = 87		
Cyanide (Free)		Work Order #: D7HP5102	LCS Lot-Sample#: A0A180000-119		
	75	(70 - 130)	SM18 4500-CN-I	01/17-01/18/00	0018119
LCSD = 75% LCS = 6%	RPD = 170%	Dilution Factor: 1			
		Analysis Time..: 00:00			
Total Cyanide		Work Order #: D7H0A102	LCS Lot-Sample#: A0A170000-127		
	87	(70 - 130)	SW846 9012	01/14-01/18/00	0017127
		Dilution Factor: 1			
		Analysis Time..: 00:00			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A100119 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		WO#: D7845102-MS/D7845103-MSD				MS Lot-Sample #: A0A100119-008	
	78	(70 - 130)			SM18 4500-CN-I	01/14-01/18/00	0017129
	70	(70 - 130)	9.2	(0-20)	SM18 4500-CN-I	01/14-01/18/00	0017129
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0017030					
Cyanide (Free)		WO#: D7845108-MS/D7845109-MSD				MS Lot-Sample #: A0A100119-008	
	94	(70 - 130)			ASTM D4282-83	01/13/00	0013358
	99	(70 - 130)	5.1	(0-20)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0013145					
Cyanide (Free)		WO#: D79ML108-MS/D79ML109-MSD				MS Lot-Sample #: A0A110205-007	
	179 N	(70 - 130)			ASTM D4282-83	01/12/00	0012373
	64 N	(70 - 130)	11	(0-20)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0012147					
Total Cyanide		WO#: D7845105-MS/D7845106-MSD				MS Lot-Sample #: A0A100119-008	
	63 N	(70 - 130)			SW846 9012	01/14-01/18/00	0017127
	74	(70 - 130)	15	(0-20)	SW846 9012	01/14-01/18/00	0017127
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0017031					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

			Quanterra, North Canton		
			Spectrophotometric Logsheet		
Analysis	CN	Batch	0017130		Spectrophotometer
			0017127 0017129		Spec. 401
Prep Date	1/14/00	Lcs No.			
			CY0047		Wavelength
Anal Date	1/18/00	Lcs Prep			578 Nm
		Date	00/01/14		RL
Analyst	T L				5 µg/L

Std No	Conc mg/L	ABS			
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV-CY0061					

Sample No	ABS	Sample Vol ml or g	Final Vol ml	dil	Final Conc mg/L or mg/kg	
icv/ccv	0.07	50	50	1	0.0273	1.035 ×100 = 104%.
icb/ccb	0	50	50	1	0.0002	
BLK	0.008	50	50	1	0.0033	
LCS	0.089	50	50	1	0.0347	1.04 ×100 = 87%.
LCSD	0.109	50	50	1	0.0424	1.04 ×100 = 106%.
0.025	0.061	50	50	1	0.0238	95%.
0.075	0.183	50	50	1	0.0711	95%.
D628V	0.006	50	50	1	0.0025	×50 = 0.125
D6295	0.01	50	50	1	0.0041	×50 = 0.205
D72CW	0.031	50	50	1	0.0122	
D72F8	0.042	50	50	1	0.0165	
D7537	0.006	50	50	1	0.0025	
CCV	0.062	50	50	1	0.0242	1.035 ×100 = 99%.
CCB	0	50	50	1	0.0002	
D7845 F	0.01	50	50	1	0.0041	
D7545 MS	0.09	50	50	1	0.0351	1.04 ×100 = 78%.
D7545 MSD	0.082	50	50	1	0.0320	1.04 ×100 = 76%.
D783V F	0.01	50	50	1	0.0041	
D783W F	0.263	50	50	1	0.1021	

D783X F	0.101	50	50	1	0.0393
D7840 F	0.086	50	50	1	0.0335
D7841 F	0.007	50	50	1	0.0029
D783X T	0.238	50	50	1	0.0924
D7840 T	0.017	50	50	1	0.0068
CCV	0.061	50	50	1	0.0238
CCB	0	50	50	1	0.0002
D7841 T	0.012	50	50	1	0.0049
D7845 T	0.008	50	50	1	0.0033
D7845 MS	0.073	50	50	1	0.0285
D7845 MSD	0.085	50	50	1	0.0331
D783V T	0.004	50	50	1	0.0018
~~D783W T~~	~~0.289~~	~~50~~	~~50~~	~~5~~	~~0.5606~~
D7842 F	0.023	50	50	100	0.9128
D7842 T	0.103	50	50	100	4.0102
CCV	0.061	50	50	1	0.0238
CCB	0	50	50	1	0.0002

01-14-00

Batch #'s.

0017130

0017127

0017129

Canton
ogsheet

Analysis	CN	Batch	0018124 0018119		Spectrophotometer SPEC 401
Prep Date	1/17/00	Lcs No.	CY0048		
	1-18-00				Wavelength
Anal Date	~~1/17/00~~	Lcs Prep			570NM
		Date	1/17/00		RL
Analyst	OC/CKK				

Std No	Conc	ABS			
	mg/L				
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV=CY0061					

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.06	50	50	1	0.0235	$\frac{\times 100}{.025} = 94\%$
icb/ccb	0	50	50	1	0.0002	
BLK	0.005	50	50	1	0.0022	
LCS	0.006	50	50	1	0.0025	$\frac{\times 100}{.04} = 63\%$
LCSD	0.077	50	50	1	0.0300	$\frac{\times 100}{.04} = 75\%$
D774K	0.008	50	50	1	0.0033	$\times 50 = 0.165$
D774L	0.057	50	50	1	0.0223	$\times 50 = 1.115$
D774M	0.008	50	50	1	0.0033	$\times 50 = 0.165$
D774P	0.012	50	50	1	0.0049	$\times 50 = 0.245$
D774Q	0.011	50	50	1	0.0045	$\times 50 = 0.225$
D774R	0.001	50	50	1	0.0006	$\times 50 = 0.030$
D774W	0.008	50	50	1	0.0033	$\times 50 = 0.165$
CCV	0.059	50	50	1	0.0231	$\frac{\times 100}{.025} = 92\%$
CCB	0.001	50	50	1	0.0006	
D7763	0.005	50	50	1	0.0022	$\times 50 = 0.11$
D7490	0.006	50	50	1	0.0025	
D7843	0.023	50	50	1	0.0091	
D7846	0.272	50	50	1	0.1055	
D7848	0.176	50	50	1	0.0684	

D7849	0.061	50	50	1	0.0238
D784A	0.007	50	50	1	0.0029
D784J	0.316	50	50	4	0.4903
D784C	0.018	50	50	1	0.0072
D784E	0.009	50	50	1	0.0037
CCV	0.061	50	50	1	0.0238
CCB	0.001	50	50	1	0.0006
D784F	0.021	50	50	1	0.0084
D784G	0.255	50	50	1	0.0990
D6MJL	0.186	50	50	400	28.8954
D6Q1A	0.071	50	50	40	1.1085
D6Q1R	0.042	50	50	1	0.0165
CCV	0.062	50	50	1	0.0242
CCB	0.001	50	50	1	0.0006

$\frac{.0238}{.025} \times 100 = 95\%$

RE-RUNS FROM ANOTHER BATCH

$\frac{.0242}{.025} \times 100 = 97\%$

date: 1-17-00

Batch: 0018124
0018119.

WAD

Sheet1

		Quanterra, North Canton			
		Spectrophotometric Logsheet			
Analysis	MD CN-	Batch	0013358		Spectrophotometer
					Spectronic 401
Prep Date	1/13/00	Lcs No.	CY0046		
					Wavelength
Anal Date	1/13/00	Lcs Prep	1·13·00		578 NM
		Date			RL
Analyst	MFG				5 UG/L

Std No	Conc	ABS			
	mg/L				
NA	0	0.002		Slope	2.0012
CY0043	0.005	0.011		Intercept	0.0011
CY0042	0.01	0.02		r	1.0000
CY0041	0.025	0.051			
CY0040	0.05	0.102			
CY0039	0.1	0.201			

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.047	0.75	0.75	1	0.0229	ug/L 22.9/25=92%
icb/ccb	0.002	0.75	0.75	1	0.0004	0.4
BLK	0.002	0.75	0.75	1	0.0004	0.4
LCS	0.076	0.75	0.57	1	0.0284	28.4/40 =71%
D7845	0.003	0.75	0.75	1	0.0009	0.9
D7845 DUP	0.003	0.75	0.75	1	0.0009	0.9
D7845 MS	0.078	0.75	0.75	1	0.0384	38.4
D7845 MSD	0.082	0.75	0.75	1	0.0404	40.4
D784F	0.002	0.75	0.75	1	0.0004	0.4
D784F DUP	0.002	0.75	0.75	1	0.0004	0.4
D7846	0.127	0.75	0.75	1	0.0629	62.9
D7846 DUP	0.143	0.75	0.75	1	0.0709	70.9
CCV	0.051	0.75	0.75	1	0.0249	24.9/25=100%
CCB	0.001	0.75	0.75	1	-0.0001	ND
D7843	0.002	0.75	0.75	1	0.0004	0.4
D7843 DUP	0.004	0.75	0.75	1	0.0014	1.4
D79M1	0.002	0.75	0.75	1	0.0004	0.4
D79M1 DUP	0.002	0.75	0.75	1	0.0004	0.4
D79NT	0	0.75	0.75	1	-0.0006	ND

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M F G
consulting scientists and engineers

Pittsburgh, PA 15212-1528

412/321-2278
Fax: 412/321-2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 1 March 2000

SUBJECT: **Data Validation of: Total and Dissolved Barium, Total and Free Cyanide, Total Suspended Solids (TSS)**

Re: Quanterra, Inc.
Package No.: A0A110205

Aqueous Samples:

ABL-MW-6-0080R	MW-4-0080DR	MW-4-0080R
MW-4-0080RE	MW-4-0080RQ	NE4-0080R
NE4-0080RE	NE4-0080RQ	OBL-MW-1-0070R
OBL-MW-2-0070R	OBL-MW-3-0070R	OBL-MW-4-0070R
OBL-MW-5-0070R		

Equipment Blanks:

EQB02-0070R	EQB02-0070RQ	EQB02-0070RE
EQB03-0070R	EQB03-0070RQ	EQB03-0070RE
EQB04-0080R		

Field Duplicates:

Sample MW-4-0080DR is a field duplicate of sample MW-4-0080R.

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Overview

This set of samples collected on January 6 and 7, 2000 for the Alcoa Badin Site contains thirteen (13) groundwater samples, including one (1) field duplicate pair, and seven (7) equipment rinsate blanks. The samples were analyzed for total and dissolved barium and total cyanide, by USEPA SW-846 Methods 6010B and 9012, respectively. The samples were also analyzed for free cyanide by Standard Method 18 4500-CN-I and ASTM D4282-83 and for total suspended solids by MCAWW 160.2. Note that not all samples were analyzed for all parameters.

Summary

All compounds were successfully analyzed in all samples. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

Total and Dissolved Barium

No problems were encountered.

Total Cyanide

The percent recovery for the LCS was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Blank contamination was found in equipment rinsate blank EQB04-0080R at a value of 0.011 mg/L. As a result, sample values less than five times the blank values were qualified as non-detect "U". Note that several sample values were impacted by the blank result when dilution factors were taken into account.

Free Cyanide by SM18

No problems were encountered.

Free Cyanide by ASTM D4282-83

The percent recovery for the LCS performed on January 13, 2000 was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

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Total Suspended Solids

The RPD between the laboratory duplicate samples was greater than control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Notes

Note that custody seals were not present on the coolers upon receipt at the laboratory. As the samples were received in good condition and no problems were encountered this was not believed to impact the sample quality and no action was taken.

Note that the laboratory did not provide serial dilution information with the data package for either total or dissolved metals. A review of the raw data for the serial dilution of sample D79FL which was prepared and run on the same dates as the samples in this data package showed it to be acceptable.

Low levels of total and dissolved barium were found in the initial calibration, continuing calibration, preparation, and equipment rinsate blanks above the instrument detection limit but below the reporting limit. In addition, barium was found above the instrument detection limit but below the reporting limit in the ICSA solution. However, due to the very low levels encountered and the fact that the levels of interferents in the site samples were all well below the levels in the ICS, these values did not impact any of the site sample results.

Note that the laboratory did not report the CRI standard with the total and dissolved metals analyses. However, a review of the raw data showed that a CRI was run at a concentration of 20 ug/L which is below the laboratory reporting limit. The percent recovery for this CRI was acceptable.

Note that several MS/MSD percent recoveries associated with the total and free cyanide analyses were less than control limits. However, the original sample results were greater than four times the spike added and no action was taken on this basis.

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Not all of the laboratory duplicate results for the free cyanide by ASTM 4282-83 were provided with the data package. However, a review of the raw data showed these to be acceptable.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the free (WAD) cyanide samples prepared on January 18, 2000. However, a laboratory control sample is prepared with each batch and the result of the LCS was acceptable.

Samples OBL-MW-2-0070R (Quanterra # D79MD) and MW-4-0080DR (Quanterra # D79MM) appear to be mislabeled as D78MD and D78MM, respectively, in the raw data for free (WAD) cyanide, based on similarity of numbering and reported results.

The data validated under this report were only evaluated on the information supplied with the data package.

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Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, are deemed acceptable and valid for the intended use.

Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Lot# A0A110205

Date Sampled Units	ABL-MW-6-0080R 1/8/00 mg/L	MW-4-0080DR 1/8/00 mg/L	MW-4-0080R 1/8/00 mg/L	MW-4-0080RE 1/8/00 mg/L	MW-4-0080RQ 1/8/00 mg/L
Barium - Total	--	--	0.1 U	--	--
Barium-Dissolved	--	--	--	**0.37**	0.1 U
Cyanide, Free (microdiffusion)	0.005 U	**0.309**	**0.36**	--	--
Cyanide, Total	0.01 UJ	**0.24** UJ	**0.19** UJ	--	--
Cyanide, Free (WAD)	0.01 U	**0.49**	**0.52**	--	--
Total Suspended Solids	--	--	**82.0** J	--	--

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Data Summary
Lot# A0A110205

Date Sampled Units	NE4-0080R 1/8/00 mg/L	NE4-0080RE 1/8/00 mg/L	NE4-0080RQ 1/8/00 mg/L	OBL-MW-1-0070R 1/7/00 mg/L	OBL-MW-2-0070R 1/7/00 mg/L
Barium - Total	0.1 U	--	--	--	--
Barium-Dissolved	--	**0.25**	0.1 U	--	--
Cyanide, Free (microdiffusion)	--	--	--	0.005 UJ	**0.573**
Cyanide, Total	--	--	--	0.01 UJ	**0.2** UJ
Cyanide, Free (WAD)	--	--	--	0.01 U	**0.58**
Total Suspended Solids	**71.0** J	--	--	--	--

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Data Summary
Lot# A0A110205

Date Sampled Units	OBL-MW-3-0070R 1/7/00 mg/L	OBL-MW-4-0070R 1/7/00 mg/L	OBL-MW-5-0070R 1/7/00 mg/L	EQB02-0070R 1/7/00 mg/L	EQB02-0070RQ 1/7/00 mg/L
Barium - Total	--	--	--	0.1 U	--
Barium-Dissolved	--	--	--	--	0.1 U
Cyanide, Free (microdiffusion)	**0.0992**	**0.0946**	0.005 U	0.005 U	
Cyanide, Total	**0.17** J	**0.16** J	0.01 UJ	0.01 UJ	
Cyanide, Free (WAD)	**0.11**	**0.11**	0.01 U	0.01 U	
Total Suspended Solids	--	--	--	4.0 UJ	

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Data Summary
Lot# A0A110205

Date Sampled Units	EQB02-0070RE 1/7/00 mg/L	EQB03-0070R 1/7/00 mg/L	EQB3-0070RQ 1/7/00 mg/L	EQB03-0070RE 1/7/00 mg/L	EQB04-0080R 1/8/00 mg/L
Barium - Total	- -	0.1 U	- -	- -	- -
Barium-Dissolved	0.1 U	- -	0.1 U	0.1 U	- -
Cyanide, Free (microdiffusion)					0.005 UJ
Cyanide, Total					**0.011** J
Cyanide, Free (WAD)					0.01 U
Total Suspended Solids		4.0 UJ			

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Results as Reported by the
Laboratory

IT GROUP

Client Sample ID: MW-4-0080R

TOTAL Metals

Lot-Sample #...: A0A110205-007 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79ML10A

Dilution Factor: 1 Analysis Time..: 16:52 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB02-0070R

TOTAL Metals

Lot-Sample #...: A0A110205-009 Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79MN105

Dilution Factor: 1 Analysis Time..: 17:19 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB02-0070RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-010 Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79N7101

Dilution Factor: 1 Analysis Time..: 17:23 MS Run #.....: 0012005

IT GROUP

Client Sample ID: EQB02-0070RE

DISSOLVED Metals

Matrix.....: WATER

Lot-Sample #...: A0A110205-011
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NF101
		Dilution Factor: 1		Analysis Time..: 17:28	MS Run #.....: 0012005	

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IT GROUP

Client Sample ID: EQB03-0070R

TOTAL Metals

Lot-Sample #...: A0A110205-012 Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NH101

Dilution Factor: 1 Analysis Time..: 17:33 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB03-0070RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-013 **Matrix.....:** WATER
Date Sampled...: 01/07/00 10:30 **Date Received..:** 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NM101

Dilution Factor: 1 Analysis Time..: 17:37 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB03-0070RE

DISSOLVED Metals

Lot-Sample #...: A0A110205-014 Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NQ101
	Dilution Factor: 1		Analysis Time..: 17:42		MS Run #.....: 0012005	

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IT GROUP

Client Sample ID: NE4-0080R

TOTAL Metals

Lot-Sample #...: A0A110205-016 Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NW101

Dilution Factor: 1 Analysis Time..: 17:47 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: NE4-0080RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-017 Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79P0101

Dilution Factor: 1 Analysis Time..: 17:51 MS Run #.....: 0012005

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Data Summary

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
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Sample result for MW-22-2609 as reported by laboratory did not match that found in the raw data. It appears that a 2 X dilution was performed but is not indicated in the raw data. Verification of this sample result has been requested of the laboratory but had not been received at the time of this report.

Data package I9J11054 (Groundwater and Surface Water)

Cyanide Total by 9012

Blank contamination was found in equipment rinsate blank NE-HA03-0.0-0.5EB at a concentration of 0.043 mg/L. As a result, all sample values less than five times the blank result were qualified as non-detect "U".

Free Cyanide (WAD) by SM18

The low distillation standard was below control limits. As a result, associated positive and non-detect results were qualified as estimated "J" and "UJ", respectively.

The laboratory control sample was not reported on the laboratory quality control summary. A review of the raw data showed the percent recovery to be within control limits.

A MS/MSD was not performed with the data in this package and could not be evaluated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

No problems were encountered.

Notes

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Samples MW-18-2649 and MW-19-2649 were not received base preserved at the laboratory. These samples were recollected as MW-18-2679 and MW-19-2679, respectively, and were received with package I9I280181. The recollected samples were reported with package I9I230179.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. However, a laboratory control sample is prepared with each batch and the results of these LCSs were acceptable except as noted above.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

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Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Data package I9I21034 (Groundwater)

Cyanide Total by 9012

Blank contamination was found for total cyanide in equipment blank MW-6-2639EB at a concentration of 0.48 mg/L. As a result, all sample values less than five times the blank result were qualified as non-detect "U".

The MS/MSDs percent recoveries associated with batch 9273189 were below control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. The samples affected included: MW-2-2609, MW-2A-2619, MW-6A-2619, and MW-22-2609.

Note that while the MS/MSD percent recoveries performed on batch sample D2NEQ on September 30, 1999 were outside control limits, no action was taken as the original sample result was greater than 4 times the spike added. Note that this data was not reported by the laboratory on the MS/MSD data summary sheet but was acquired from the raw data.

The result for MW-2-2609 exceeded the highest calibration standard. As result, this value was qualified as estimated "J".

Free Cyanide (WAD) by SM18

Note that while the MS/MSD percent recoveries performed on batch sample D2NEQ on September 30, 1999 were outside control limits, no action was taken as the original sample result was greater than 4 times the spike added. Note that this data was not reported by the laboratory on the MS/MSD data summary sheet but was acquired from the raw data.

Note that samples MW-14-2629 and MW-6-2639EB were analyzed with a 5 X dilution even though these sample results were non-detect. As a result, the reported quantitation limits are elevated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

Sample MW-4-2639 was received at the laboratory at a pH of <2. This sample was recollected and submitted with package I9I240182.

Per non-conformance memo ICV, CCV, and CCB were not prepared according to laboratory SOP. The laboratory SOP is being modified to incorporate the new methodology.

The MS/MSDs percent recoveries associated with batch 9272159 were below control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. .

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Data package B9I180109 (Groundwater)

Cyanide Total by 9012

The MS/MSDs percent recoveries associated with batch 9273189 were below control limits. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively. Affected samples included: MW-20A-2609, MW-21-2599, MW-24-2599, MW-12-2609, MW-11-2609, and MW-3-2609.

Total cyanide results were not provided on the Form I's provided by the laboratory for MW-20A-2609 and MW-21-2599. A review of the raw data showed the results for these samples to be 0.29 mg/L and 16.8 mg/L, respectively. These values were added to the validated data summary and a resubmittal of the associated Form I's from the laboratory has been requested.

Free Cyanide (WAD) by SM18

Results for the MS/MSD performed with batch 9271265 were not provided with the data package. A review of the associated raw data showed that the all percent recoveries and RPDs were within control limits.

Free Cyanide (ASTM D4282-83 – microdiffusion)

Per non-conformance memo the ICV and CCVs were not diffused with this analysis. The laboratory SOP is being modified to incorporate the new methodology.

The result for MW-21-2599 exceeded the highest initial calibration standard. As a result, this result was qualified as estimated "J".

Data package I9I280181 (Groundwater)

Cyanide Total by 9012

Note that while the percent recoveries of the MS/MSD associated with batch 9279439 were outside control limits the original sample result was greater than four times the spike concentration. As a result, no action was taken.

Free Cyanide (WAD) by SM18

The laboratory control sample percent recovery associated with batch 9279445 was low. As a result, associated positive and non-detect results were qualified as estimated "J" and "UJ", respectively. This affected sample OBL-MW-3-2689.

Note that the result for sample OBL-MW-3-2689D as reported by the laboratory does not match that found in the raw data. The corrected value is 0.033 mg/L. This was placed on the validated data summary.

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Several MS/MSDs percent recoveries associated with batch 9280290 were outside control limits and one RPD between the MS/MSD percent recoveries was also outside of control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. Note that while the MS/MSD percent recoveries performed on batch sample D2XDD102 were zero, no action was taken as the original sample result was greater than 4 times the spike added.

Free Cyanide (WAD) by SM18

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Data package I9I230179 (Groundwater)

Cyanide Total by 9012

Samples MW-18-2679 and MW-19-2679 were prepared and analyzed outside of holding time. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

Free Cyanide (WAD) by SM18

Samples MW-18-2679 and MW-19-2679 were prepared and analyzed outside of holding time. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

One mid-point distilled standard percent recovery associated with batch 9271245 was low. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

The sample results for MW-8-2649 and MW-16-2649 were not adjusted for dilution as reported by the laboratory. The corrected results are 0.24 mg/l and 0.42 mg/l, respectively. This has been corrected on the validated data summary.

Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

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attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

Data package I9I270156 (Groundwater)

Free Cyanide (WAD) by SM18

MS/MSD percent recoveries associated with batch 9280289 were outside control limits. The MS/MSD percent recoveries performed on sample ABL-MW-5-2669 were zero. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R".

Data package I9I230179 (Groundwater)

Free Cyanide (WAD) by SM18

MS/MSD percent recoveries associated with batch 9280289 were outside control limits with the percent recoveries for one MS/MSD being zero. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R". This affected the sample results for MW-18-2679 and MW-19-2679.

Data package I9I280181 (Groundwater)

Free Cyanide (WAD) by SM18

The MSD percent recovery associated with batch 9279445 was zero and the RPD between the MS/MSD percent recoveries was outside control limits. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R". This affected the sample result for OBL-MW-3-2689.

Minor Issues

Data package I9I270156 (Groundwater)

Total Cyanide by 9012

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Laboratory control sample associated with batch 9280290 was above control limits. As a result, associated positive sample results were qualified as estimated "J" while non-detects were not impacted.

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Data package I9I280181 (Groundwater)

ABL-MW-1-2679	ABL-MW-2-2679	ABL-MW-6-2679
OBL-MW-1-2689	ABL-MW-4-2679	OBL-MW-2-2689
OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-4-2689
OBL-MW-5-2689		

Data package I9I21034 (Groundwater)

MW-2-2609	MW-2A-2619	MW-6A-2619
MW-22-2609	MW-14-2629	MW-6-2639D
MW-6-2639	MW-4-2636	

Data package I9J11054 (Groundwater and Surface Water)

MW-27-2779	LMC-SW01-2799	LMC-SW02-2799

Equipment Blanks:

ABL-MW-5-2669EB	(Data Package I9I270156)
MW-6-2639EB	(Data package I9I21034)
2689-EB	(Data package I9I280181)
NE-HA03-0.0-0.5EB	(Data package I9J11054)
LMC-S002-0.0-0.4EB	(Data package I9J11054)
SE-HA04-0.5-2.0EB	(Data package I9J11054)

Field Duplicates:

Sample OBL-MW-3-2689D is a field duplicate of sample OBL-MW-3-2689.
Sample MW-6-2639D is a field duplicate of sample MW-6-2639.

Overview

These sets of samples collected from September 14, 1999 through October 7, 1999 for the Alcoa Badin Site contain 37 groundwater samples, including two (2) field duplicate pairs, and six (6) field blanks. The samples were analyzed for total cyanide by USEPA SW-846 Method 9012A and for free cyanide by Standard Method 18 and ASTM D4282-83.

Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the

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MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 14 January 2000

SUBJECT: **Data Validation of: Total and Free Cyanide**

Re: Quanterra, Inc.
Package Nos.: I9I270156, B9I210134, I9J110154,
I9I280181, I9I230179, and B9I180109

Aqueous Samples:

Data package I9I270156 (Groundwater)

ABL-MW-3	ABL-MW-5-2699

Data package I9I230179 (Groundwater)

MW-5-2649	MW-16-2649	MW-18-2679
MW-19-2679	MW-8-2649	

Data package B9I180109 (Groundwater)

MW-1-2589	MW3-2609	MW-7-2579
MW-11-2609	MW-12-2609	MW-13-2579
MW-20A-2609	MW-21-2599	MW-24-2599

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Quanterra ® Cooler Receipt Form/Narrative
North Canton Facility

AOA 110205

Client: IT Corporation Project: Akron Quote#: Q 32077

Cooler Received on: 1/11/99 Opened on: 1/11/99 by: [signature] (Signature)

Fedx ☒ Client Drop Off ☐ UPS ☐ Airborne ☐

Other:_____

Cooler ☒ Safe ☐ Foam Box ☐ Client Cooler ☐ Other:_____

Quanterra Shipper No#: 3277

1. Were custody seals on the outside of the cooler and intact?	Yes ☒	No ☒
If YES, Quantity_____ Location_____		
Were the custody seals signed and dated?	Yes ☐	No ☐ NA ☒
2. Shipper's packing slip attached to this form?	Yes ☒	No ☐
3. Were custody papers included inside the cooler and relinquished?	Yes ☒	No ☐
4. Did you sign the custody papers in the appropriate place?	Yes ☒	No ☐

5. Packing material used:
Peanuts ☐ Bubble Wrap ☒ Vermiculite ☐ Foam ☐ None ☐ Other :_____

6. Cooler temperature upon receipt 1.3 °C (see back of form for multiple coolers/temp)

METHOD: Temperature Vial ☒ Coolant ☐ Against Bottles ☐

COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ None ☐

7. Were all the bottles sealed in separate plastic bags?	Yes ☒	No ☐	
8. Did all bottles arrive in good condition (Unbroken)?	Yes ☒	No ☐	
9. Did all bottle labels and tags agree with the custody papers?	Yes ☒	No ☐	
10. Were samples at the correct pH?	Yes ☒	No ☐	NA ☐
11. Were correct bottles used for the tests indicated?	Yes ☐	No ☐	NA ☒
12. Were air bubbles >6 mm in any VOA vials?	Yes ☒	No ☐	
13. Was a sufficient amount of sample sent in each bottle?			

Contacted PM _____ Date:_____ by:_____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning:_____

Check √	MACRO	MACRO
1. CHAIN OF CUSTODY		
	SR1A	Samples were received under proper custody procedures and without discrepancies.
	SR1B	The chain of custody and sample bottles did not agree. The following discrepancies occurred_____
2. SAMPLE CONDITION		
	SR2A	Sample(s)_____ were received or requested after the recommended holding time had expired.
	SR2B	Sample(s) _____ were received with insufficient volume
	SR2C	Sample(s)_____ were received in a broken container.
3. SAMPLE PRESERVATION		
√	SR3A	The temperature of the cooler was _____ ° C
	SR3C	Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving.
	SR3D	Sample(s) _____ were received incorrectly preserved and split off in sample receiving.
	SR3E	Samples (s)_____ were received incorrectly preserved and were unable to be analyzed.
	SR3F	Sample(s)_____ were received with bubble > 6 mm in diameter (cc: PM)
	N/A	See back for other anomalies

			Quanterra, North Canton		
		Spectrophotometric Logsheet			
Analysis	CN	Batch	0.019.394		Spectrophotometer
					SPEC. 401
Prep Date	1/18/00	Lcs No.	CY0063		
					Wavelength
Anal Date	1/19/00	Lcs Prep			570 nm
		Date	1/18/00		RL
Analyst	MFG/CKK				

Std No	Conc	ABS			
	mg/L				
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV=CY0061					

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.061	50	50	1	0.0238	x100/.025 = 95%
icb/ccb	0	50	50	1	0.0002	
BLK	0.004	50	50	1	0.0018	
LCS *	0.015	50	50	1	0.0060	
~~LCSD~~ LCS	0.091	50	50	1	0.0355	x100/1.14 = 89%
MDL-1	0.015	50	50	1	0.0060	
MDL-2	0.014	50	50	1	0.0056	
MDL-3	0.025	50	50	1	0.0099	
MDL-4	0.017	50	50	1	0.0068	
MDL-5	0.012	50	50	1	0.0049	
MDL-6	0.018	50	50	1	0.0072	
MDL-7	0.044	50	50	1	0.0173	
CCV	0.063	50	50	1	0.0246	x100/.025 = 98%
CCB	0	50	50	1	0.0002	
D79ML F	0.267	50	50	5	0.5180	
D79ML F MS	0.298	50	50	5	0.5780	
D79MLF MS	0.309	50	50	5	0.5993	
D79M1 F	0.004	50	50	1	0.0018	
D79MD F	0.299	50	50	5	0.5800	

F 1-20-CK

* THE LCS WAS NOT SPIKED; USE LCSD FOR LCS

Sheet1

Batch 0012575

date: 00112

D7841 DUP	0.004	1	1	1	0.0026	2.6
D7842	0.081	0.1	1	1	0.4196	419.6
D7842 DUP	0.074	0.1	1	1	0.3839	383.9
D79MD	0.945	1	1	1	0.4831	} rerun @ 10X
D79MD DUP	0.897	1	1	1	0.4586	
CCV	0.048	1	1	1	0.0251	25.1/25 = 100%
CCB	0	1	1	1	0.0006	0.6
D79ME	0.096	0.5	1	1	0.0992	99.2
D79ME DUP	0.085	0.5	1	1	0.0880	88.0
D79MG	0.184	1	1	1	0.0946	94.6
D79MG DUP	0.18	1	1	1	0.0925	92.5
D79MH	0	1	1	1	0.0006	0.6
D79MH DUP	0.001	1	1	1	0.0011	1.1
D79MJ	0	1	1	1	0.0006	0.6
D79MJ DUP	0.002	1	1	1	0.0016	1.6
D79MM	0.508	1	1	1	0.2600	} rerun @ 5X
D79MM DUP	0.493	1	1	1	0.2523	
CCV	0.048	1	1	1	0.0251	25.1/25 = 100%
CCB	0	1	1	1	0.0006	0.6
D79MN	0.003	1	1	1	0.0021	2.1
D79MN DUP	0	1	1	1	0.0006	0.6
CCV	0.044	1	1	1	0.0231	23.1/25 = 92%
CCB	0	1	1	1	0.0006	0.6
D79ML	0.14	0.2	1	1	0.3604	360.4
D79ML DUP	0.147	0.2	1	1	0.3783	378.3
D79ML MS	0.168	0.2	1	1	0.4319	431.9
D79ML MSD	0.15	0.2	1	1	0.3860	386.0
D783W	0.072	0.5	1	1	0.0747	74.7
D783W DUP	0.067	0.5	1	1	0.0696	69.6
D78MD	0.111	0.1	1	1	0.5728	572.8
D78MD DUP	0.109	0.1	1	1	0.5626	562.6
D78MM	0.12	0.2	1	1	0.3094	309.4
D78MM DUP	0.12	0.2	1	1	0.3094	309.4
CCV	0.044	1	1	1	0.0231	23.1/25 = 92%
CCB	0	1	1	1	0.0006	0.6

1 of 0
Sheet1

Quanterra, North Canton
Spectrophotometric Logsheet

Analysis	MD CN-	Batch	0013358		Spectrophotometer
					Spectronic 401
Prep Date	1/13/00	Lcs No.	CY0046		
					Wavelength
Anal Date	1/13/00	Lcs Prep	1·13·00		578 NM
		Date			RL
Analyst	MFG				5 UG/L

Std No	Conc	ABS			
	mg/L				
NA	0	0.002		Slope	2.0012
CY0043	0.005	0.011		Intercept	0.0011
CY0042	0.01	0.02		r	1.0000
CY0041	0.025	0.051			
CY0040	0.05	0.102			
CY0039	0.1	0.201			

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	ug/L
icv/ccv	0.047	0.75	0.75	1	0.0229	22.9/25=92%
icb/ccb	0.002	0.75	0.75	1	0.0004	0.4
BLK	0.002	0.75	0.75	1	0.0004	0.4
LCS	0.076	0.75	0.57	1	0.0284	28.4/40 = 71%
D7845	0.003	0.75	0.75	1	0.0009	0.9
D7845 DUP	0.003	0.75	0.75	1	0.0009	0.9
D7845 MS	0.078	0.75	0.75	1	0.0384	38.4
D7845 MSD	0.082	0.75	0.75	1	0.0404	40.4
D784F	0.002	0.75	0.75	1	0.0004	0.4
D784F DUP	0.002	0.75	0.75	1	0.0004	0.4
D7846	0.127	0.75	0.75	1	0.0629	62.9
D7846 DUP	0.143	0.75	0.75	1	0.0709	70.9
CCV	0.051	0.75	0.75	1	0.0249	24.9/25 = 100%
CCB	0.001	0.75	0.75	1	-0.0001	ND
D7843	0.002	0.75	0.75	1	0.0004	0.4
D7843 DUP	0.004	0.75	0.75	1	0.0014	1.4
D79M1	0.002	0.75	0.75	1	0.0004	0.4
D79M1 DUP	0.002	0.75	0.75	1	0.0004	0.4
D79NT	0	0.75	0.75	1	-0.0006	ND

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Work Order #...: D79ML-SMP D79ML-DUP Matrix.....: WATER

Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						SD Lot-Sample #: A0A110205-007		
Total Suspended Solids	82.0	109	mg/L	28	(0-20)	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1
Analysis Time..: 00:00
Prep Date.....: 0017015 Analysis Date..: Prep Batch #...:

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		WO#: D7845108-MS/D7845109-MSD				MS Lot-Sample #: A0A100119-008	
	94	(70 - 130)			ASTM D4282-83	01/13/00	0013358
	99	(70 - 130)	5.1	(0-20)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0013145					
Cyanide (Free)		WO#: D79ML102-MS/D79ML103-MSD				MS Lot-Sample #: A0A110205-007	
	NC,MSB	(70 - 130)			SM18 4500-CN-I	01/18-01/20/00	0019394
	NC,MSB	(70 - 130)		(0-20)	SM18 4500-CN-I	01/18-01/20/00	0019394
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0019170					
Cyanide (Free)		WO#: D79ML108-MS/D79ML109-MSD				MS Lot-Sample #: A0A110205-007	
	179 N	(70 - 130)			ASTM D4282-83	01/12/00	0012373
	64 N	(70 - 130)	11	(0-20)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0012147					
Total Cyanide		WO#: D79ML105-MS/D79ML106-MSD				MS Lot-Sample #: A0A110205-007	
	NC,MSB	(70 - 130)			SW846 9012	01/18-01/19/00	0018247
	NC,MSB	(70 - 130)		(0-20)	SW846 9012	01/18-01/19/00	0018247
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0018087					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		Work Order #: D7CCG102	LCS Lot-Sample#: A0A120000-373		
	97	(70 - 130)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7E3P102	LCS Lot-Sample#: A0A130000-358		
	(71)	(70 - 130)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7KXM102	LCS Lot-Sample#: A0A190000-394		
	89	(70 - 130)	SM18 4500-CN-I	01/18-01/20/00	0019394
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Total Cyanide		Work Order #: D7J74102	LCS Lot-Sample#: A0A180000-247		
	(73)	(70 - 130)	SW846 9012	01/18-01/19/00	0018247
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Total Suspended Solids		Work Order #: D7GXV102	LCS Lot-Sample#: A0A140000-314		
	82	(80 - 120)	MCAWW 160.2	01/14-01/17/00	0014314
		Dilution Factor: 1			
		Analysis Time..: 00:00			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC **Acceptable Range:** 0% - 0%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 1/13/00 8:59 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100		0.8	B								

Version 3.61.6

U Result is less than the IDL
B Result is between IDL and RL

Form 4 Equivalent

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Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST

Units: ug/L

Chart Number: I60113A.ARC

Standard Source:

Standard ID:

Element	WL/ Mass	Report Limit	CCB 1/13/00 7:08 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.68	B								

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

Quanterra-North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 1/13/00 2:09 PM Found	Q	CCB 1/13/00 3:07 PM Found	Q	CCB 1/13/00 4:05 PM Found	Q	CCB 1/13/00 5:08 PM Found	Q	CCB 1/13/00 6:08 PM Found	Q
Barium	493.409	100	0.3	U	0.3	U	0.58	B	0.71	B	0.61	B

Version 3.61.6

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

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Quanterra-North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 1/13/00 9:18 AM		CCB 1/13/00 10:59 AM		CCB 1/13/00 11:56 AM		CCB 1/13/00 12:55 PM		CCB 1/13/00 1:08 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.65	B	0.67	B	0.49	B	0.55	B	0.42	B

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Quanterra-North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 1/13/00 8:33 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.44	B								

Version 3.61.6

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

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CASE NARRATIVE

The following report contains the analytical results for twenty water samples submitted to Severn Trent Laboratories, Inc. formerly Quanterra Incorporated North Canton, by IT Group from the Alcoa Badin Works Site. The samples were received on January 11, 2000, according to documented sample acceptance procedures.

Quanterra utilizes only USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the following page in accordance with the methods indicated. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

METALS

Form IX is not provided for batch 0012104 since the serial dilution was performed on a sample not associated with this project.

GENERAL CHEMISTRY

Matrix spike/duplicate spike recoveries were outside the acceptance limits for some analytes. The acceptable laboratory control sample analysis data indicated that the analytical system was operating within control and this condition is most likely due to matrix interference. See the Matrix Spike Report for the affected analytes which have been flagged with N.

For batch 0019394, matrix spike recovery and relative percent difference (RPD) data were not evaluated for Cyanide (Free) due to low spiking level compared to elevated sample concentration (sample was diluted out).

w3e Sample duplicate relative percent difference was outside the acceptance limits for Total Suspended Solids on batch 0014314. The acceptable laboratory control sample analysis data indicated that the analytical system was operating within control and this condition is most likely due to matrix interference.

The sample/sample duplicate RPD for Cyanide (Free) on batch 0013358 was outside of the control limits. The result is less than five times the reporting limit; therefore, no corrective action is required.

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Support Documentation

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IT GROUP

Client Sample ID: NE4-0080R

General Chemistry

Lot-Sample #...: A0A110205-016 Work Order #...: D79NW Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	71.0	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1 Analysis Time..: 00:00 MS Run #.....: 0017015

IT GROUP

Client Sample ID: EQB04-0080R

General Chemistry

Lot-Sample #...: A0A110205-015 Work Order #...: D79NT Matrix.....: WATER
Date Sampled...: 01/08/00 14:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	**0.011**	**0.010**	**mg/L**	**SW846 9012**	**01/18-01/19/00**	**0018247**
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0018087	

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IT GROUP

Client Sample ID: EQB03-0070R

General Chemistry

Lot-Sample #...: A0A110205-012 Work Order #...: D79NH Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1 Analysis Time..: 00:00 MS Run #.....: 0017015

IT GROUP

Client Sample ID: EQB02-0070R

General Chemistry

Lot-Sample #...: A0A110205-009 Work Order #...: D79MN Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0019170	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0018087	
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314
	Dilution Factor: 1		Analysis Time..: 00:00		MS Run #.....: 0017015	

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IT GROUP

Client Sample ID: MW-4-0080DR

General Chemistry

Lot-Sample #...: A0A110205-008 Work Order #...: D79MM Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.49	0.050	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	309	25.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.24	0.10	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: MW-4-0080R

General Chemistry

Lot-Sample #...: A0A110205-007 Work Order #...: D79ML Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.52	0.050	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	360	25.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.19	0.10	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0018087	
Total Suspended Solids	82.0	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017015	

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IT GROUP

Client Sample ID: ABL-MW-6-0080R

General Chemistry

Lot-Sample #...: A0A110205-006 Work Order #...: D79MJ Matrix.....: WATER
Date Sampled...: 01/08/00 11:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: OBL-MW-5-0070R

General Chemistry

Lot-Sample #...: A0A110205-005 Work Order #...: D79MH Matrix.....: WATER
Date Sampled...: 01/07/00 12:05 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0019170		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0012147		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0018087		

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IT GROUP

Client Sample ID: OBL-MW-4-0070R

General Chemistry

Lot-Sample #...: A0A110205-004 Work Order #...: D79MG Matrix.....: WATER
Date Sampled...: 01/07/00 15:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.11	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0019170		
Cyanide (Free)	94.6	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0012147		
Total Cyanide	0.16	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0018087		

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MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 1 March 2000

SUBJECT: **Data Validation of: Total and Free Cyanide**

Re: Quanterra, Inc.
Package No.: A0A100119

Aqueous Samples:

ABL-MW-1-0050R
ABL-MW-2-0060R
ABL-MW-3-0060R
ABL-MW-4-0060R
ABL-MW-5-0060R
MW-5-0040R
MW-5-0040DR
MW-8-0040R
MW-9-0040R
MW-10-0040R
MW-16-0050R
MW-17-0050R
MW-18-0040R
MW-19-0040R
MW-25-0050R
MW-25A-0050R
MW-26-0050R

Field Duplicates:

Sample MW-5-0040DR is a field duplicate of sample MW-5-0040R.

Overview

This set of samples collected on January 4 through 6, 2000 for the Alcoa Badin Site contains seventeen (17) groundwater samples, including one (1) field duplicate pair. The samples were analyzed for total cyanide by USEPA SW-846 Method 9012A, free cyanide by Standard Method 18 4500-CN-I and ASTM D4282-83.

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Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

Free Cyanide by SM18

The January 17, 2000 laboratory control sample percent recovery was less than 10 percent. As a result, associated positive values were qualified as estimated "J" while non-detect results were rejected.

Minor Issues

Total Cyanide

The percent recovery for the matrix spike prepared on January 14, 2000 was low. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The absolute difference between results for sample MW-5-0040R and it's field duplicate MW-5-0040DR were outside control limits. As a result, the values in these samples were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Free Cyanide by SM18

The MSD percent recovery was low associated with the samples prepared on January 14, 2000. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The LCSD percent recovery was less than 80 percent and RPD between the LCS/LCSD percent recoveries associated with the samples prepared on January 17, 2000 exceeded control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

The reporting limit for sample MW-9-0040R did not accurately reflect the 100X dilution at which the sample was run. This was corrected on the validated data summary. In addition, the laboratory reported a positive value below this corrected reporting limit result for this sample. The positive value was retained but qualified as estimated "J" on the validated data summary.

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Free Cyanide by ASTM D4282-83

The percent recovery for the LCS performed on January 13, 2000 was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Notes

Note that the MS/MSD percent recoveries associated with the free (ASTM 4282-83) cyanide analyses were less than control limits. However, the original sample results were greater than four times the spike added and no action was taken on this basis.

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Not all of the laboratory duplicate results for the free cyanide by ASTM 4282-83 were provided with the data package. However, a review of the raw data showed these to be acceptable.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the free cyanide samples prepared on January 17, 2000. However, a laboratory control sample is prepared with each batch and the results of the LCS was acceptable, except as noted above.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable except as noted above. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Lot# A0A100119

	ABL-MW-1-0050R	ABL-MW-2-0060R	ABL-MW-3-0060R	ABL-MW-4-0060R	ABL-MW-5-0060R	MW-10-0040R	MW-16-0050R	MW-17-0050R	MW-18-0040R
Sampled	1/5/00	1/6/00	1/6/00	1/6/00	1/6/00	1/4/00	1/5/00	1/5/00	1/4/00
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CYANIDE, FREE	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	**0.0579** J	0.005 UJ	**0.369** J	0.005 UJ	0.005 U
Cyanide, Total	0.01 U	0.01 U	0.01 U	**0.016**	**0.25**	0.01 U	**2.2**	0.01 UJ	0.01 UJ
Cyanide, WAD	0.01 R	0.01 R	0.01 R	0.01 R	**0.099** J	0.01 R	**0.49** J	0.01 UJ	0.01 UJ

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Data Summary
Lot# A0A100119

	MW-19-0040R	MW-25-0050R	MW-25A-0050R	MW-26-0050R	MW-5-0040DR	MW-5-0040R	MW-8-0040R	MW-9-0040R
Sampled	1/4/00	1/5/00	1/5/00	1/5/00	1/4/00	1/4/00	1/4/00	1/4/00
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CYANIDE, FREE	0.005 U	0.0309 J	0.0629 J	0.0134 J	0.018	0.019	0.0747	0.42
Cyanide, Total	0.01 UJ	0.76	0.53	0.042	0.01 UJ	0.092 J	0.56 J	4.0 J
Cyanide, WAD	0.01 UJ	0.068 J	0.11 J	0.024 J	0.034 J	0.039 J	0.1 J	0.91 J

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Results as Reported by the Laboratory

IT GROUP

Client Sample ID: MW-19-0040R

General Chemistry

Lot-Sample #...: A0A100119-001 Work Order #...: D783V Matrix.....: WATER
Date Sampled...: 01/04/00 09:55 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-8-0040R

General Chemistry

Lot-Sample #...: A0A100119-002 Work Order #...: D783W Matrix.....: WATER
Date Sampled...: 01/04/00 13:45 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.10	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	74.7	10.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 2			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.56	0.050	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-5-0040R

General Chemistry

Lot-Sample #...: A0A100119-003 Work Order #...: D783X Matrix.....: WATER
Date Sampled...: 01/04/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.039	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	19.0	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.092	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-5-0040DR

General Chemistry

Lot-Sample #...: A0A100119-004 Work Order #...: D7840 Matrix.....: WATER
Date Sampled...: 01/04/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.034	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	18.0	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-18-0040R

General Chemistry

Lot-Sample #...: A0A100119-005 Work Order #...: D7841 Matrix.....: WATER
Date Sampled...: 01/04/00 09:55 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0017030		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013087		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0017031		

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IT GROUP

Client Sample ID: MW-9-0040R

General Chemistry

Lot-Sample #...: A0A100119-006 Work Order #...: D7842 Matrix.....: WATER
Date Sampled...: 01/04/00 14:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.91	0.50	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 100			Analysis Time..: 00:00	MS Run #.....: 0017030	
Cyanide (Free)	420	50.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	4.0	1.0	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 100			Analysis Time..: 00:00	MS Run #.....: 0017031	

IT GROUP

Client Sample ID: MW-10-0040R

General Chemistry

Lot-Sample #...: A0A100119-007 Work Order #...: D7843 Matrix.....: WATER
Date Sampled...: 01/05/00 16:10 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: MW-17-0050R

General Chemistry

Lot-Sample #...: A0A100119-008 Work Order #...: D7845 Matrix.....: WATER
Date Sampled...: 01/05/00 10:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/14-01/18/00	0017129
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0017030		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/14-01/18/00	0017127
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0017031		

IT GROUP

Client Sample ID: MW-25A-0050R

General Chemistry

Lot-Sample #...: A0A100119-009 Work Order #...: D7846 Matrix.....: WATER
Date Sampled...: 01/05/00 13:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.11	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	62.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	0.53	0.040	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 4		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: MW-25-0050R

General Chemistry

Lot-Sample #...: A0A100119-010 Work Order #...: D7848 Matrix.....: WATER
Date Sampled...: 01/05/00 13:35 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.068	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....:		
Cyanide (Free)	30.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0013145		
Total Cyanide	0.76	0.040	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 4			Analysis Time..: 00:00 MS Run #.....:		

IT GROUP

Client Sample ID: MW-26-0050R

General Chemistry

Lot-Sample #...: A0A100119-011 Work Order #...: D7849 Matrix.....: WATER
Date Sampled...: 01/05/00 10:15 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.024	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	
Cyanide (Free)	13.4	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	0.042	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	

IT GROUP

Client Sample ID: ABL-MW-1-0050R

General Chemistry

Lot-Sample #...: A0A100119-012 Work Order #...: D784A Matrix.....: WATER
Date Sampled...: 01/05/00 17:00 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-4-0060R

General Chemistry

Lot-Sample #...: A0A100119-013 Work Order #...: D784C Matrix.....: WATER
Date Sampled...: 01/06/00 16:05 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	**0.016**	**0.010**	**mg/L**	**SW846 9012**	**01/17-01/18/00**	**0018120**
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-2-0060R

General Chemistry

Lot-Sample #...: A0A100119-014 Work Order #...: D784E Matrix.....: WATER
Date Sampled...: 01/06/00 10:30 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-3-0060R

General Chemistry

Lot-Sample #...: A0A100119-015 Work Order #...: D784F Matrix.....: WATER
Date Sampled...: 01/06/00 14:45 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:		

IT GROUP

Client Sample ID: ABL-MW-5-0060R

General Chemistry

Lot-Sample #...: A0A100119-016 Work Order #...: D784G Matrix.....: WATER
Date Sampled...: 01/06/00 17:20 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.099	0.010	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....:	
Cyanide (Free)	57.9	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	0.25	0.020	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 2			Analysis Time..: 00:00	MS Run #.....:	

IT GROUP

Client Sample ID: MW-16-0050R

General Chemistry

Lot-Sample #...: A0A100119-017 Work Order #...: D784J Matrix.....: WATER
Date Sampled...: 01/05/00 12:30 Date Received..: 01/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.49	0.040	mg/L	SM18 4500-CN-I	01/17-01/18/00	0018119
	Dilution Factor: 4		Analysis Time..: 00:00	MS Run #.....:		
Cyanide (Free)	369	50.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 10		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	2.2	0.20	mg/L	SW846 9012	01/17-01/18/00	0018120
	Dilution Factor: 20		Analysis Time..: 00:00	MS Run #.....:		

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Support Documentation

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A100119 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		Work Order #: D7CCG102	LCS Lot-Sample#: A0A120000-373		
	97	(70 - 130)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7E3P102	LCS Lot-Sample#: A0A130000-358		
	71	(70 - 130)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7H0D102	LCS Lot-Sample#: A0A170000-129		
	106 ✓	(70 - 130)	SM18 4500-CN-I	01/14-01/18/00	0017129
	LCSD	Dilution Factor: 1	(LCSD) = 106 > RPD = 20%		
		Analysis Time..: 00:00	LCS = 87		
Cyanide (Free)		Work Order #: D7HP5102	LCS Lot-Sample#: A0A180000-119		
	75	(70 - 130)	SM18 4500-CN-I	01/17-01/18/00	0018119
LCSD = 75% LCS = 6%		Dilution Factor: 1	RPD = 170%		
		Analysis Time..: 00:00			
Total Cyanide		Work Order #: D7H0A102	LCS Lot-Sample#: A0A170000-127		
	87	(70 - 130)	SW846 9012	01/14-01/18/00	0017127
		Dilution Factor: 1			
		Analysis Time..: 00:00			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A100119 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		WO#: D7845102-MS/D7845103-MSD				MS Lot-Sample #: A0A100119-008	
	78	(70 - 130)			SM18 4500-CN-I	01/14-01/18/00	0017129
	70	(70 - 130)	9.2	(0-20)	SM18 4500-CN-I	01/14-01/18/00	0017129
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0017030					
Cyanide (Free)		WO#: D7845108-MS/D7845109-MSD				MS Lot-Sample #: A0A100119-008	
	94	(70 - 130)			ASTM D4282-83	01/13/00	0013358
	99	(70 - 130)	5.1	(0-20)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0013145					
Cyanide (Free)		WO#: D79ML108-MS/D79ML109-MSD				MS Lot-Sample #: A0A110205-007	
	179 N	(70 - 130)			ASTM D4282-83	01/12/00	0012373
	64 N	(70 - 130)	11	(0-20)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0012147					
Total Cyanide		WO#: D7845105-MS/D7845106-MSD				MS Lot-Sample #: A0A100119-008	
	63 N	(70 - 130)			SW846 9012	01/14-01/18/00	0017127
	74	(70 - 130)	15	(0-20)	SW846 9012	01/14-01/18/00	0017127
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0017031					

SR74 spike ok

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

			Quanterra, North Canton		
			Spectrophotometric Logsheet		
Analysis	CN	Batch	0017130		Spectrophotometer
			0017127 0017129		Spec. 401
Prep Date	1/14/00	Lcs No.			
			CY0047		Wavelength
Anal Date	1/18/00	Lcs Prep			578 Nm
		Date	00/01/14		RL
Analyst	T L				5 MG/L

Std No	Conc mg/L	ABS			
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV-CY0061					

Sample No	ABS	Sample Vol ml or g	Final Vol ml	dil	Final Conc mg/L or mg/kg	
icv/ccv	0.07	50	50	1	0.0273	1.025 x100 = 104%.
icb/ccb	0	50	50	1	0.0002	
BLK	0.008	50	50	1	0.0033	
LCS	0.089	50	50	1	0.0347	1.04 x100 = 87%.
LCSD	0.109	50	50	1	0.0424	1.04 x100 = 106%.
0.025	0.061	50	50	1	0.0238	95%.
0.075	0.183	50	50	1	0.0711	95%.
D628V	0.006	50	50	1	0.0025	x50 = 0.125
D6295	0.01	50	50	1	0.0041	x50 = 0.205
D72CW	0.031	50	50	1	0.0122	
D72F8	0.042	50	50	1	0.0165	
D7537	0.006	50	50	1	0.0025	
CCV	0.062	50	50	1	0.0242	1.025 x100 = 99%.
CCB	0	50	50	1	0.0002	
D7845 F	0.01	50	50	1	0.0041	
D7545 MS	0.09	50	50	1	0.0351	1.04 x100 = 78%.
D7545 MSD	0.082	50	50	1	0.0320	1.04 x100 = 70%.
D783V F	0.01	50	50	1	0.0041	
D783W F	0.263	50	50	1	0.1021	

D783X F	0.101	50	50	1	0.0393
D7840 F	0.086	50	50	1	0.0335
D7841 F	0.007	50	50	1	0.0029
D783X T	0.238	50	50	1	0.0924
D7840 T	0.017	50	50	1	0.0068
CCV	0.061	50	50	1	0.0238
CCB	0	50	50	1	0.0002
D7841 T	0.012	50	50	1	0.0049
D7845 T	0.008	50	50	1	0.0033
D7845 MS	0.073	50	50	1	0.0285
D7845 MSD	0.085	50	50	1	0.0331
D783V T	0.004	50	50	1	0.0018
D783W T	0.289	50	50	5	0.5606
D7842 F	0.023	50	50	100	0.9128
D7842 T	0.103	50	50	100	4.0102
CCV	0.061	50	50	1	0.0238
CCB	0	50	50	1	0.0002

01-14-00

Batch #'s.

0017130

0017127

0017129

					Canton
					ogsheet
Analysis	CN	Batch	0018124		Spectrophotometer
			0018119		SPEC 401
Prep Date	1/17/00	Lcs No.	CY0048		
	1-18-00				Wavelength
Anal Date	~~1/17/00~~	Lcs Prep			570NM
		Date	1/17/00		RL
Analyst	OC/CKK				

Std No	Conc	ABS			
	mg/L				
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV=CY0061					

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.06	50	50	1	0.0235	x100 / .025 = 94 %
icb/ccb	0	50	50	1	0.0002	
BLK	0.005	50	50	1	0.0022	x44 / .04 = 61
LCS	0.006	50	50	1	0.0025	
LCSD	0.077	50	50	1	0.0300	x100 / .04 = 75 %
D774K	0.008	50	50	1	0.0033	x 50 = 0.165
D774L	0.057	50	50	1	0.0223	x 50 = 1.115
D774M	0.008	50	50	1	0.0033	x 50 = 0.165
D774P	0.012	50	50	1	0.0049	x 50 = 0.245
D774Q	0.011	50	50	1	0.0045	x 50 = 0.225
D774R	0.001	50	50	1	0.0006	x 50 = 0.030
D774W	0.008	50	50	1	0.0033	x 50 = 0.165
CCV	0.059	50	50	1	0.0231	x100 / .025 = 92 %
CCB	0.001	50	50	1	0.0006	
D7763	0.005	50	50	1	0.0022	x 50 = 0.11
D7490	0.006	50	50	1	0.0025	
D7843	0.023	50	50	1	0.0091	
D7846	0.272	50	50	1	0.1055	
D7848	0.176	50	50	1	0.0684	

D7849	0.061	50	50	1	0.0238
D784A	0.007	50	50	1	0.0029
D784J	0.316	50	50	4	0.4903
D784C	0.018	50	50	1	0.0072
D784E	0.009	50	50	1	0.0037
CCV	0.061	50	50	1	0.0238
CCB	0.001	50	50	1	0.0006
D784F	0.021	50	50	1	0.0084
D784G	0.255	50	50	1	0.0990
D6MJL	0.186	50	50	400	28.8954
D6Q1A	0.071	50	50	40	1.1085
D6Q1R	0.042	50	50	1	0.0165
CCV	0.062	50	50	1	0.0242
CCB	0.001	50	50	1	0.0006

$\frac{0.0238}{0.025} \times 100 = 95\%$

RE-RUNS FROM ANOTHER BATCH

$\frac{0.0242}{0.025} \times 100 = 97\%$

date: 1-17-00

Batch: 0018124
0018119.

WAD

Sheet1

		Quanterra, North Canton			
		Spectrophotometric Logsheet			
Analysis	MD CN-	Batch	0013358		Spectrophotometer
					Spectronic 401
Prep Date	1/13/00	Lcs No.	CY0046		
					Wavelength
Anal Date	1/13/00	Lcs Prep	1·13·00		578 NM
		Date			RL
Analyst	MFG				5 UG/L

Std No	Conc	ABS			
	mg/L				
NA	0	0.002		Slope	2.0012
CY0043	0.005	0.011		Intercept	0.0011
CY0042	0.01	0.02		r	1.0000
CY0041	0.025	0.051			
CY0040	0.05	0.102			
CY0039	0.1	0.201			

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.047	0.75	0.75	1	0.0229	ug/L 22.9/25=92%
icb/ccb	0.002	0.75	0.75	1	0.0004	0.4
BLK	0.002	0.75	0.75	1	0.0004	0.4
LCS	0.076	0.75	0.57	1	0.0284	28.4/40 =71%
D7845	0.003	0.75	0.75	1	0.0009	0.9
D7845 DUP	0.003	0.75	0.75	1	0.0009	0.9
D7845 MS	0.078	0.75	0.75	1	0.0384	38.4
D7845 MSD	0.082	0.75	0.75	1	0.0404	40.4
D784F	0.002	0.75	0.75	1	0.0004	0.4
D784F DUP	0.002	0.75	0.75	1	0.0004	0.4
D7846	0.127	0.75	0.75	1	0.0629	62.9
D7846 DUP	0.143	0.75	0.75	1	0.0709	70.9
CCV	0.051	0.75	0.75	1	0.0249	24.9/25=100%
CCB	0.001	0.75	0.75	1	-0.0001	ND
D7843	0.002	0.75	0.75	1	0.0004	0.4
D7843 DUP	0.004	0.75	0.75	1	0.0014	1.4
D79M1	0.002	0.75	0.75	1	0.0004	0.4
D79M1 DUP	0.002	0.75	0.75	1	0.0004	0.4
D79NT	0	0.75	0.75	1	-0.0006	ND

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M F G
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Pittsburgh, PA 15212-1528

412/321-2278
Fax: 412/321-2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 1 March 2000

SUBJECT: **Data Validation of: Total and Dissolved Barium, Total and Free Cyanide, Total Suspended Solids (TSS)**

Re: Quanterra, Inc.
Package No.: A0A110205

Aqueous Samples:

ABL-MW-6-0080R
MW-4-0080DR
MW-4-0080R
MW-4-0080RE
MW-4-0080RQ
NE4-0080R
NE4-0080RE
NE4-0080RQ
OBL-MW-1-0070R
OBL-MW-2-0070R
OBL-MW-3-0070R
OBL-MW-4-0070R
OBL-MW-5-0070R

Equipment Blanks:

EQB02-0070R
EQB02-0070RQ
EQB02-0070RE
EQB03-0070R
EQB03-0070RQ
EQB03-0070RE
EQB04-0080R

Field Duplicates:

Sample MW-4-0080DR is a field duplicate of sample MW-4-0080R.

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Overview

This set of samples collected on January 6 and 7, 2000 for the Alcoa Badin Site contains thirteen (13) groundwater samples, including one (1) field duplicate pair, and seven (7) equipment rinsate blanks. The samples were analyzed for total and dissolved barium and total cyanide, by USEPA SW-846 Methods 6010B and 9012, respectively. The samples were also analyzed for free cyanide by Standard Method 18 4500-CN-I and ASTM D4282-83 and for total suspended solids by MCAWW 160.2. Note that not all samples were analyzed for all parameters.

Summary

All compounds were successfully analyzed in all samples. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

Total and Dissolved Barium

No problems were encountered.

Total Cyanide

The percent recovery for the LCS was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Blank contamination was found in equipment rinsate blank EQB04-0080R at a value of 0.011 mg/L. As a result, sample values less than five times the blank values were qualified as non-detect "U". Note that several sample values were impacted by the blank result when dilution factors were taken into account.

Free Cyanide by SM18

No problems were encountered.

Free Cyanide by ASTM D4282-83

The percent recovery for the LCS performed on January 13, 2000 was less than 80 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

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Total Suspended Solids

The RPD between the laboratory duplicate samples was greater than control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Notes

Note that custody seals were not present on the coolers upon receipt at the laboratory. As the samples were received in good condition and no problems were encountered this was not believed to impact the sample quality and no action was taken.

Note that the laboratory did not provide serial dilution information with the data package for either total or dissolved metals. A review of the raw data for the serial dilution of sample D79FL which was prepared and run on the same dates as the samples in this data package showed it to be acceptable.

Low levels of total and dissolved barium were found in the initial calibration, continuing calibration, preparation, and equipment rinsate blanks above the instrument detection limit but below the reporting limit. In addition, barium was found above the instrument detection limit but below the reporting limit in the ICSA solution. However, due to the very low levels encountered and the fact that the levels of interferents in the site samples were all well below the levels in the ICS, these values did not impact any of the site sample results.

Note that the laboratory did not report the CRI standard with the total and dissolved metals analyses. However, a review of the raw data showed that a CRI was run at a concentration of 20 ug/L which is below the laboratory reporting limit. The percent recovery for this CRI was acceptable.

Note that several MS/MSD percent recoveries associated with the total and free cyanide analyses were less than control limits. However, the original sample results were greater than four times the spike added and no action was taken on this basis.

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Not all of the laboratory duplicate results for the free cyanide by ASTM 4282-83 were provided with the data package. However, a review of the raw data showed these to be acceptable.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the free (WAD) cyanide samples prepared on January 18, 2000. However, a laboratory control sample is prepared with each batch and the result of the LCS was acceptable.

Samples OBL-MW-2-0070R (Quanterra # D79MD) and MW-4-0080DR (Quanterra # D79MM) appear to be mislabeled as D78MD and D78MM, respectively, in the raw data for free (WAD) cyanide, based on similarity of numbering and reported results.

The data validated under this report were only evaluated on the information supplied with the data package.

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Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, are deemed acceptable and valid for the intended use.

Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Lot# A0A110205

Date Sampled Units	ABL-MW-6-0080R 1/8/00 mg/L	MW-4-0080DR 1/8/00 mg/L	MW-4-0080R 1/8/00 mg/L	MW-4-0080RE 1/8/00 mg/L	MW-4-0080RQ 1/8/00 mg/L
Barium - Total	--	--	0.1 U	--	--
Barium-Dissolved	--	--	--	**0.37**	0.1 U
Cyanide, Free (microdiffusion)	0.005 U	**0.309**	**0.36**	--	--
Cyanide, Total	0.01 UJ	**0.24** UJ	**0.19** UJ	--	--
Cyanide, Free (WAD)	0.01 U	**0.49**	**0.52**	--	--
Total Suspended Solids	--	--	**82.0** J	--	--

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Data Summary
Lot# A0A110205

	NE4-0080R	NE4-0080RE	NE4-0080RQ	OBL-MW-1-0070R	OBL-MW-2-0070R
Date Sampled	1/8/00	1/8/00	1/8/00	1/7/00	1/7/00
Units	mg/L	mg/L	mg/L	mg/L	mg/L
Barium - Total	0.1 U	--	--	--	--
Barium-Dissolved	--	**0.25**	0.1 U	--	--
Cyanide, Free (microdiffusion)	--	--	--	0.005 UJ	**0.573**
Cyanide, Total	--	--	--	0.01 UJ	**0.2** UJ
Cyanide, Free (WAD)	--	--	--	0.01 U	**0.58**
Total Suspended Solids	**71.0** J	--	--	--	--

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Data Summary
Lot# A0A110205

Date Sampled Units	OBL-MW-3-0070R 1/7/00 mg/L	OBL-MW-4-0070R 1/7/00 mg/L	OBL-MW-5-0070R 1/7/00 mg/L	EQB02-0070R 1/7/00 mg/L	EQB02-0070RQ 1/7/00 mg/L
Barium - Total	--	--	--	0.1 U	--
Barium-Dissolved	--	--	--	--	0.1 U
Cyanide, Free (microdiffusion)	**0.0992**	**0.0946**	0.005 U	0.005 U	
Cyanide, Total	**0.17** J	**0.16** J	0.01 UJ	0.01 UJ	
Cyanide, Free (WAD)	**0.11**	**0.11**	0.01 U	0.01 U	
Total Suspended Solids	--	--	--	4.0 UJ	

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Data Summary
Lot# A0A110205

Date Sampled Units	EQB02-0070RE 1/7/00 mg/L	EQB03-0070R 1/7/00 mg/L	EQB3-0070RQ 1/7/00 mg/L	EQB03-0070RE 1/7/00 mg/L	EQB04-0080R 1/8/00 mg/L
Barium - Total	- -	0.1 U	- -	- -	- -
Barium-Dissolved	0.1 U	- -	0.1 U	0.1 U	- -
Cyanide, Free (microdiffusion)					0.005 UJ
Cyanide, Total					**0.011** J
Cyanide, Free (WAD)					0.01 U
Total Suspended Solids		4.0 UJ			

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Results as Reported by the
Laboratory

IT GROUP

Client Sample ID: MW-4-0080R

TOTAL Metals

Lot-Sample #...: A0A110205-007 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79ML10A

Dilution Factor: 1 Analysis Time..: 16:52 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB02-0070R

TOTAL Metals

Lot-Sample #...: A0A110205-009 Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79MN105

Dilution Factor: 1 Analysis Time..: 17:19 MS Run #.....: 0012005

IT GROUP

Client Sample ID: EQB02-0070RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-010 Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79N7101

Dilution Factor: 1 Analysis Time..: 17:23 MS Run #.....: 0012005

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

IT GROUP

Client Sample ID: EQB02-0070RE

DISSOLVED Metals

Matrix.....: WATER

Lot-Sample #...: A0A110205-011
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NF101
		Dilution Factor: 1		Analysis Time..: 17:28	MS Run #.....: 0012005	

IT GROUP

Client Sample ID: EQB03-0070R

TOTAL Metals

Lot-Sample #...: A0A110205-012 Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NH101

Dilution Factor: 1 Analysis Time..: 17:33 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: EQB03-0070RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-013 **Matrix.....:** WATER
Date Sampled...: 01/07/00 10:30 **Date Received..:** 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NM101

Dilution Factor: 1 Analysis Time..: 17:37 MS Run #.....: 0012005

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

IT GROUP

Client Sample ID: EQB03-0070RE

DISSOLVED Metals

Lot-Sample #...: A0A110205-014 Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NQ101
	Dilution Factor: 1		Analysis Time..: 17:42		MS Run #.....: 0012005	

IT GROUP

Client Sample ID: NE4-0080R

TOTAL Metals

Lot-Sample #...: A0A110205-016 Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79NW101

Dilution Factor: 1 Analysis Time..: 17:47 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: NE4-0080RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-017 Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79P0101
	Dilution Factor: 1		Analysis Time..: 17:51		MS Run #.....: 0012005	

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Data Summary

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Sample result for MW-22-2609 as reported by laboratory did not match that found in the raw data. It appears that a 2 X dilution was performed but is not indicated in the raw data. Verification of this sample result has been requested of the laboratory but had not been received at the time of this report.

Data package I9J11054 (Groundwater and Surface Water)

Cyanide Total by 9012

Blank contamination was found in equipment rinsate blank NE-HA03-0.0-0.5EB at a concentration of 0.043 mg/L. As a result, all sample values less than five times the blank result were qualified as non-detect "U".

Free Cyanide (WAD) by SM18

The low distillation standard was below control limits. As a result, associated positive and non-detect results were qualified as estimated "J" and "UJ", respectively.

The laboratory control sample was not reported on the laboratory quality control summary. A review of the raw data showed the percent recovery to be within control limits.

A MS/MSD was not performed with the data in this package and could not be evaluated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

No problems were encountered.

Notes

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Samples MW-18-2649 and MW-19-2649 were not received base preserved at the laboratory. These samples were recollected as MW-18-2679 and MW-19-2679, respectively, and were received with package I9I280181. The recollected samples were reported with package I9I230179.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. However, a laboratory control sample is prepared with each batch and the results of these LCSs were acceptable except as noted above.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

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Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Data package I9I21034 (Groundwater)

Cyanide Total by 9012

Blank contamination was found for total cyanide in equipment blank MW-6-2639EB at a concentration of 0.48 mg/L. As a result, all sample values less than five times the blank result were qualified as non-detect "U".

The MS/MSDs percent recoveries associated with batch 9273189 were below control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. The samples affected included: MW-2-2609, MW-2A-2619, MW-6A-2619, and MW-22-2609.

Note that while the MS/MSD percent recoveries performed on batch sample D2NEQ on September 30, 1999 were outside control limits, no action was taken as the original sample result was greater than 4 times the spike added. Note that this data was not reported by the laboratory on the MS/MSD data summary sheet but was acquired from the raw data.

The result for MW-2-2609 exceeded the highest calibration standard. As result, this value was qualified as estimated "J".

Free Cyanide (WAD) by SM18

Note that while the MS/MSD percent recoveries performed on batch sample D2NEQ on September 30, 1999 were outside control limits, no action was taken as the original sample result was greater than 4 times the spike added. Note that this data was not reported by the laboratory on the MS/MSD data summary sheet but was acquired from the raw data.

Note that samples MW-14-2629 and MW-6-2639EB were analyzed with a 5 X dilution even though these sample results were non-detect. As a result, the reported quantitation limits are elevated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

Sample MW-4-2639 was received at the laboratory at a pH of <2. This sample was recollected and submitted with package I9I240182.

Per non-conformance memo ICV, CCV, and CCB were not prepared according to laboratory SOP. The laboratory SOP is being modified to incorporate the new methodology.

The MS/MSDs percent recoveries associated with batch 9272159 were below control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. .

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Data package B9I180109 (Groundwater)

Cyanide Total by 9012

The MS/MSDs percent recoveries associated with batch 9273189 were below control limits. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively. Affected samples included: MW-20A-2609, MW-21-2599, MW-24-2599, MW-12-2609, MW-11-2609, and MW-3-2609.

Total cyanide results were not provided on the Form I's provided by the laboratory for MW-20A-2609 and MW-21-2599. A review of the raw data showed the results for these samples to be 0.29 mg/L and 16.8 mg/L, respectively. These values were added to the validated data summary and a resubmittal of the associated Form I's from the laboratory has been requested.

Free Cyanide (WAD) by SM18

Results for the MS/MSD performed with batch 9271265 were not provided with the data package. A review of the associated raw data showed that the all percent recoveries and RPDs were within control limits.

Free Cyanide (ASTM D4282-83 – microdiffusion)

Per non-conformance memo the ICV and CCVs were not diffused with this analysis. The laboratory SOP is being modified to incorporate the new methodology.

The result for MW-21-2599 exceeded the highest initial calibration standard. As a result, this result was qualified as estimated "J".

Data package I9I280181 (Groundwater)

Cyanide Total by 9012

Note that while the percent recoveries of the MS/MSD associated with batch 9279439 were outside control limits the original sample result was greater than four times the spike concentration. As a result, no action was taken.

Free Cyanide (WAD) by SM18

The laboratory control sample percent recovery associated with batch 9279445 was low. As a result, associated positive and non-detect results were qualified as estimated "J" and "UJ", respectively. This affected sample OBL-MW-3-2689.

Note that the result for sample OBL-MW-3-2689D as reported by the laboratory does not match that found in the raw data. The corrected value is 0.033 mg/L. This was placed on the validated data summary.

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Several MS/MSDs percent recoveries associated with batch 9280290 were outside control limits and one RPD between the MS/MSD percent recoveries was also outside of control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively. Note that while the MS/MSD percent recoveries performed on batch sample D2XDD102 were zero, no action was taken as the original sample result was greater than 4 times the spike added.

Free Cyanide (WAD) by SM18

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Data package I9I230179 (Groundwater)

Cyanide Total by 9012

Samples MW-18-2679 and MW-19-2679 were prepared and analyzed outside of holding time. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

Free Cyanide (WAD) by SM18

Samples MW-18-2679 and MW-19-2679 were prepared and analyzed outside of holding time. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

One mid-point distilled standard percent recovery associated with batch 9271245 was low. As a result, associated positive and non-detect results qualified as estimated "J" and "UJ", respectively.

The sample results for MW-8-2649 and MW-16-2649 were not adjusted for dilution as reported by the laboratory. The corrected results are 0.24 mg/l and 0.42 mg/l, respectively. This has been corrected on the validated data summary.

Free Cyanide (ASTM D4282-83 – microdiffusion)

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

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attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

Data package I9I270156 (Groundwater)

Free Cyanide (WAD) by SM18

MS/MSD percent recoveries associated with batch 9280289 were outside control limits. The MS/MSD percent recoveries performed on sample ABL-MW-5-2669 were zero. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R".

Data package I9I230179 (Groundwater)

Free Cyanide (WAD) by SM18

MS/MSD percent recoveries associated with batch 9280289 were outside control limits with the percent recoveries for one MS/MSD being zero. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R". This affected the sample results for MW-18-2679 and MW-19-2679.

Data package I9I280181 (Groundwater)

Free Cyanide (WAD) by SM18

The MSD percent recovery associated with batch 9279445 was zero and the RPD between the MS/MSD percent recoveries was outside control limits. As a result, associated positive sample results were qualified as estimated "J" while non-detect values were rejected "R". This affected the sample result for OBL-MW-3-2689.

Minor Issues

Data package I9I270156 (Groundwater)

Total Cyanide by 9012

All samples were prepared/analyzed out of hold time. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results respectively.

Sample ABL-MW-5-2669D, while listed on the chain-of custody, was not analyzed with the data package and could not be evaluated.

Laboratory control sample associated with batch 9280290 was above control limits. As a result, associated positive sample results were qualified as estimated "J" while non-detects were not impacted.

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Data package I9I280181 (Groundwater)

ABL-MW-1-2679	ABL-MW-2-2679	ABL-MW-6-2679
OBL-MW-1-2689	ABL-MW-4-2679	OBL-MW-2-2689
OBL-MW-3-2689	OBL-MW-3-2689D	OBL-MW-4-2689
OBL-MW-5-2689		

Data package I9I21034 (Groundwater)

MW-2-2609	MW-2A-2619	MW-6A-2619
MW-22-2609	MW-14-2629	MW-6-2639D
MW-6-2639	MW-4-2636	

Data package I9J11054 (Groundwater and Surface Water)

MW-27-2779	LMC-SW01-2799	LMC-SW02-2799

Equipment Blanks:

ABL-MW-5-2669EB	(Data Package I9I270156)
MW-6-2639EB	(Data package I9I21034)
2689-EB	(Data package I9I280181)
NE-HA03-0.0-0.5EB	(Data package I9J11054)
LMC-S002-0.0-0.4EB	(Data package I9J11054)
SE-HA04-0.5-2.0EB	(Data package I9J11054)

Field Duplicates:

Sample OBL-MW-3-2689D is a field duplicate of sample OBL-MW-3-2689.
Sample MW-6-2639D is a field duplicate of sample MW-6-2639.

Overview

These sets of samples collected from September 14, 1999 through October 7, 1999 for the Alcoa Badin Site contain 37 groundwater samples, including two (2) field duplicate pairs, and six (6) field blanks. The samples were analyzed for total cyanide by USEPA SW-846 Method 9012A and for free cyanide by Standard Method 18 and ASTM D4282-83.

Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the

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M
F
G
consulting
scientists and
engineers

800 Vinial Street, Building A
Pittsburgh, PA 15212-1526

412-321-8275
Fax: 412-321-9826

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 14 January 2000

SUBJECT: **Data Validation of: Total and Free Cyanide**

Re: Quanterra, Inc.
Package Nos.: I9I270156, B9I210134, I9J110154,
I9I280181, I9I230179, and B9I180109

Aqueous Samples:

Data package I9I270156 (Groundwater)

ABL-MW-3	ABL-MW-5-2699

Data package I9I230179 (Groundwater)

MW-5-2649	MW-16-2649	MW-18-2679
MW-19-2679	MW-8-2649	

Data package B9I180109 (Groundwater)

MW-1-2589	MW3-2609	MW-7-2579
MW-11-2609	MW-12-2609	MW-13-2579
MW-20A-2609	MW-21-2599	MW-24-2599

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Quanterra ® Cooler Receipt Form/Narrative
North Canton Facility

AOA 110205

Client: IT Corporation Project: Akron Quote#: Q 32077

Cooler Received on: 1/11/99 Opened on: 1/11/99 by: [signature] (Signature)

Fedx ☒ Client Drop Off ☐ UPS ☐ Airborne ☐

Other:_____

Cooler ☒ Safe ☐ Foam Box ☐ Client Cooler ☐ Other:_____

Quanterra Shipper No#: 3277

1. Were custody seals on the outside of the cooler and intact? Yes ☒ No ☒
   If YES, Quantity_____ Location_____
   Were the custody seals signed and dated? Yes ☐ No ☐ NA ☒
2. Shipper's packing slip attached to this form? Yes ☒ No ☐
3. Were custody papers included inside the cooler and relinquished? Yes ☒ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☒ No ☐
5. Packing material used:
   Peanuts ☐ Bubble Wrap ☒ Vermiculite ☐ Foam ☐ None ☐ Other :_____
6. Cooler temperature upon receipt 1.3 °C (see back of form for multiple coolers/temp)
   METHOD: Temperature Vial ☒ Coolant ☐ Against Bottles ☐
   COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ None ☐
7. Were all the bottles sealed in separate plastic bags? Yes ☒ No ☐
8. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
9. Did all bottle labels and tags agree with the custody papers? Yes ☒ No ☐
10. Were samples at the correct pH? Yes ☒ No ☐ NA ☐
11. Were correct bottles used for the tests indicated? Yes ☒ No ☐
12. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☒
13. Was a sufficient amount of sample sent in each bottle? Yes ☒ No ☐

Contacted PM _____ Date:_____ by:_____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning:_____

Check √	MACRO	MACRO
1. CHAIN OF CUSTODY		
	SR1A	Samples were received under proper custody procedures and without discrepancies.
	SR1B	The chain of custody and sample bottles did not agree. The following discrepancies occurred_____
2. SAMPLE CONDITION		
	SR2A	Sample(s)_____ were received or requested after the recommended holding time had expired.
	SR2B	Sample(s) _____ were received with insufficient volume
	SR2C	Sample(s)_____ were received in a broken container.
3. SAMPLE PRESERVATION		
√	SR3A	The temperature of the cooler was _____ ° C
	SR3C	Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving.
	SR3D	Sample(s) _____ were received incorrectly preserved and split off in sample receiving.
	SR3E	Samples (s)_____ were received incorrectly preserved and were unable to be analyzed.
	SR3F	Sample(s)_____ were received with bubble > 6 mm in diameter (cc: PM)
	N/A	See back for other anomalies

			Quanterra, North Canton		
			Spectrophotometric Logsheet		
Analysis	CN	Batch	0.019.394		Spectrophotometer
					SPEC. 401
Prep Date	1/18/00	Lcs No.	CY0063		
					Wavelength
Anal Date	1/19/00	Lcs Prep			570 nm
		Date	1/18/00		RL
Analyst	MFG/CKK				

Std No	Conc	ABS			
	mg/L				
NA	0	0		Slope	2.5828
CY0067	0.005	0.011		Intercept	-0.0006
CY0066	0.025	0.064		r	1.0000
CY0065	0.05	0.13			
CY0064	0.1	0.257			
CY0053	0.2	0.516			
CCV=CY0061					

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	
icv/ccv	0.061	50	50	1	0.0238	x100 / .025 = 95%
icb/ccb	0	50	50	1	0.0002	
BLK	0.004	50	50	1	0.0018	
LCS *	0.015	50	50	1	0.0060	
~~LCSD~~ LCS	0.091	50	50	1	0.0355	x100 / 1.14 = 89%
MDL-1	0.015	50	50	1	0.0060	
MDL-2	0.014	50	50	1	0.0056	
MDL-3	0.025	50	50	1	0.0099	
MDL-4	0.017	50	50	1	0.0068	
MDL-5	0.012	50	50	1	0.0049	
MDL-6	0.018	50	50	1	0.0072	
MDL-7	0.044	50	50	1	0.0173	
CCV	0.063	50	50	1	0.0246	x100 / .025 = 98%
CCB	0	50	50	1	0.0002	
D79ML F	0.267	50	50	5	0.5180	
D79ML F MS	0.298	50	50	5	0.5780	
D79MLF MS	0.309	50	50	5	0.5993	
D79M1 F	0.004	50	50	1	0.0018	
D79MD F	0.299	50	50	5	0.5800	

* THE LCS WAS NOT SPIKED, USE LCSD FOR LCS

Sheet1

Batch 0012575
date: 00112

D7841 DUP	0.004	1	1	1	0.0026	2.6
D7842	0.081	0.1	1	1	0.4196	419.6
D7842 DUP	0.074	0.1	1	1	0.3839	383.9
D79MD	0.945	1	1	1	0.4831	} rerun @ 10X
D79MD DUP	0.897	1	1	1	0.4586	
CCV	0.048	1	1	1	0.0251	25.1/25 = 100%
CCB	0	1	1	1	0.0006	0.6
D79ME	0.096	0.5	1	1	0.0992	99.2
D79ME DUP	0.085	0.5	1	1	0.0880	88.0
D79MG	0.184	1	1	1	0.0946	94.6
D79MG DUP	0.18	1	1	1	0.0925	92.5
D79MH	0	1	1	1	0.0006	0.6
D79MH DUP	0.001	1	1	1	0.0011	1.1
D79MJ	0	1	1	1	0.0006	0.6
D79MJ DUP	0.002	1	1	1	0.0016	1.6
D79MM	0.508	1	1	1	0.2600	} rerun @ 5X
D79MM DUP	0.493	1	1	1	0.2523	
CCV	0.048	1	1	1	0.0251	25.1/25 = 100%
CCB	0	1	1	1	0.0006	0.6
D79MN	0.003	1	1	1	0.0021	2.1
D79MN DUP	0	1	1	1	0.0006	0.6
CCV	0.044	1	1	1	0.0231	23.1/25 = 92%
CCB	0	1	1	1	0.0006	0.6
D79ML	0.14	0.2	1	1	0.3604	360.4
D79ML DUP	0.147	0.2	1	1	0.3783	378.3
D79ML MS	0.168	0.2	1	1	0.4319	431.9
D79ML MSD	0.15	0.2	1	1	0.3860	386.0
D783W	0.072	0.5	1	1	0.0747	74.7
D783W DUP	0.067	0.5	1	1	0.0696	69.6
D78MD	0.111	0.1	1	1	0.5728	572.8
D78MD DUP	0.109	0.1	1	1	0.5626	562.6
D78MM	0.12	0.2	1	1	0.3094	309.4
D78MM DUP	0.12	0.2	1	1	0.3094	309.4
CCV	0.044	1	1	1	0.0231	23.1/25 = 92%
CCB	0	1	1	1	0.0006	0.6

1 0
Sheet1

Quanterra, North Canton
Spectrophotometric Logsheet

Analysis	MD CN-	Batch	0013358		Spectrophotometer
					Spectronic 401
Prep Date	1/13/00	Lcs No.	CY0046		
					Wavelength
Anal Date	1/13/00	Lcs Prep	1·13·00		578 NM
		Date			RL
Analyst	MFG				5 UG/L

Std No	Conc	ABS			
	mg/L				
NA	0	0.002		Slope	2.0012
CY0043	0.005	0.011		Intercept	0.0011
CY0042	0.01	0.02		r	1.0000
CY0041	0.025	0.051			
CY0040	0.05	0.102			
CY0039	0.1	0.201			

Sample No	ABS	Sample Vol	Final Vol	dil	Final Conc	
		ml or g	ml		mg/L or mg/kg	ug/L
icv/ccv	0.047	0.75	0.75	1	0.0229	22.9/25=92%
icb/ccb	0.002	0.75	0.75	1	0.0004	0.4
BLK	0.002	0.75	0.75	1	0.0004	0.4
LCS	0.076	0.75	0.57	1	0.0284	28.4/40 = 71%
D7845	0.003	0.75	0.75	1	0.0009	0.9
D7845 DUP	0.003	0.75	0.75	1	0.0009	0.9
D7845 MS	0.078	0.75	0.75	1	0.0384	38.4
D7845 MSD	0.082	0.75	0.75	1	0.0404	40.4
D784F	0.002	0.75	0.75	1	0.0004	0.4
D784F DUP	0.002	0.75	0.75	1	0.0004	0.4
D7846	0.127	0.75	0.75	1	0.0629	62.9
D7846 DUP	0.143	0.75	0.75	1	0.0709	70.9
CCV	0.051	0.75	0.75	1	0.0249	24.9/25 = 100%
CCB	0.001	0.75	0.75	1	-0.0001	ND
D7843	0.002	0.75	0.75	1	0.0004	0.4
D7843 DUP	0.004	0.75	0.75	1	0.0014	1.4
D79M1	0.002	0.75	0.75	1	0.0004	0.4
D79M1 DUP	0.002	0.75	0.75	1	0.0004	0.4
D79NT	0	0.75	0.75	1	-0.0006	ND

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Work Order #...: D79ML-SMP D79ML-DUP Matrix.....: WATER

Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						SD Lot-Sample #: A0A110205-007		
Total Suspended Solids	82.0	109	mg/L	28	(0-20)	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1
Analysis Time..: 00:00
Prep Date.....: 0017015 Analysis Date..: Prep Batch #...:

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		WO#: D7845108-MS/D7845109-MSD				MS Lot-Sample #: A0A100119-008	
	94	(70 - 130)			ASTM D4282-83	01/13/00	0013358
	99	(70 - 130)	5.1	(0-20)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0013145					
Cyanide (Free)		WO#: D79ML102-MS/D79ML103-MSD				MS Lot-Sample #: A0A110205-007	
	NC,MSB	(70 - 130)			SM18 4500-CN-I	01/18-01/20/00	0019394
	NC,MSB	(70 - 130)		(0-20)	SM18 4500-CN-I	01/18-01/20/00	0019394
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0019170					
Cyanide (Free)		WO#: D79ML108-MS/D79ML109-MSD				MS Lot-Sample #: A0A110205-007	
	179 N	(70 - 130)			ASTM D4282-83	01/12/00	0012373
	64 N	(70 - 130)	11	(0-20)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0012147					
Total Cyanide		WO#: D79ML105-MS/D79ML106-MSD				MS Lot-Sample #: A0A110205-007	
	NC,MSB	(70 - 130)			SW846 9012	01/18-01/19/00	0018247
	NC,MSB	(70 - 130)		(0-20)	SW846 9012	01/18-01/19/00	0018247
		Dilution Factor: 1					
		Analysis Time..: 00:00					
		MS Run #.....: 0018087					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0A110205 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)		Work Order #: D7CCG102	LCS Lot-Sample#: A0A120000-373		
	97	(70 - 130)	ASTM D4282-83	01/12/00	0012373
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7E3P102	LCS Lot-Sample#: A0A130000-358		
	(71)	(70 - 130)	ASTM D4282-83	01/13/00	0013358
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Cyanide (Free)		Work Order #: D7KXM102	LCS Lot-Sample#: A0A190000-394		
	89	(70 - 130)	SM18 4500-CN-I	01/18-01/20/00	0019394
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Total Cyanide		Work Order #: D7J74102	LCS Lot-Sample#: A0A180000-247		
	(73)	(70 - 130)	SW846 9012	01/18-01/19/00	0018247
		Dilution Factor: 1			
		Analysis Time..: 00:00			
Total Suspended Solids		Work Order #: D7GXV102	LCS Lot-Sample#: A0A140000-314		
	82	(80 - 120)	MCAWW 160.2	01/14-01/17/00	0014314
		Dilution Factor: 1			
		Analysis Time..: 00:00			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC **Acceptable Range:** 0% - 0%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 1/13/00 8:59 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100		0.8	B								

Version 3.61.6

U Result is less than the IDL

B Result is between IDL and RL

Form 4 Equivalent

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Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST

Units: ug/L

Chart Number: I60113A.ARC

Standard Source:

Standard ID:

Element	WL/ Mass	Report Limit	CCB 1/13/00 7:08 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.68	B								

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

Quanterra-North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 1/13/00 2:09 PM Found	Q	CCB 1/13/00 3:07 PM Found	Q	CCB 1/13/00 4:05 PM Found	Q	CCB 1/13/00 5:08 PM Found	Q	CCB 1/13/00 6:08 PM Found	Q
Barium	493.409	100	0.3	U	0.3	U	0.58	B	0.71	B	0.61	B

Version 3.61.6

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

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Quanterra-North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 1/13/00 9:18 AM		CCB 1/13/00 10:59 AM		CCB 1/13/00 11:56 AM		CCB 1/13/00 12:55 PM		CCB 1/13/00 1:08 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.65	B	0.67	B	0.49	B	0.55	B	0.42	B

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

Quanterra-North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I60113A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 1/13/00 8:33 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Barium	493.409	100	0.44	B								

Version 3.61.6

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

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CASE NARRATIVE

The following report contains the analytical results for twenty water samples submitted to Severn Trent Laboratories, Inc. formerly Quanterra Incorporated North Canton, by IT Group from the Alcoa Badin Works Site. The samples were received on January 11, 2000, according to documented sample acceptance procedures.

Quanterra utilizes only USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the following page in accordance with the methods indicated. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

METALS

Form IX is not provided for batch 0012104 since the serial dilution was performed on a sample not associated with this project.

GENERAL CHEMISTRY

Matrix spike/duplicate spike recoveries were outside the acceptance limits for some analytes. The acceptable laboratory control sample analysis data indicated that the analytical system was operating within control and this condition is most likely due to matrix interference. See the Matrix Spike Report for the affected analytes which have been flagged with N.

For batch 0019394, matrix spike recovery and relative percent difference (RPD) data were not evaluated for Cyanide (Free) due to low spiking level compared to elevated sample concentration (sample was diluted out).

w3e Sample duplicate relative percent difference was outside the acceptance limits for Total Suspended Solids on batch 0014314. The acceptable laboratory control sample analysis data indicated that the analytical system was operating within control and this condition is most likely due to matrix interference.

The sample/sample duplicate RPD for Cyanide (Free) on batch 0013358 was outside of the control limits. The result is less than five times the reporting limit; therefore, no corrective action is required.

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Support Documentation

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IT GROUP

Client Sample ID: NE4-0080R

General Chemistry

Lot-Sample #...: A0A110205-016 Work Order #...: D79NW Matrix.....: WATER
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	71.0	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1 Analysis Time..: 00:00 MS Run #.....: 0017015

IT GROUP

Client Sample ID: EQB04-0080R

General Chemistry

Lot-Sample #...: A0A110205-015 Work Order #...: D79NT Matrix.....: WATER
Date Sampled...: 01/08/00 14:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0013145	
Total Cyanide	**0.011**	**0.010**	**mg/L**	**SW846 9012**	**01/18-01/19/00**	**0018247**
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: EQB03-0070R

General Chemistry

Lot-Sample #...: A0A110205-012 Work Order #...: D79NH Matrix.....: WATER
Date Sampled...: 01/07/00 10:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314

Dilution Factor: 1 Analysis Time..: 00:00 MS Run #.....: 0017015

IT GROUP

Client Sample ID: EQB02-0070R

General Chemistry

Lot-Sample #...: A0A110205-009 Work Order #...: D79MN Matrix.....: WATER
Date Sampled...: 01/07/00 08:30 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0019170		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0012147		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0018087		
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0017015		

IT GROUP

Client Sample ID: MW-4-0080DR

General Chemistry

Lot-Sample #...: A0A110205-008 Work Order #...: D79MM Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.49	0.050	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	309	25.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.24	0.10	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: MW-4-0080R

General Chemistry

Lot-Sample #...: A0A110205-007 Work Order #...: D79ML Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.52	0.050	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	360	25.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.19	0.10	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0018087	
Total Suspended Solids	82.0	4.0	mg/L	MCAWW 160.2	01/14-01/17/00	0014314
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0017015	

IT GROUP

Client Sample ID: ABL-MW-6-0080R

General Chemistry

Lot-Sample #...: A0A110205-006 Work Order #...: D79MJ Matrix.....: WATER
Date Sampled...: 01/08/00 11:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: OBL-MW-5-0070R

General Chemistry

Lot-Sample #...: A0A110205-005 Work Order #...: D79MH Matrix.....: WATER
Date Sampled...: 01/07/00 12:05 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0019170		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0012147		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0018087		

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IT GROUP

Client Sample ID: OBL-MW-4-0070R

General Chemistry

Lot-Sample #...: A0A110205-004 Work Order #...: D79MG Matrix.....: WATER
Date Sampled...: 01/07/00 15:50 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.11	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0019170		
Cyanide (Free)	94.6	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0012147		
Total Cyanide	0.16	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1			Analysis Time..: 00:00 MS Run #.....: 0018087		

IT GROUP

Client Sample ID: OBL-MW-3-0070R

General Chemistry

Lot-Sample #...: A0A110205-003 Work Order #...: D79ME Matrix.....: WATER
Date Sampled...: 01/07/00 14:55 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.11	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	99.2	5.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.17	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1			Analysis Time..: 00:00	MS Run #.....: 0018087	

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IT GROUP

Client Sample ID: OBL-MW-2-0070R

General Chemistry

Lot-Sample #...: A0A110205-002 Work Order #...: D79MD Matrix.....: WATER
Date Sampled...: 01/07/00 12:15 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.58	0.050	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 5			Analysis Time..: 00:00	MS Run #.....: 0019170	
Cyanide (Free)	573	50.0	ug/L	ASTM D4282-83	01/12/00	0012373
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0012147	
Total Cyanide	0.20	0.10	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 10			Analysis Time..: 00:00	MS Run #.....: 0018087	

IT GROUP

Client Sample ID: OBL-MW-1-0070R

General Chemistry

Lot-Sample #...: A0A110205-001 Work Order #...: D79M1 Matrix.....: WATER
Date Sampled...: 01/07/00 17:25 Date Received..: 01/11/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	01/18-01/20/00	0019394
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0019170		
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	01/13/00	0013358
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0013145		
Total Cyanide	ND	0.010	mg/L	SW846 9012	01/18-01/19/00	0018247
	Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 0018087		

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IT GROUP

Client Sample ID: MW-4-0080RE

DISSOLVED Metals

Lot-Sample #...: A0A110205-021 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	0.37	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79P5101

Dilution Factor: 1 Analysis Time..: 18:17 MS Run #.....: 0012005

IT GROUP

Client Sample ID: MW-4-0080RQ

DISSOLVED Metals

Lot-Sample #...: A0A110205-020 Matrix.....: WATER
Date Sampled...: 01/08/00 13:50 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	ND	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79P3101

Dilution Factor: 1 Analysis Time..: 18:12 MS Run #.....: 0012005

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IT GROUP

Client Sample ID: NE4-0080RE

DISSOLVED Metals

Matrix.....: WATER

Lot-Sample #...: A0A110205-018
Date Sampled...: 01/08/00 12:00 Date Received..: 01/11/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0012104						
Barium	0.25	0.10	mg/L	SW846 6010B	01/12-01/13/00	D79P1101

Dilution Factor: 1 Analysis Time..: 17:56 MS Run #.....: 0012005

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Results as Reported by the
Laboratory

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Data Summary
Alcoa Badin
Aqueous Cyanide Results

	Date Sampled	Total Cyanide mg/L	Free Cyanide (Weak Acid Dissociable) mg/L	Free Cyanide (Microdiffusion) ug/L
Data package I9I270156 (Groundwater)				
ABL-MW-3	9/23/99	0.011 J	0.010 R	5.0 UJ
ABL-MW-5-2699	9/23/99	0.042 J	0.10 J	5.9 J
ABL-MW-5-2669EB	9/23/99	0.010 UJ	0.010 R	5.0 UJ
Data package I9I230179 (Groundwater)				
MW-5-2649	9/21/99	0.20	0.054 J	41.5 J
MW-8-2649	9/21/99	0.86	0.24 J	291 J
MW-16-2649	9/21/99	2.3	0.42 J	570 J
MW-18-2679	9/24/99	0.010 UJ	0.010 R	5.0 UJ
MW-19-2679	9/24/99	0.010 UJ	0.010 R	5.0 UJ
Data package B9I180109 (Groundwater)				
MW-1-2589	9/15/99	4.4	1.2	56.4
MW3-2609	9/17/99	0.014 J	0.010 U	5.0 U
MW-7-2579	9/14/99	0.010 U	0.010 U	5.0 U
MW-11-2609	9/17/99	0.010 UJ	0.010 U	5.0 U
MW-12-2609	9/17/99	0.49 J	0.14	8.2
MW-13-2579	9/14/99	0.010 U	0.010 U	5.0 U
MW-20A-2609	9/17/99	0.29 J	0.078	5.3
MW-21-2599	9/16/99	16.8 J	0.14	111 J
MW-24-2599	9/16/99	24.2 J	0.76	23.4
Data package I9I280181 (Groundwater)				
ABL-MW-1-2679	9/24/99	0.010 U	0.010 U	5.0 UJ
ABL-MW-2-2679	9/24/99	0.010 U	0.010 U	5.0 UJ
ABL-MW-4-2679	9/24/99	0.036	0.011	5.0 UJ
ABL-MW-6-2679	9/24/99	0.010 U	0.010 U	5.0 UJ
OBL-MW-1-2689	9/25/99	0.010 U	0.010 U	5.0 UJ
OBL-MW-2-2689	9/25/99	1.1	0.12	5.4 J
OBL-MW-3-2689	9/25/99	0.26	0.030 J	151 J
OBL-MW-3-2689D	9/25/99	0.17	0.033	143 J
OBL-MW-4-2689	9/25/99	0.38	0.034	22.0 J
OBL-MW-5-2689	9/25/99	0.010 U	0.010 U	5.0 UJ
2689-EB	9/25/99	0.010 U	0.010 U	5.0 UJ
Data package I9I21034 (Groundwater)				
MW-2-2609	9/17/99	52.4 J	3.9	74.9 J
MW-2A-2619	9/18/99	0.21 UJ	0.15	5.0 UJ
MW-4-2636	9/20/99	4.3	0.48	
MW-6-2639	9/20/99	23.2	2.7	82.4 J
MW-6-2639D	9/20/99	23.3	4.5	90.0 J
MW-6-2639EB	9/20/99	0.48	0.050 U	5.0 UJ
MW-6A-2619	9/18/99	0.020 UJ	0.062	5.0 UJ
MW-14-2629	9/20/99	0.10 U	0.050 U	5.0 UJ
MW-22-2609	9/17/99	16.2 J	0.93	84.7 J
Data package I9J11054 (Groundwater and Surface Water)				
MW-27-2779	10/4/99	5.8	0.11 J	46.0
LMC-SW01-2799	10/6/99	0.010 U	0.010 UJ	5.0 U
LMC-SW02-2799	10/6/99	0.010 U	0.010 UJ	5.0 U
LMC-S002-0.0-0.4EB	10/6/99	0.010 U	0.010 UJ	5.0 U
NE-HA03-0.0-0.5EB	10/5/99	0.043	0.010 UJ	5.0 U
SE-HA04-0.5-2.0EB	10/7/99	0.010 U	0.010 UJ	5.0 U

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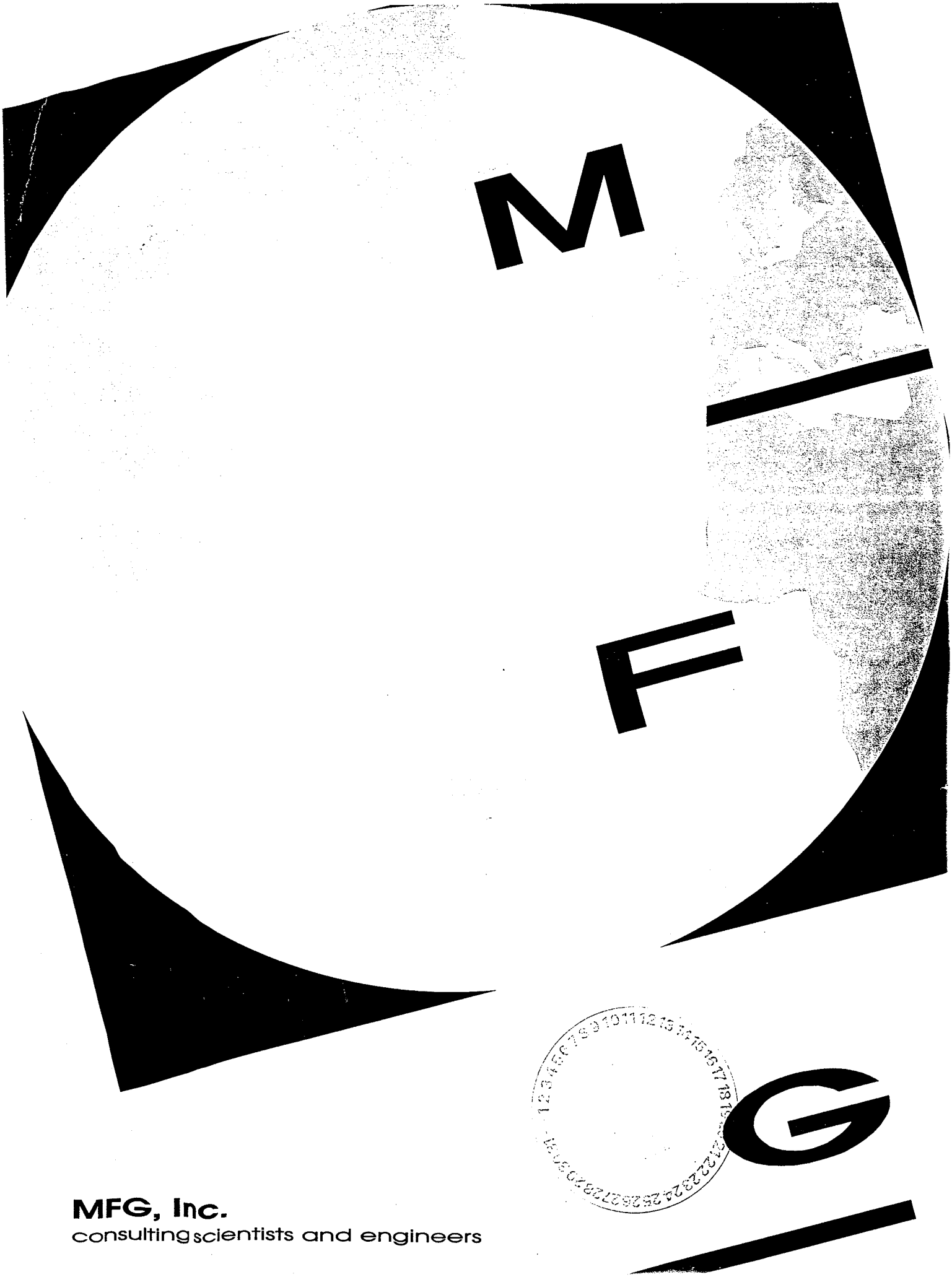

MFG, Inc.
consulting scientists and engineers

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RCRA FACILITY INVESTIGATION REPORT

VOLUME II OF II (APPENDIX A-E)

ALCOA BADIN WORKS BADIN, NORTH CAROLINA

MARCH, 2001

Prepared for:

ALCOA, INC.
Highway 740
Badin, NC 28009

Prepared by:

MFG, INC.
800 Vinial Street
Building A
Pittsburgh, PA 15212
(412) 321-2278
Fax: (412) 321-2283

MFG Project No. 120006.1E

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RCRA FACILITY INVESTIGATION REPORT

VOLUME II OF II
(APPENDIX A-2 CONTINUED - E)

ALCOA BADIN WORKS
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A-2 Data Validation Reports (continued)

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-26-2659

General Chemistry

Lot-Sample #...: I9I240182-001 Work Order #...: D2VF5 Matrix.....: WATER
Date Sampled...: 09/22/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	76.4	5.0	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	12.2	2.5	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	0.10	0.010	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-17-2659

General Chemistry

Lot-Sample #...: I9I240182-003 Work Order #...: D2VFK Matrix.....: WATER
Date Sampled...: 09/22/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	ND	0.10	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	ND	0.010	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: 2659-RB

General Chemistry

Lot-Sample #...: I9I240182-008 **Work Order #...:** D2VG6 **Matrix.....:** WATER
Date Sampled...: 09/22/99 **Date Received..:** 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	10/12/99	9286140
Fluoride	ND	0.10	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	ND	0.010	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-26-2659 D

General Chemistry

Lot-Sample #...: I9I240182-005 Work Order #...: D2VFW Matrix.....: WATER
Date Sampled...: 09/22/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	76.1	5.0	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	12.5	1.0	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	0.10	0.010	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	4.0	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-25-2659

General Chemistry

Lot-Sample #...: I9I240182-010 Work Order #...: D2VGC Matrix.....: WATER
Date Sampled...: 09/22/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.091	0.010	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	62.6	5.0	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	88.3	2.5	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	1.1	0.10	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-25A-2659

General Chemistry

Lot-Sample #...: I9I240182-012 Work Order #...: D2VGG Matrix.....: WATER
Date Sampled...: 09/22/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.13	0.10	mg/L	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)	63.9	5.0	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	6.5	2.5	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	0.42	0.10	mg/L	SW846 9012	10/05/99	9278314
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-9-2649

General Chemistry

Lot-Sample #...: I9I240182-014 Work Order #...: D2VGM Matrix.....: WATER
Date Sampled...: 09/21/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.081	0.050	mg/L	SM18 4500-CN-I	09/28-09/30/99	9271245
Cyanide (Free)	494	250	ug/L	ASTM D4282-83	10/11/99	9286133
Fluoride	45.0	2.5	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	5.5	0.50	mg/L	SW846 9012	10/04/99	9277375
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-10-2649

General Chemistry

Lot-Sample #...: I9I240182-016 Work Order #...: D2VGV Matrix.....: WATER
Date Sampled...: 09/21/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/28-09/30/99	9271245
Cyanide (Free)	ND	5.0	ug/L	ASTM D4282-83	10/12/99	9286140
Fluoride	1.6	0.10	mg/L	MCAWW 340.2	10/07/99	9280312
Total Cyanide	ND	0.010	mg/L	SW846 9012	10/04/99	9277375
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/27-09/28/99	9270239

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IT GROUP/ICF KAISER ENGINEERS, INC

Client Sample ID: MW-4-2669

General Chemistry

Lot-Sample #...: I9I240182-018 Work Order #...: D2VH5 Matrix.....: WATER
Date Sampled...: 09/23/99 Date Received..: 09/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	26.7	5.0	ug/L	ASTM D4282-83	10/12/99	9286140

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Support Documentation

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Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: I240182___

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic	1.5	U	1.5	U	1.5	U	1.5	U	2.060	B	P
Barium	1.6	B	2.4	B	3.5	B	4.5	B	2.700	B	P
Cadmium	0.4	B	0.6	B	0.8	B	1.1	B	0.300	U	P
Chromium	1.6	B	2.3	B	3.2	B	3.8	B	1.510	B	P
Lead	1.8	U	1.8	U	1.8	U	1.8	U	1.800	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	AV
Selenium	1.7	U	1.7	U	1.7	U	1.7	U	1.700	U	P

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U.S. EPA - SW-846

3
BLANKS

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: I240182___

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic			1.5	U	1.5	U	1.5	U			P
Barium			(4.0)	B	(4.1)	B	(3.7)	B			P
Cadmium			(0.9)	B	(0.9)	B	(0.8)	B			P
Chromium			(3.4)	B	(3.5)	B	(3.0)	B			P
Lead			1.8	U	1.8	U	1.8	U			P
Mercury			0.2	U	0.2	U					AV
Selenium			1.7	U	1.7	U	1.7	U			P

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U.S. EPA - SW-846

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No: _____ SDG No.: I240182__

ICP ID Number: TJA61ETRACE_ ICS Source: ULTRA_____

Concentration Units: (mg/L) — should be ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic	0	1000	-4	958.0	95.8			
Barium	0	500	4	559.4	111.9			
Cadmium	0	1000	-1	947.0	94.7			
Chromium	0	500	5	501.2	100.2			
Lead	0	1000	0	978.9	97.9			
Mercury								
Selenium	0	1000	-1	943.6	94.4			

No report on cyclics

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ethod: TRACE99 Sample Name: D2VG9 Operator: LEJ
un Time: 09/29/99 16:31:48
omment: B# 9271147 00/04 AS,BA,CD,CR,PB,SE
ode: CONC Corr. Factor: 1

Elem	Ag	Al	As	Ba	Be	Ca	Cd
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Avge	L.00015	.08395	L-.00083	.08334	.00045	.58038	L.00003
SDev	.00021	.00182	.00080	.00046	.00004	.00389	.00013
%RSD	139.55	2.1716	96.093	.55302	9.7645	.66956	381.52
#1	L.00000	.08524	L-.00140	.08302	.00048	.57763	L.00012
#2	L.00030	.08266	L-.00027	.08367	.00042	.58313	L-.00006
Errors	LC Low	LC Pass	LC Low	LC Pass	LC Pass	LC Pass	LC Low
High	2.0000	1000.0	10.000	20.000	10.000	1000.0	10.000
Low	.00217	.03321	.00171	.00413	.00020	.05721	.00024

Elem	Co	Cr	Cu	Fe	K	Mg	Mn
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Avge	L.00050	L.00029	.00472	L.01058	L.10246	.08639	L.00075
SDev	.00009	.00021	.00004	.00374	.00706	.00086	.00000
%RSD	18.329	72.461	.87364	35.377	6.8930	.99627	.03168
#1	L.00044	L.00014	.00469	L.00793	L.09747	.08700	L.00075
#2	L.00057	L.00044	.00475	L.01323	L.10746	.08578	L.00075
Errors	LC Low	LC Low	LC Pass	LC Low	LC Low	LC Pass	LC Low
High	20.000	50.000	20.000	1000.0	100.00	1000.0	20.000
Low	.00433	.00323	.00192	.04786	5.0000	.08512	.00103

Elem	Mo	Na5889	Ni	Pb	Se	Sb	Sn
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Avge	L.00036	5.8483	L.00170	L.00008	L.00017	.00216	L.00068
SDev	.00040	.0107	.00044	.00000	.00075	.00022	.00083
%RSD	111.93	.18357	26.098	4.2579	435.26	10.143	122.12
#1	L.00064	5.8407	L.00139	L.00008	L.00070	.00200	L.00009
#2	L.00007	5.8559	L.00202	L.00008	L-.00036	.00231	L.00127
Errors	LC Low	LC Pass	LC Low	LC Low	LC Low	LC Pass	LC Low
High	20.000	100.00	20.000	10.000	10.000	10.000	10.000
Low	.00583	5.0000	.00965	.00168	.00201	.00175	.02936

Elem	Tl	V	Zn	2203/1	2203/2	2068/2	2063/1
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Avge	L.00225	L-.00035	.01037	-.00182	.00103	.00208	.00230
SDev	.00079	.00022	.00009	.00145	.00072	.00008	.00050
%RSD	35.085	62.696	.87657	79.345	69.649	3.7097	21.305
#1	L.00280	L-.00050	.01031	-.00080	.00052	.00203	.00195
#2	L.00169	L-.00019	.01044	-.00285	.00154	.00214	.00266
Errors	LC Low	LC Low	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High	20.000	20.000	10.000				
Low	.00451	.00290	.00324				

Elem	1960/1	1960/2

2659-RB - Dissolved Metals

Chain of Custody Record

I9I24018L

Quanterra

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
IT corporation	MARK PORTMAN	9.23.99	24839
Address 1600 W. Carson St	**Telephone Number (Area Code)/Fax Number** 412 321 2278	**Lab Number**	**Page** 1 of 1
City Pittsburgh **State** PA **Zip Code** 15219	**Site Contact** G. Werkman	**Lab Contact**	
Project Name Alcoa Badin	**Carrier/Waybill Number**		
Contract/Purchase Order/Quote No. 80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3 (HNO3)	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): VOC	SVOC	TSS, total Florida	Fluor (LA)	Tot CN, WAD Cl	Tot Metals	Diss Metals							Special Instructions/ Conditions of Receipt
MW-26-2659	9.22.99	1430	X				6		4	6	4			6	4	2	2	2	2	2	4°	-9/24/99				Additional vol for MS/MSD
MW-17-2659	9.22.99	1100					3		2	3	2			3	2	1	1	1	1	1						
MW-26-2659 D	9.22.99	1430					3		2	3	2			3	2	1	1	1	1	1						
TB-2659-65 BS	9.22.99	0800								8 BS				3 BS												
2659-EB	9.22.99	1630					3		2	3	2			3	2	1	1	1	1	1						
MW25-2659	9.22.99	1045					3		2	3	2			3	2	1	1	1	1	1						
MW-25A-2659	9.22.99	1420					3		2	3	2			3	2	1	1	1	1	1						
MW-9-2649	9.21.99	1830					3		2	3	2			3	2	1	1	1	1	1						
MW-10-2649	9.21.99	1740					3		2	3	2			3	2	1	1	1	1	1						Add Hg to total & diss metals BS
MW-4-2669	9.23.99	0900									1						1									

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other per contract

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
Brett Alt	9.23.99	1000	JAMES GOSSETT	9/24/99	0901
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments
Metals = As, Ba, Cd, Cr, Pb, Se (MW-10 total + diss Metals As, Ba, Cd, Cr, Pb, Se, Hg)

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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LOT NUMBER I9I240182
Nonconformance I00221
Affected Sample Numbers: 1, 10, 12, 14, 16, 3, 5, 7, 8Affected Methods: 8260B
Case Narrative:
Time incorrect on data due to Windows NT error. Subtract 12 hours for the correct date.
Details:
Time incorrect on data due to Windows NT error. Subtract 12 hours for the correct date.

Time not set up correctly during installation of new system.

Corrective Action:
Date changed on the terminal.

Edited the computer startup to sychchronize time with server.

Quanterra

Nonconformance Memo

Clouseau

NCM #: A00563
NCM Initiated By: Melissa Fuller-Gustavel
Date Opened: 10/13/99
Date Closed: 01/01/80

Classification: Deficiency
Status: PMREVIEW
Production Area: Classical Chemistry
Tests: D4282-83
Lot #'s (Sample #'s): I9I230179 (10,6,8); I9I240182 (1,10,12,14,3,5)
QC Batch: 9286133

Nonconformance: Holding time violation
Subcategory: Laboratory error: analytical error

Problem Description / Root Cause

Name	Date	Description
Melissa Fuller-Gus	10/13/99	The micro diffusion method is very difficult. The samples were analyzed within the holding time, but the data was not usable. The samples were re-analyzed, but it was not possible to re-analyze the samples within the holding time.

Corrective Action

Name	Date	Corrective Action

Approval History

Name	Date Approved:	Position
Melissa Fuller-Gus	10/13/99	Chemist
Tim Lavey	10/15/99	Chemist

Date Printed: 10/20/99

Quanterra

Nonconformance Memo

Clouseau

NCM #: A00562
NCM Initiated By: Melissa Fuller-Gustavel
Date Opened: 10/13/99
Date Closed: 01/01/80

Classification: Deficiency
Status: PMREVIEW
Production Area: Classical Chemistry
Tests: D4282-83
Lot #'s (Sample #'s): I9I230179 (13,14); I9I240182 (16,18,8); I9I270156 (1,3,5); I9I280181 (1,11,19,21,23,5,7)
QC Batch: 9286140

Nonconformance: Holding time violation
Subcategory: Laboratory error: analytical error

Problem Description / Root Cause

Name	Date	Description
Melissa Fuller-Gus	10/13/99	The micro-diffusion method is very difficult. The samples were analyzed within the holding time, but the data was not usable. The samples were re-analyzed, but it was not possible to complete the re-analysis within the holding time.

Corrective Action

Name	Date	Corrective Action

Approval History

Name	Date Approved:	Position
Melissa Fuller-Gus	10/13/99	Chemist
Tim Lavey	10/15/99	Chemist

Date Printed: 10/20/99

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Quanterra

Nonconformance Memo

Clouseau

NCM #: A00564
NCM Initiated By: Melissa Fuller-Gustavel
Date Opened: 10/13/99
Date Closed: 01/01/80

Classification: **Deficiency**
Status: **PMREVIEW**
Production Area: Classical Chemistry
Tests: 4500-CN-I, 9012, 9012A
Lot #'s (Sample #'s): A9I280137 (32); I9I240182 (1,10,12,3,5); I9I270156 (1,3,5)
QC Batch: 9280288, 9280289

Nonconformance: Holding time violation
Subcategory: Sample(s) analyzed outside of method holding times due to lab error

Problem Description / Root Cause

Name	Date	Description
Melissa Fuller-Gus	10/13/99	Samples were prepped within hold, but were not analyzed within hold due to excessive amount of cyanide samples to be analyzed.

Corrective Action

Name	Date	Corrective Action

Approval History

Name	Date Approved:	Position
Melissa Fuller-Gus	10/13/99	Chemist
Tim Lavey	10/15/99	Chemist

Date Printed: 10/20/99

Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 02-OCT-1999 07:46
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J1001B99.b\J8260.m
Cal Date : 15-Oct-1999 22:40 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2	
10 Acrolein	0.00887	0.01021	0.01099	0.00979	0.01106	0.01155	AVRG		0.01041		9.44863	<-
11 Trichlorotrifluoroethane	0.21183	0.19326	0.22507	0.22390	0.22074	0.22035	AVRG		0.21586		5.56062	
12 Acetone	0.10523	0.07548	0.07146	0.06137	0.05901	0.05781	AVRG		0.07173		24.93523	
13 1,1-Dichloroethene	0.23113	0.20982	0.23330	0.23798	0.23436	0.23546	AVRG		0.23034		4.47517	
14 Bromoethane	0.20171	0.19500	0.20884	0.20991	0.21132	0.20638	AVRG		0.20553		2.99816	
15 Acetonitrile	0.03181	0.02862	0.02914	0.02754	0.02894	0.02747	AVRG		0.02892		5.46458	
16 Allyl Chloride	0.14026	0.13209	0.13959	0.14221	0.14112	0.13855	AVRG		0.13897		2.58892	
17 Iodomethane	0.39765	0.38443	0.39932	0.40138	0.39610	0.38410	AVRG		0.39383		1.93365	
18 Methylene Chloride	0.36942	0.30581	0.28669	0.27644	0.26932	0.26049	AVRG		0.29470		13.50367	
19 Acrylonitrile	0.10147	0.09418	0.09705	0.09802	0.09715	0.09338	AVRG		0.09688		2.99096	
20 Methyl-tert-Butyl Ether	0.77495	0.76552	0.79533	0.79272	0.79856	0.76112	AVRG		0.78137		2.08063	
21 Carbon Disulfide	0.77889	0.75881	0.81534	0.81564	0.78488	0.73549	AVRG		0.78151		4.03028	
22 Trans-1,2-Dichloroethene	0.25858	0.24675	0.26036	0.27146	0.26471	0.26036	AVRG		0.26037		3.12291	
23 Vinyl acetate	0.17594	0.14430	0.15194	0.14722	0.13924	0.14014	AVRG		0.14980		9.10278	
24 1,1-Dichloroethane	0.34412	0.32465	0.33277	0.34837	0.34336	0.34001	AVRG		0.33888		2.56818	
25 Chloroprene	0.25057	0.23334	0.26512	0.26654	0.26535	0.26651	AVRG		0.25790		5.24018	
26 2-Butanone	+++++	0.08974	0.09315	0.09388	0.09367	0.09164	AVRG		0.09242		1.87619	

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 02-OCT-1999 07:46
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J1001B99.b\J8260.m
Cal Date : 15-Oct-1999 22:40 millers

	Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2	
TC	27 Propionitrile	0.03352	0.03082	0.02943	0.03045	0.03003	0.02956	AVRG		0.03063		4.92032	
	28 2,2-Dichloropropane	0.19653	0.18540	0.19718	0.19409	0.18613	0.17524	AVRG		0.18910		4.48684	
	29 cis-1,2-Dichloroethene	0.22791	0.22074	0.22680	0.23292	0.23460	0.23389	AVRG		0.22948		2.33404	
	30 Methacrylonitrile	0.10311	0.09557	0.09537	0.09528	0.09745	0.09635	AVRG		0.09719		3.09924	
TC	31 Isobutyl alcohol	0.00909	0.00874	0.00780	0.00837	0.00876	0.00925	AVRG		0.00867		6.07466	<-
	32 Chloroform	0.35057	0.34086	0.35151	0.35837	0.35798	0.35295	AVRG		0.35204		1.81223	
	33 Bromochloromethane	0.10832	0.10640	0.11007	0.11247	0.11274	0.11432	AVRG		0.11072		2.70866	
	34 Tetrahydrofuran	0.06008	0.05504	0.05758	0.05988	0.05947	0.05981	AVRG		0.05864		3.38824	
	36 1,1,1-Trichloroethane	0.28859	0.26586	0.29205	0.29925	0.29978	0.29773	AVRG		0.29054		4.42875	
	37 1,1-Dichloropropene	0.25702	0.24066	0.26800	0.27363	0.26976	0.27384	AVRG		0.26382		4.89014	
X	38 1-Chlorobutane	+++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
	39 Carbon Tetrachloride	0.23951	0.22883	0.25489	0.26536	0.26962	0.27962	AVRG		0.25631		7.48701	
	41 1,2-Dichloroethane	0.28213	0.27879	0.28466	0.29059	0.28782	0.28576	AVRG		0.28496		1.46176	
	42 Benzene	0.81989	0.80805	0.83644	0.85283	0.83910	0.81241	AVRG		0.82812		2.10409	
	44 Trichloroethene	0.21724	0.21388	0.22645	0.23239	0.23236	0.23642	AVRG		0.22646		4.01014	
	45 Methyl Methacrylate	0.16671	0.17157	0.17253	0.18199	0.18329	0.18326	AVRG		0.17656		4.06658	
	46 1,2-Dichloropropane	0.20675	0.19932	0.20720	0.21232	0.21477	0.21339	AVRG		0.20896		2.75310	

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INITIAL CALIBRATION DATA

tart Cal Date : 02-OCT-1999 07:46
nd Cal Date : 04-OCT-1999 07:14
uant Method : ISTD
arget Version : 4.00
ntegrator : HP RTE
ethod file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J1001B99.b\J8260.m
al Date : 15-Oct-1999 22:40 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2
47 Bromodichloromethane	0.26930	0.26431	0.27589	0.28826	0.29071	0.29204	AVRG		0.28009		4.24016
48 1,4-Dioxane	0.00272	0.00257	0.00259	0.00279	0.00288	0.00287	AVRG		0.00274		4.85386
49 Dibromomethane	0.12936	0.12750	0.13322	0.13966	0.13993	0.14253	AVRG		0.13537		4.59027
50 2-Chloroethylvinyl Ether	+++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
51 4-Methyl-2-Pentanone	0.19572	0.19291	0.19889	0.20602	0.20754	0.20238	AVRG		0.20058		2.87769
52 cis-1,3-Dichloropropene	0.33855	0.32935	0.34366	0.36380	0.36412	0.35684	AVRG		0.34939		4.11191
54 Toluene	3.92619	3.72169	3.88992	3.93521	3.82509	3.69288	AVRG		3.83183		2.72331
55 Ethyl Methacrylate	0.29676	0.29963	0.30841	0.32496	0.33360	0.33283	AVRG		0.31603		5.23658
56 trans-1,3-Dichloropropene	1.28874	1.27146	1.32878	1.36794	1.36997	1.36013	AVRG		1.33117		3.19897
57 2-Hexanone	0.55811	0.55262	0.56345	0.59688	0.60692	0.59553	AVRG		0.57892		4.04793
58 1,1,2-Trichloroethane	0.81700	0.80569	0.82851	0.85106	0.86240	0.86229	AVRG		0.83782		2.88995
59 1,3-Dichloropropane	1.48099	1.44046	1.50005	1.52618	1.52143	1.50513	AVRG		1.49570		2.10720
60 Tetrachloroethene	0.89740	0.84982	0.93603	0.95837	0.95772	0.99206	AVRG		0.93190		5.45716
61 Dibromochloromethane	0.75094	0.74068	0.79444	0.86050	0.90256	0.91831	AVRG		0.82791		9.27177
62 1,2-Dibromoethane	0.20657	0.20553	0.20888	0.21774	0.21984	0.22004	AVRG		0.21310		3.20238
63 1-Chlorohexane	1.13845	1.11590	1.26687	1.30456	1.29224	1.33157	AVRG		1.24160		7.35545
65 Chlorobenzene	2.55156	2.52604	2.61691	2.67297	2.67396	2.63384	AVRG		2.61255		2.36556

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i Injection Date: 03-OCT-1999 04:45
Lab File ID: J100203.D Init. Cal. Date(s): 02-OCT-1999 04-OCT-1999
Analysis Type: WATER Init. Cal. Times: 07:46 07:14
Lab Sample ID: STD050 Quant Type: ISTD
Method: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J1002B99.b\J8260.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
15 Acetonitrile	0.02892	0.02909	0.010	0.4	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J100203.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J100299.B\J8260.m

Injection Date: 03-OCT-1999 04:45
Init. Cal. Date(s): 02-OCT-1999 02-OCT-1999
Init. Cal. Times: 07:46 10:15
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$	35 Dibromofluoromethane	50.51626	50.00000	0.010	-1.0	50.0	
$	40 1,2-Dichloroethane-d4	50.45948	50.00000	0.010	-0.9	50.0	
$	53 Toluene-d8	51.65416	50.00000	0.010	-3.3	50.0	
$	74 4-Bromofluorobenzene	52.30851	50.00000	0.010	-4.6	50.0	
	3 Dichlorodifluoromethane	0.20395	0.20556	0.010	0.8	50.0	
	4 Chloromethane	0.23470	0.24440	0.100	4.1	50.0	
	5 Vinyl Chloride	0.23185	0.26120	0.010	12.7	20.0	
	6 Bromomethane	0.19367	0.20727	0.010	7.0	50.0	
	7 Chloroethane	0.16936	0.17641	0.010	4.2	50.0	
	8 Trichlorofluoromethane	0.33446	0.36880	0.010	10.3	50.0	
	9 Ethyl ether	0.20538	0.21887	0.010	6.6	50.0	
	10 Acrolein	0.01041	0.02108	0.010	102.4	50.0	<-
	11 Trichlorotrifluoroethane	0.21586	0.22907	0.010	6.1	50.0	
	12 Acetone	0.07173	0.06505	0.010	-9.3	50.0	
	13 1,1-Dichloroethene	0.23034	0.24695	0.010	7.2	20.0	
	14 Bromoethane	0.20553	0.22065	0.010	7.4	50.0	
	15 Acetonitrile	0.27211	0.28833	0.010	6.0	50.0	see previous.
	16 Allyl Chloride	0.13897	0.14713	0.010	5.9	50.0	
	17 Iodomethane	0.39383	0.41481	0.010	5.3	50.0	
	18 Methylene Chloride	0.29470	0.29143	0.010	-1.1	50.0	
	19 Acrylonitrile	0.09688	0.10094	0.010	4.2	50.0	
	20 Methyl-tert-Butyl Ether	0.78137	0.78764	0.010	0.8	50.0	
	21 Carbon Disulfide	0.78151	0.83320	0.010	6.6	50.0	
	22 Trans-1,2-Dichloroethene	0.26037	0.27801	0.010	6.8	50.0	
	23 Vinyl acetate	0.14980	0.15555	0.010	3.8	50.0	
	24 1,1-Dichloroethane	0.33888	0.34310	0.100	1.2	50.0	
	25 Chloroprene	0.25790	0.26225	0.010	1.7	50.0	
	26 2-Butanone	0.09242	0.09502	0.010	2.8	50.0	
	27 Propionitrile	0.03063	0.03037	0.010	-0.9	50.0	
	28 2,2-Dichloropropane	0.18910	0.18909	0.010	-0.0	50.0	
	29 cis-1,2-Dichloroethene	0.22948	0.22964	0.010	0.1	50.0	
	30 Methacrylonitrile	0.09719	0.09623	0.010	-1.0	50.0	
	31 Isobutyl alcohol	0.00867	0.00834	0.010	-3.8	50.0	<-
	32 Chloroform	0.35204	0.35723	0.010	1.5	20.0	
	33 Bromochloromethane	0.11072	0.11038	0.010	-0.3	50.0	
	34 Tetrahydrofuran	0.05864	0.06099	0.010	4.0	50.0	

Data File: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J100299.B\J100203.D Page 5
Report Date: 03-Oct-1999 05:03

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J100203.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J100299.B\J8260.m

Injection Date: 03-OCT-1999 04:45
Init. Cal. Date(s): 02-OCT-1999 02-OCT-1999
Init. Cal. Times: 07:46 10:15
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
36 1,1,1-Trichloroethane	0.29055	0.29258	0.010	0.7	50.0	
37 1,1-Dichloropropene	0.26382	0.26976	0.010	2.3	50.0	
38 1-Chlorobutane	++++	0.03993	0.010	++++	50.0	<- MS not RC
39 Carbon Tetrachloride	0.25631	0.25621	0.010	-0.0	50.0	
41 1,2-Dichloroethane	0.28496	0.29205	0.010	2.5	50.0	
42 Benzene	0.82812	0.84504	0.010	2.0	50.0	
44 Trichloroethene	0.22646	0.22514	0.010	-0.6	50.0	
45 Methyl Methacrylate	0.17656	0.17930	0.010	1.6	50.0	
46 1,2-Dichloropropane	0.20896	0.21198	0.010	1.4	20.0	
47 Bromodichloromethane	0.28009	0.28223	0.010	0.8	50.0	
48 1,4-Dioxane	0.00274	0.00282	0.001	2.9	50.0	
49 Dibromomethane	0.13537	0.13428	0.010	-0.8	50.0	
50 2-Chloroethylvinyl Ether	++++	0.21198	0.010	++++	50.0	<- M
51 4-Methyl-2-Pentanone	0.20058	0.20596	0.010	2.7	50.0	
52 cis-1,3-Dichloropropene	0.34939	0.35670	0.010	2.1	50.0	
54 Toluene	3.83183	3.97314	0.010	3.7	20.0	
55 Ethyl Methacrylate	0.31593	0.32543	0.010	3.0	50.0	
56 trans-1,3-Dichloropropene	1.33117	1.36362	0.010	2.4	50.0	
57 2-Hexanone	0.57892	0.60984	0.010	5.3	50.0	
58 1,1,2-Trichloroethane	0.83783	0.86475	0.010	3.2	50.0	
59 1,3-Dichloropropane	1.49571	1.54831	0.010	3.5	50.0	
60 Tetrachloroethene	0.93190	0.93420	0.010	0.2	50.0	
61 Dibromochloromethane	0.82791	0.84063	0.010	1.5	50.0	
62 1,2-Dibromoethane	0.21310	0.21521	0.010	1.0	50.0	
63 1-Chlorohexane	1.24158	1.30167	0.010	4.8	50.0	
65 Chlorobenzene	2.61255	2.66082	0.300	1.8	50.0	
66 Ethyl Benzene	1.43478	1.47513	0.010	2.8	20.0	
67 1,1,1,2-Tetrachloroethane	0.90544	0.89953	0.010	-0.7	50.0	
68 M- & P-Xylene	1.77060	1.84316	0.010	4.1	50.0	
69 O-Xylene	1.75405	1.79323	0.010	2.2	50.0	
70 Styrene	2.97930	3.07766	0.010	3.3	50.0	
71 Isopropylbenzene	4.36045	4.63444	0.010	6.3	50.0	
72 Bromoform	0.51057	0.51702	0.100	1.3	50.0	
73 1,1,2,2-Tetrachloroethane	1.10034	1.15883	0.300	5.3	50.0	
75 1,2,3-Trichloropropane	0.22573	0.22878	0.010	1.4	50.0	

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J100203.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J100299.B\J8260.m

Injection Date: 03-OCT-1999 04:45
Init. Cal. Date(s): 02-OCT-1999 02-OCT-1999
Init. Cal. Times: 07:46 10:15
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
76	trans-1,4-dichloro-2-butene	0.21211	0.21215	0.010	0.0	50.0	
77	N-Propylbenzene	3.14610	3.36393	0.010	6.9	50.0	
78	Bromobenzene	0.68340	0.67678	0.010	-1.0	50.0	
79	1,3,5-Trimethylbenzene	2.27871	2.38716	0.010	4.8	50.0	
80	2-Chlorotoluene	2.21431	2.32176	0.010	4.9	50.0	
81	4-Chlorotoluene	2.07287	2.10858	0.010	1.7	50.0	
82	tert-Butylbenzene	2.03477	2.08723	0.010	2.6	50.0	
83	1,2,4-Trimethylbenzene	2.38503	2.49541	0.010	4.6	50.0	
84	Pentachloroethane	0.30315	0.29230	0.010	-3.6	50.0	
85	Sec-Butylbenzene	2.85706	3.05525	0.010	6.9	50.0	
86	4-Isopropyltoluene	2.41898	2.56033	0.010	5.8	50.0	
87	1,3-Dichlorobenzene	1.32751	1.33962	0.010	0.9	50.0	
89	1,4-Dichlorobenzene	1.36715	1.39111	0.010	1.8	50.0	
90	n-Butylbenzene	2.29044	2.45432	0.010	7.2	50.0	
91	1,2-Dichlorobenzene	1.28034	1.29544	0.010	1.2	50.0	
92	Hexachloroethane	++++	0.00604	0.010	++++	50.0	<- NV not TC
93	1,2-Dibromo-3-chloropropane	0.15431	0.14969	0.010	-3.0	50.0	
94	1,2,4-Trichlorobenzene	0.96058	0.93705	0.010	-2.4	50.0	
95	Hexachlorobutadiene	0.38102	0.37766	0.010	-0.9	50.0	
96	Naphthalene	2.65006	2.73429	0.010	3.2	50.0	
97	1,2,3-Trichlorobenzene	0.93171	0.90846	0.010	-2.5	50.0	
M 1	1,2-Dichloroethene (total)	0.24492	0.25383	0.010	3.6	50.0	
M 2	Xylenes (total)	1.76509	1.82652	0.010	3.5	50.0	

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INITIAL CALIBRATION DATA

2-1st L. sub list ✓
met Method 625 ✓
criteria also

Start Cal Date : 04-OCT-1999 10:34
End Cal Date : 04-OCT-1999 16:14
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F8270.M
Cal Date : 05-Oct-1999 17:55 hsiehc
Curve Type : Average

Calibration File Names:
Level 1: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100408.D
Level 2: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100409.D
Level 3: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100410.D
Level 4: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100411.D
Level 5: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100412.D
Level 6: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F100413.D

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	___ RRF	% RSD
1 Pyridine	1.18992	1.40439	1.42101	1.29506	1.34929	1.14998	1.30161	8.597
2 N-Nitrosodimethylamine	0.73656	0.79188	0.93465	0.86435	0.89146	0.79085	0.83496	8.879
4 Aniline	1.31039	1.37221	1.48313	1.48008	1.41865	1.43864	1.41718	4.701
6 Phenol	1.35628	1.53003	1.58211	1.67475	1.48063	1.61310	1.53948	7.271
7 bis(2-Chloroethyl)ether	0.77492	0.76952	0.81250	0.82790	0.80728	0.80406	0.79936	2.831
9 2-Chlorophenol	1.23725	1.34686	1.40188	1.42564	1.39252	1.43604	1.37336	5.358
10 1,3-Dichlorobenzene	1.43535	1.52450	1.59962	1.64633	1.58636	1.62324	1.56923	4.936
12 1,4-Dichlorobenzene	1.45247	1.61792	1.65444	1.71581	1.66227	1.72243	1.63756	6.037
14 Benzyl Alcohol	0.51349	0.60534	0.65795	0.74261	0.68668	0.76343	0.66158	13.964
15 1,2-Dichlorobenzene	1.33983	1.45210	1.49351	1.62294	1.51332	1.56218	1.49731	6.482
16 bis(2-Chloroisopropyl)ether	0.73974	0.79398	1.04641	1.01219	0.96764	0.99023	0.92503	13.666
17 2-Methylphenol	0.86062	0.94960	0.97558	1.05778	0.98665	1.03080	0.97684	7.064
18 N-Nitroso-di-n-propylamine	0.75441	0.79514	0.78159	0.80139	0.76758	0.78866	0.78146	2.261
19 Hexachloroethane	0.76071	0.79792	0.77373	0.82928	0.76873	0.79813	0.78808	3.223
20 4-Methylphenol	0.84053	0.94245	1.03670	1.10136	1.05370	1.15269	1.02124	11.066
22 Nitrobenzene	0.40147	0.38823	0.41654	0.41316	0.41212	0.41489	0.40774	2.680
23 Isophorone	0.65453	0.70723	0.70703	0.71574	0.69748	0.69491	0.69615	3.121
24 2-Nitrophenol	0.19784	0.21304	0.23262	0.25395	0.24576	0.25809	0.23355	10.248
25 2,4-Dimethyphenol	0.35042	0.38155	0.39570	0.39221	0.38726	0.40122	0.38473	4.710
26 Bis(2-chloroethoxy)methane	0.35867	0.38165	0.40259	0.40947	0.40194	0.41032	0.39411	5.129
27 Benzoic Acid	+++++	0.07970	0.15163	0.19523	0.19198	0.20735	0.16518	31.589
28 2,4-Dichlorophenol	0.26090	0.28705	0.31737	0.35686	0.34937	0.37110	0.32377	13.344
29 1,2,4-Trichlorobenzene	0.30339	0.32591	0.35106	0.38290	0.36908	0.38595	0.35305	9.340
31 Naphthalene	0.94945	1.00804	1.05562	1.09682	1.07863	1.09967	1.04804	5.622
32 4-Chloroaniline	0.35365	0.38545	0.42655	0.44412	0.42407	0.44008	0.41232	8.600

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Cal Date : 05-Oct-1999 17:55 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
33 Hexachlorobutadiene	0.22109	0.23732	0.24079	0.24034	0.23905	0.23396	0.23543	3.164
34 4-Chloro-3-Methylphenol	0.27459	0.29225	0.33217	0.35419	0.32996	0.35161	0.32246	10.012
35 2-Methylnaphthalene	0.61305	0.61751	0.67258	0.72631	0.68147	0.70698	0.66965	6.900
36 Hexachlorocyclopentadiene	+++++	0.11082	0.19406	0.28901	0.26361	0.27710	0.22692	32.888
37 2,4,6-Trichlorophenol	0.35364	0.38981	0.42474	0.46132	0.45194	0.45227	0.42229	10.089
38 2,4,5-Trichlorphenol	0.36921	0.32982	0.43664	0.49438	0.49059	0.46930	0.43166	15.753
40 2-Chloronaphthalene	1.13163	1.16072	1.25609	1.32798	1.28619	1.29044	1.24218	6.306
41 2-Nitroaniline	0.30676	0.37140	0.40920	0.40490	0.39041	0.40378	0.38107	10.216
42 Dimethylphthalate	1.37841	1.46433	1.53152	1.56751	1.50294	1.48805	1.48879	4.354
43 2,6-Dinitrotoluene	0.28912	0.32754	0.37150	0.39017	0.38681	0.36102	0.35436	11.038
44 Acenaphthylene	1.61726	1.77174	1.91443	1.94352	1.86171	1.72378	1.80541	6.888
45 3-Nitroaniline	0.31104	0.36121	0.43331	0.43630	0.44935	0.43167	0.40381	13.653
47 Acenaphthene	1.03748	1.08912	1.17871	1.24552	1.19476	1.15576	1.15022	6.547
48 2,4-Dinitrophenol	+++++	0.09686	0.13163	0.19423	0.18661	0.22066	0.16600	30.379
49 4-Nitrophenol	+++++	0.18424	0.27302	0.29432	0.29202	0.28426	0.26557	17.405
50 Dibenzofuran	1.40536	1.51144	1.68536	1.74005	1.67190	1.58132	1.59924	7.817
51 2,4-Dinitrotoluene	0.38958	0.44792	0.51394	0.52352	0.49789	0.51254	0.48090	10.855
52 Diethylphthalate	1.62589	1.66418	1.76772	1.75567	1.68564	1.59287	1.68200	4.136
53 4-Chlorophenyl-phenylether	0.53853	0.56245	0.63303	0.64827	0.62717	0.58585	0.59922	7.291
54 Fluorene	1.13592	1.15180	1.34024	1.41332	1.35420	1.32514	1.28677	8.920
55 4-Nitroaniline	0.27230	0.32639	0.43591	0.44215	0.42350	0.44075	0.39017	18.632
56 4,6-Dinitro-2-methylphenol	+++++	0.11971	0.16247	0.19131	0.17855	0.17739	0.16588	16.735
57 N-Nitrosodiphenylamine	0.45576	0.48064	0.56896	0.56936	0.54442	0.56378	0.53049	9.374
58 1,2-Diphenylhydrazine	0.85728	0.88063	0.92335	1.05207	0.87278	1.05550	0.94027	9.638
60 4-Bromophenyl-phenylether	0.20079	0.21778	0.23457	0.23564	0.22858	0.22119	0.22309	5.840
61 Hexachlorobenzene	0.25780	0.27210	0.29787	0.29348	0.28697	0.28208	0.28172	5.245
62 Pentachlorophenol	+++++	0.08279	0.13340	0.15357	0.15553	0.17214	0.13949	24.768
64 Phenanthrene	0.95957	0.98358	1.12122	1.12827	1.09911	1.13746	1.07153	7.356
65 Anthracene	0.95833	0.97836	1.13455	1.12854	1.11197	1.12269	1.07241	7.571
66 Carbazole	0.89727	0.92160	1.05728	1.10649	1.06649	1.11945	1.02810	9.256
67 Di-n-Butylphthalate	1.56662	1.62327	1.78057	1.74174	1.64170	1.68321	1.67285	4.720
68 Fluoranthene	0.99585	1.05310	1.14491	1.15409	1.14896	1.12255	1.10324	5.851
69 Benzidine	0.36239	0.33428	0.38523	0.38364	0.35223	0.35193	0.36162	5.493

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Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100499.b\F8270.M
Cal Date : 05-Oct-1999 17:55 hsiehc
Curve Type : Average

	Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
70	Pyrene	1.14067	1.13095	1.26111	1.29451	1.26479	1.19593	1.21466	5.690
72	Butylbenzylphthalate	0.79671	0.80972	0.86918	0.83229	0.83575	0.74918	0.81547	5.014
73	bis(2-Ethylhexyl)phthalate	1.10675	1.15260	1.21283	1.03545	1.04110	0.76449	1.05220	14.848
74	3,3'-Dichlorobenzidine	0.39839	0.42358	0.48218	0.45898	0.45750	0.36216	0.43047	10.368
75	Benzo(a)anthracene	1.05533	1.09624	1.15140	1.01925	1.00968	0.79632	1.02137	11.947
77	Chrysene	0.99011	1.02399	1.09578	1.08590	1.07222	1.01927	1.04788	4.062
78	Di-n-octylphthalate	1.88829	2.02329	2.12397	2.09368	2.02512	1.89829	2.00877	4.861
79	Benzo(b)fluoranthene	1.05739	1.10927	1.20440	1.25640	1.24234	1.21657	1.18106	6.740
80	Benzo(k)fluoranthene	1.17207	1.29128	1.41151	1.26885	1.30259	1.22474	1.27851	6.330
81	Benzo(a)pyrene	0.98857	1.04631	1.13876	1.12158	1.11949	1.08353	1.08304	5.255
83	Indeno(1,2,3-cd)pyrene	1.08586	1.17544	1.33746	1.35215	1.30189	1.31704	1.26164	8.460
84	Dibenz(a,h)anthracene	0.87897	0.95766	1.07062	1.09652	1.04625	1.06807	1.01968	8.228
85	Benzo(g,h,i)perylene	0.93184	0.98786	1.10474	1.22213	1.12011	1.14913	1.08597	9.869
86	3,3'-Dimethylbenzidine	0.38724	0.38919	0.41399	0.35670	0.34912	0.32434	0.37010	8.796
87	2-Picoline	0.81209	0.92927	1.18765	1.11038	1.13443	1.23637	1.06837	15.301
88	N-Nitrosomethylethylamine	0.33395	0.37294	0.47303	0.47042	0.47184	0.52879	0.44183	16.520
89	Methyl methanesulfonate	0.03053	0.08555	0.24033	0.37308	0.38072	0.45192	0.26036	66.004 <-
90	N-Nitrosodiethylamine	0.42301	0.48195	0.56629	0.55532	0.55886	0.58716	0.52877	11.902
91	Ethyl methanesulfonate	0.84336	0.97809	1.08535	1.14188	1.14833	1.16195	1.05983	11.874
92	Pentachloroethane	0.59335	0.58575	0.61949	0.63303	0.63909	0.62860	0.61655	3.569
93	Acetophenone	1.39441	1.50400	1.60843	1.73916	1.78837	1.67985	1.61904	9.186
94	N-Nitrosopyrrolidine	0.33659	0.44934	0.50935	0.55099	0.57469	0.56817	0.49819	18.432
95	N-Nitrosomorpholine	0.20082	0.24776	0.26685	0.28428	0.28864	0.28639	0.26245	12.943
96	3-Methylphenol	0.78701	0.98259	1.09629	1.19448	1.22898	1.22236	1.08529	16.012
97	2-Methylbenzeneamine	1.47099	1.58128	1.60492	1.75760	1.77420	1.72682	1.65263	7.244
98	N-Nitrosopiperidine	0.14840	0.15846	0.16661	0.17250	0.17110	0.16939	0.16441	5.649
99	o,o,o-Triethylphosphorothioat	0.13867	0.13632	0.15148	0.16428	0.15930	0.16047	0.15175	7.793
100	a,a-Dimethylphenethylamine	0.36443	0.41315	0.26709	0.27653	0.27420	0.28072	0.31269	19.537
101	Hexachloropropene	0.17231	0.20599	0.23436	0.25637	0.24492	0.24891	0.22714	14.130
102	2,6-Dichlorophenol	0.25699	0.26308	0.29265	0.32490	0.31919	0.31770	0.29575	10.099
103	N-Nitroso-di-n-butylamine	0.18764	0.20251	0.20531	0.22035	0.21604	0.21505	0.20782	5.769
104	p-Phenylenediamine	0.21188	0.25812	0.28475	0.27478	0.26414	0.21069	0.25073	12.717
105	Safrole	0.22883	0.23533	0.24733	0.27338	0.26991	0.27126	0.25434	7.769

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Cal Date : 05-Oct-1999 17:55 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
106 1-Methylnaphthalene	0.55176	0.55904	0.60057	0.64115	0.64146	0.62120	0.60253	6.567
107 1,2,4,5-Tetrachlorobenzene	0.63181	0.62288	0.69248	0.69983	0.68129	0.72513	0.67557	5.941
108 Isosafrole	0.41883	0.46388	0.52691	0.55549	0.55767	0.59026	0.51884	12.503
109 1,4-Naphthoquinone	0.25577	0.33858	0.37050	0.32645	0.31262	0.28513	0.31484	12.842
110 1,4-Dinitrobenzene	0.15644	0.18082	0.23725	0.26124	0.26241	0.26961	0.22796	20.995
111 Pentachlorobenzene	0.55599	0.54723	0.60359	0.59288	0.60322	0.61430	0.58620	4.738
112 1,3-Dinitrobenzene	0.20798	0.22064	0.26390	0.28555	0.29424	0.30639	0.26312	15.381
113 1-Naphthylamine	1.02365	1.10745	1.21424	1.26421	1.28124	1.28938	1.19670	9.040
114 2,3,4,6-tetrachlorophenol	0.23314	0.28022	0.34775	0.35963	0.35761	0.38442	0.32713	17.682
115 2-Naphthylamine	0.90780	0.95239	1.12394	1.19517	1.21785	1.18133	1.09641	12.154
116 2,3,5,6-Tetrachlorophenol	0.23314	0.28022	0.34775	0.35963	0.35761	0.38442	0.32713	17.682
117 Thionazin	0.36457	0.38805	0.41021	0.44395	0.43702	0.44236	0.41436	7.903
118 5-Nitro-o-toluidine	0.31026	0.38787	0.43443	0.47233	0.47525	0.48320	0.42722	15.791
119 Diphenylamine	0.90574	0.91827	1.03651	1.10973	1.09556	1.16356	1.03823	10.198
120 Tetraethyldithiopyrophosphate	0.18213	0.19132	0.19896	0.19922	0.19568	0.19150	0.19314	3.313
121 Diallate #1	0.26407	0.28357	0.28066	0.28223	0.28256	0.29027	0.28056	3.115
122 1,3,5-Trinitrobenzene	0.04296	0.06657	0.06008	0.09494	0.09806	0.10545	0.07801	32.037
123 Sulfotepp	0.18649	0.19333	0.19876	0.19721	0.19419	0.18416	0.19236	3.036
124 Phorate	0.18213	0.19132	0.19896	0.19922	0.19568	0.19150	0.19314	3.313
125 Phenacetin	0.36572	0.44457	0.47413	0.48734	0.49201	0.49304	0.45947	10.746
126 Dialate #2	0.06643	0.07252	0.07387	0.07275	0.07043	0.07252	0.07142	3.758
127 Dimethoate	0.23656	0.26047	0.21253	0.16505	0.16121	0.12610	0.19365	26.427
128 4-Aminobiphenyl	0.58197	0.62644	0.68665	0.72945	0.72030	0.70798	0.67546	8.696
129 Pronamide	0.36806	0.39206	0.39482	0.41298	0.40756	0.40642	0.39698	4.097
130 Pentachloronitrobenzene	0.11924	0.12457	0.12236	0.12470	0.12438	0.12233	0.12293	1.714
131 Disulfoton	0.39927	0.37732	0.36792	0.38193	0.38452	0.37705	0.38134	2.741
132 Dinoseb	0.09974	0.14683	0.18099	0.20700	0.22177	0.21684	0.17886	26.656
133 Methyl parathion	0.22172	0.25396	0.24243	0.19828	0.19299	0.15520	0.21076	17.171
134 Parathion	0.16518	0.19586	0.20587	0.20721	0.20828	0.19903	0.19691	8.277
135 4-Nitroquinoline-1-oxide	+++++	0.00885	0.02494	0.03578	0.03850	0.03119	0.02785	42.373 <-
136 Methapyrilene	0.37188	0.36006	0.31800	0.29796	0.29296	0.26468	0.31759	13.015
137 Isodrin	0.13910	0.14295	0.14884	0.14888	0.14487	0.13925	0.14398	3.039
138 Aramite #1	0.06460	0.07185	0.07328	0.07113	0.06906	0.06061	0.06842	7.121

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Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD	
139 Aramite #2	0.09617	0.10556	0.10644	0.10473	0.10035	0.09173	0.10083	5.848	
140 4-Dimethylaminoazobenzene	0.36842	0.38613	0.40203	0.41068	0.40454	0.39501	0.39447	3.877	
141 Chlorobenzilate	0.31758	0.33354	0.35731	0.36240	0.34752	0.34153	0.34331	4.767	
142 2-Acetylaminofluorene	0.38303	0.45618	0.51032	0.56021	0.53067	0.53649	0.49615	13.222	
143 3-MethylCholanthrene	0.45483	0.48830	0.52384	0.54444	0.52896	0.54067	0.51351	6.813	
144 3-Dibenz(a,j)acridine	0.78421	0.84696	0.90388	0.96875	0.97281	1.01714	0.91562	9.586	
145 2-Ethoxyethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 N,N-Dimethylformamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
147 3-Chloropropionitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
148 Acrylamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 o-Toluidine	1.47099	1.58128	1.60492	1.75760	1.76835	1.72682	1.65166	7.177	
150 Methomyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
151 Tetrahydronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
152 o-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
153 m-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
154 p-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
155 Phthalic acid	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
156 Biphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
157 2,3-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
158 Methapyrilene ()	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
159 Famphur	+++++	0.00153	0.00264	0.00284	0.00245	0.00318	0.00252	24.155	<-
160 Kepone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
161 4,4-Methylenebis(2-chloroa	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
163 7,12-Dimethylbenz(a)anthracen	0.48814	0.49563	0.53086	0.54518	0.51475	0.52032	0.51581	4.142	
164 Tris(2,3-br-2-propyl)phosphat	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
165 Dibenz(a,e)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
166 Dibenz(a,h)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
167 Dibenz(a,i)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
168 Indene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
169 2.4-Toluene diamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 3 2-Fluorophenol	0.95193	1.01195	1.13181	1.15218	1.16129	1.11325	1.08707	7.843	
$ 5 Phenol-d5	1.16472	1.28899	1.40042	1.45681	1.38895	1.45805	1.35966	8.362	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i Injection Date: 05-OCT-1999 14:32
Lab File ID: F100502.D Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Analysis Type: Init. Cal. Times: 10:34 16:14
Lab Sample ID: CCAL 3 Quant Type: ISTD
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100599.b\F8270.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
36 Hexachlorocyclopentadiene	0.22692	0.12469	0.050	-45.0	50.0
37 2,4,6-Trichlorophenol	0.42229	0.47346	0.010	12.1	20.0
38 2,4,5-Trichlorphenol	0.43166	0.48968	0.010	13.4	50.0
40 2-Chloronaphthalene	1.24218	1.29002	0.010	3.9	50.0
41 2-Nitroaniline	0.38107	0.43512	0.010	14.2	50.0
42 Dimethylphthalate	1.48879	1.55407	0.010	4.4	50.0
43 2,6-Dinitrotoluene	0.35436	0.37336	0.010	5.4	50.0
44 Acenaphthylene	1.80541	1.82137	0.010	0.9	50.0
45 3-Nitroaniline	0.40381	0.44377	0.010	9.9	50.0
47 Acenaphthene	1.15022	1.18354	0.010	2.9	20.0
48 2,4-Dinitrophenol	0.16600	0.16556	0.050	-0.3	50.0
49 4-Nitrophenol	0.26557	0.25720	0.050	-3.2	50.0
50 Dibenzofuran	1.59924	1.65386	0.010	3.4	50.0
51 2,4-Dinitrotoluene	0.48090	0.51403	0.010	6.9	50.0
52 Diethylphthalate	1.68200	1.75023	0.010	4.1	50.0
53 4-Chlorophenyl-phenylether	0.59922	0.66291	0.010	10.6	50.0
54 Fluorene	1.28677	1.29436	0.010	0.6	50.0
55 4-Nitroaniline	0.39017	0.41784	0.010	7.1	50.0
56 4,6-Dinitro-2-methylphenol	0.16588	0.17178	0.010	3.6	50.0
57 N-Nitrosodiphenylamine	0.53049	0.53228	0.010	0.3	20.0
58 1,2-Diphenylhydrazine	0.94027	0.89582	0.010	-4.7	50.0
60 4-Bromophenyl-phenylether	0.22309	0.23483	0.010	5.3	50.0
61 Hexachlorobenzene	0.28172	0.31771	0.010	12.8	50.0
62 Pentachlorophenol	0.13949	0.13086	0.010	-6.2	20.0
64 Phenanthrene	1.07153	1.04633	0.010	-2.4	50.0
65 Anthracene	1.07241	1.09107	0.010	1.7	50.0
66 Carbazole	1.02810	1.02322	0.010	-0.5	50.0
67 Di-n-Butylphthalate	1.67285	1.69992	0.010	1.6	50.0
68 Fluoranthene	1.10324	1.16688	0.010	5.8	20.0
69 Benzidine	0.36162	0.34036	0.010	-5.9	50.0
70 Pyrene	1.21466	1.28843	0.010	6.1	50.0
72 Butylbenzylphthalate	0.81547	0.86428	0.010	6.0	50.0
73 bis(2-Ethylhexyl)phthalate	1.05220	1.19640	0.010	13.7	50.0
74 3,3'-Dichlorobenzidine	0.43047	0.49473	0.010	14.9	50.0
75 Benzo(a)anthracene	1.02137	1.15968	0.010	13.5	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F100503.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100599.b\F8270.m

Injection Date: 05-OCT-1999 15:00
Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Init. Cal. Times: 10:34 16:14
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
87	2-Picoline	1.06837	1.05815	0.010	-1.0	50.0
88	N-Nitrosomethylethylamine	0.44183	0.41321	0.010	-6.5	50.0
89	Methyl methanesulfonate	0.26036	0.23260	0.010	-10.7	50.0
90	N-Nitrosodiethylamine	0.52877	0.53814	0.010	1.8	50.0
91	Ethyl methanesulfonate	1.05983	1.05559	0.010	-0.4	50.0
92	Pentachloroethane	0.61655	0.64984	0.010	5.4	50.0
93	Acetophenone	1.61904	1.59877	0.010	-1.3	50.0
94	N-Nitrosopyrrolidine	0.49819	0.49471	0.010	-0.7	50.0
95	N-Nitrosomorpholine	0.26245	0.25895	0.010	-1.3	50.0
96	3-Methylphenol	1.08529	1.06367	0.010	-2.0	50.0
97	2-Methylbenzeneamine	1.65263	1.58061	0.010	-4.4	50.0
98	N-Nitrosopiperidine	0.16441	0.16546	0.010	0.6	50.0
99	o,o,o-Triethylphosphorothio	0.15175	0.14868	0.010	-2.0	50.0
100	a,a-Dimethylphenethylamine	0.31269	0.32902	0.010	5.2	50.0
101	Hexachloropropene	0.22714	0.23429	0.010	3.1	50.0
102	2,6-Dichlorophenol	0.29575	0.25790	0.010	-12.8	50.0
103	N-Nitroso-di-n-butylamine	0.20782	0.20354	0.010	-2.1	50.0
104	p-Phenylenediamine	0.25073	0.25836	0.010	3.0	50.0
105	Safrole	0.25434	0.23385	0.010	-8.1	50.0
106	1-Methylnaphthalene	0.60253	0.56082	0.010	-6.9	50.0
107	1,2,4,5-Tetrachlorobenzene	0.67557	0.63907	0.010	-5.4	50.0
108	Isosafrole	0.51884	0.47400	0.010	-8.6	50.0
109	1,4-Naphthoquinone	0.31484	0.28271	0.010	-10.2	50.0
110	1,4-Dinitrobenzene	0.22796	0.21460	0.010	-5.9	50.0
111	Pentachlorobenzene	0.58620	0.56239	0.010	-4.1	50.0
112	1,3-Dinitrobenzene	0.26312	0.24237	0.010	-7.9	50.0
113	1-Naphthylamine	1.19670	1.09182	0.010	-8.8	50.0
114	2,3,4,6-tetrachlorophenol	0.32713	0.29755	0.010	-9.0	50.0
115	2-Naphthylamine	1.09641	0.96121	0.010	-12.3	50.0
116	2,3,5,6-Tetrachlorophenol	0.32713	0.29755	0.010	-9.0	50.0
117	Thionazin	0.41436	0.39232	0.010	-5.3	50.0
118	5-Nitro-o-toluidine	0.42722	0.38635	0.010	-9.6	50.0
119	Diphenylamine	1.03823	0.92987	0.010	-10.4	50.0
120	Tetraethyldithiopyrophospha	0.19314	0.18017	0.010	-6.7	50.0
121	Diallate #1	0.28056	0.25536	0.010	-9.0	50.0
122	1,3,5-Trinitrobenzene	0.07801	0.08876	0.010	13.8	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F100503.D
Analysis Type:
Lab Sample ID: CCAL 3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F100599.b\F8270.m

Injection Date: 05-OCT-1999 15:00
Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Init. Cal. Times: 10:34 16:14
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
123 Sulfotepp	0.19236	0.17980	0.010	-6.5	50.0	
124 Phorate	0.19314	0.18017	0.010	-6.7	50.0	
125 Phenacetin	0.45947	0.45438	0.010	-1.1	50.0	
126 Dialate #2	0.07142	0.06829	0.010	-4.4	50.0	
127 Dimethoate	0.19365	0.20568	0.010	6.2	50.0	
128 4-Aminobiphenyl	0.67546	0.57380	0.010	-15.1	50.0	
129 Pronamide	0.39698	0.37550	0.010	-5.4	50.0	
130 Pentachloronitrobenzene	0.12293	0.11821	0.010	-3.8	50.0	
131 Disulfoton	0.38134	0.33268	0.010	-12.8	50.0	
132 Dinoseb	0.17886	0.17410	0.010	-2.7	50.0	
133 Methyl parathion	0.21076	0.24205	0.010	14.8	50.0	
134 Parathion	0.19691	0.18935	0.010	-3.8	50.0	
135 4-Nitroquinoline-1-oxide	0.02785	0.01032	0.010	-62.9	50.0	<-
136 Methapyrilene	0.31759	0.32335	0.010	1.8	50.0	
137 Isodrin	0.14398	0.13757	0.010	-4.5	50.0	
138 Aramite #1	0.06842	0.07147	0.010	4.5	50.0	
139 Aramite #2	0.10083	0.11033	0.010	9.4	50.0	
140 4-Dimethylaminoazobenzene	0.39447	0.38370	0.010	-2.7	50.0	
141 Chlorobenzilate	0.34331	0.33451	0.010	-2.6	50.0	
142 2-Acetylaminofluorene	0.49615	0.53664	0.010	8.2	50.0	
143 3-MethylCholanthrene	0.51351	0.51481	0.010	0.3	50.0	
144 3-Dibenz(a,j)acridine	0.91562	0.96083	0.010	4.9	50.0	
149 o-Toluidine	1.65166	1.58061	0.010	-4.3	50.0	
159 Famphur	0.00252	0.00181	0.010	-28.3	50.0	<-
162 Hexachlorophene	++++	++++	0.010	++++	50.0	<- Qualitative only
163 7,12-Dimethylbenz(a)anthrac	0.51581	0.46427	0.010	-10.0	50.0	

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I9I240182 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)			Work Order #: D30QP102 LCS Lot-Sample#: A9I280000-245				
	0.0400	0.0320	mg/L	80	SM18 4500-CN-I	09/28-09/30/99	9271245
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Cyanide (Free)			Work Order #: D3D5R102 LCS Lot-Sample#: A9J070000-289				
	0.0400	0.0471	mg/L	118	SM18 4500-CN-I	10/06-10/08/99	9280289
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Cyanide (Free)			Work Order #: D3KHE102 LCS Lot-Sample#: A9J130000-133				
	40.0	37.1	ug/L	93	ASTM D4282-83	10/11/99	9286133
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Cyanide (Free)			Work Order #: D3KHJ102 LCS Lot-Sample#: A9J130000-140				
	40.0	39.8	ug/L	99	ASTM D4282-83	10/12/99	9286140
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Fluoride			Work Order #: D3D8R102 LCS Lot-Sample#: A9J070000-312				
	1.00	0.942	mg/L	94	MCAWW 340.2	10/07/99	9280312
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Total Cyanide			Work Order #: D38FR102 LCS Lot-Sample#: A9J040000-375				
	0.0400	0.0345	mg/L	86	SW846 9012	10/04/99	9277375
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Total Cyanide			Work Order #: D39AR102 LCS Lot-Sample#: A9J050000-314				
	0.0400	0.0294	mg/L	(74)	SW846 9012	10/05/99	9278314
			Dilution Factor: 1				
			Analysis Time..: 00:00				
Total Suspended Solids			Work Order #: D2XVD102 LCS Lot-Sample#: A9I270000-239				
	50.0	40.0	mg/L	80	MCAWW 160.2	09/27-09/28/99	9270239
			Dilution Factor: 1				
			Analysis Time..: 00:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I9I240182 **Matrix.....:** WATER
Date Sampled...: 09/23/99 **Date Received..:** 09/25/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)			WO#: D2JF3108-MS/D2JF3109-MSD			MS Lot-Sample #: A9I160237-001	
	76	(70 - 130)			SM18 4500-CN-I	09/28-09/30/99	9271245
	80	(70 - 130)	5.1	(0-20)	SM18 4500-CN-I	09/28-09/30/99	9271245
Cyanide (Free)			WO#: D2VF511F-MS/D2VF511G-MSD			MS Lot-Sample #: I9I240182-001	
	77	(70 - 130)			ASTM D4282-83	10/11/99	9286133
	89	(70 - 130)	4.5	(0-20)	ASTM D4282-83	10/11/99	9286133
Cyanide (Free)			WO#: D2VF5112-MS/D2VF5113-MSD			MS Lot-Sample #: I9I240182-001	
	194 N	(70 - 130)			SM18 4500-CN-I	10/06-10/08/99	9280289
	195 N	(70 - 130)	0.64	(0-20)	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)			WO#: D301G12M-MS/D301G12N-MSD			MS Lot-Sample #: I9I270156-001	
	0.0 N	(70 - 130)			SM18 4500-CN-I	10/06-10/08/99	9280289
	0.0 N	(70 - 130)	0.0	(0-20)	SM18 4500-CN-I	10/06-10/08/99	9280289
Cyanide (Free)			WO#: D301G12R-MS/D301G12T-MSD			MS Lot-Sample #: I9I270156-001	
	90	(70 - 130)			ASTM D4282-83	10/12/99	9286140
	89	(70 - 130)	0.98	(0-20)	ASTM D4282-83	10/12/99	9286140
Fluoride			WO#: D2VF510X-MS/D2VF5110-MSD			MS Lot-Sample #: I9I240182-001	
	100	(90 - 110)			MCAWW 340.2	10/07/99	9280312
	99	(90 - 110)	0.85	(0-20)	MCAWW 340.2	10/07/99	9280312
Fluoride			WO#: D301G12K-MS/D301G12L-MSD			MS Lot-Sample #: I9I270156-001	
	93	(90 - 110)			MCAWW 340.2	10/07/99	9280312
	95	(90 - 110)	1.7	(0-20)	MCAWW 340.2	10/07/99	9280312
Total Cyanide			WO#: D2R5V11A-MS/D2R5V11C-MSD			MS Lot-Sample #: A9I230120-008	
	100	(70 - 130)			SW846 9012	10/04/99	9277375
	87	(70 - 130)	14	(0-20)	SW846 9012	10/04/99	9277375
Total Cyanide			WO#: D2VF5115-MS/D2VF5116-MSD			MS Lot-Sample #: I9I240182-001	
	7.8 N	(70 - 130)			SW846 9012	10/05/99	9278314
	53 N	(70 - 130)	~~16~~ 79	(0-20)	SW846 9012	10/05/99	9278314

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

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	Rel	Abs			
				0.05	
2	2	C	0.1 PPM CY9555	0.09851	
3	3	C	0.05 PPM CY9556	0.05255	
4	4	C	0.025PPM CY9557	0.02520	
5	5	C	0.01 PPM CY9558	0.01056	
6	6	C	0.005PPM CY9559	0.00478	
7	2	H	0.1 PPM CY9555	0.09752	
8	0	L		-0.00130	
9	0	L		-0.00152	
10	2	G	0.1 PPM CY9555	0.09851	
11	7	S	ZZZZ	0.00054	
12	8	S	ICV/CCV CY9560	0.02305/0.025=92%	
13	9	S	ICB/CCB	0.00025	
14	10	S	BLK	0.00216	
15	11	S	LCS	0.03202/0.04=80%	
16	12	S	D2JF3	0.00243	
17	13	S	D2JF3 MS	0.03285 - 0.00243/0.04=76%	
18	14	S	D2JF3 MSD	0.03457 =80%	
19	15	S	D2T38	0.05356	
20	16	S	D2T3G 5X	0.04717	
21	17	S	D2T3M 5X	0.08370	
22	18	S	D2VGM 5X	0.08104 x 5 = 0.41	
23	19	S	D2TMQ	0.00784	
24	20	S	CCV	0.02134/0.025=85%	
25	21	S	CCB	-0.00092	
26	22	S	D2VGV	0.00371	
27	23	S	D2TNO	0.00318	
28	24	S	D2TN1	0.00259	
29	25	S	0.025	0.02400/0.025=96%	
30	26	S	0.075	0.06238/0.075=84%	
31	27	S	CCV	0.02120/0.025=85%	
32	28	S	CCB	0.00067	
33	2	H	0.1 PPM CY9555	0.09752	
34	0	L		-0.00083	
35	0	L		-0.00055	
36	2	G	0.1 PPM CY9555	0.09851	
	Last base Conc.			531 -0.00083	

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Gain correction made for analysis 1
Base drift correction made
Carryover correction made

Sample statistics

Anal	level	cups	avg	std dev	cv
1	all	22	0.02454	0.0265	108%

Anal 1: linear fit
Correlation coefficient (R) 0.9992 ✓
Carryover factors: 1.50%, 0.00%.

Chart saved to file A:990930D.CHR.

text file A:990930D.TXT has been saved to disk.

	Conc.			-0.00143
1	1	P	0.1PPM CY9587	0.1010
	Rel	Abs		0.04
2	2	C	0.1 PPM CY9587	0.09929
3	3	C	0.05 PPM CY9588	0.05140
4	4	C	0.025PPM CY9589	0.02452
5	5	C	0.01 PPM CY9590	0.01014
6	6	C	0.005PPM CY9597	0.00608
7	2	H	0.1 PPM CY9587	0.1001
8	0	L		0.00041
9	0	L		-0.00011
10	2	G	0.1 PPM CY9587	0.09929
11	7	S	ZZZZ	0.00019
12	8	S	ICV/CCV	0.02317/0.025=932
13	9	S	ICB/CCB	-0.00032
14	10	S	BLK	0.00019
15	11	S	LCS	0.03451/0.04 = 86
16	12	S	D2R5V	0.00022
17	13	S	D2R5V MS	0.04004
18	14	S	D2R5V MSD	0.03491 - 0.00022/0.04: 1902 872
19	15	S	D2T3B 10X	0.01989 x 10 = 0.1989
20	16	S	D2T3M 20X	0.1191 x10 = 2.302
21	17	S	D2T3C 10X	0.08585 x10 = 0.8585
22	18	S	D2VGM 20X	****
23	19	S	D3LPM	0.00145r
24	20	S	CCV	0.02344/0.025 = 942
25	21	S	CCB	0.00056
26	22	S	D3LPW	0.00066
27	23	S	D3LPK	0.00017
28	24	S	D3LPY	0.00016
29	25	S	D3LW2	-0.00045
30	26	S	D3LQ5	-0.00115
31	27	S	D2VGV	0.00682
32	28	S	CCV	0.02347/0.025=943
33	29	S	CCB	-0.00045
34	3	H	0.1 PPM CY9587	0.09939
35	0	L		-0.00065
36	0	L		-0.00015
37	2	G	0.1 PPM CY9587	0.09929
38	120	S	D2T3M 40X	0.05779
39	119	S	ZZZZ	0.00043
40	118	S	D2VGM 40X	****
41	117	S	ZZZZ	0.00010*
42	116	S	CCV	0.02278/0.025=912
43	115	S	CCB	-0.00015
	Last base			1200
	Conc.			0.00053

Gain correction made for analysis 1
Base drift correction made
Carryover correction made

Offscale peaks which were resampled are marked with '*'
Non-offscale peaks which were resampled are marked with '.'

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Sample statistics

Anal	Level	Reps	Avg	Std dev	%RSD
1	All	30	0.40887	0.1588	38.8

Anal 1: linear fit
Correlation coefficient (R): 0.99985 ✓
Carryover factors: 1.000, 0.000

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00832

1	1	P	0.1PPM CY9587	0.1003	
	Rel	Abs		0.04	
2	2	C	0.1 PPM CY9587	0.1000	
3	3	C	0.05 PPM CY9588	0.04996	
4	4	C	0.025PPM CY9589	0.02475	
5	5	C	0.01 PPM CY9590	0.00928	
6	6	C	0.005PPM CY9597	0.00653	
7	2	H	0.1 PPM CY9587	0.1001	
8	0	L		0.00042	
9	0	L		-0.00026	
10	2	G	0.1 PPM CY9587	0.1000	
11	7	S	ZZZZ	0.00120	
12	8	S	ICV	0.02428/0.025 = 97%	
13	9	S	ICB	0.00098	
14	10	S	BLK	0.00106	
15	11	S	LCS	0.02943/0.04 ~ 74%	
16	12	S	D2VF5	0.09984	
17	13	S	D2VF5 MS	****	
18	14	S	D2VF5 MSD	****	
19	15	S	D2VV4	0.00271*	
20	16	S	D2WRF	0.00253*	
21	17	S	D2TM9	0.02183	
22	18	S	D2TN1	0.00283	
23	19	S	D2TN0	0.00613	
24	20	S	CCV	0.02513/0.025 = 100%	
25	21	S	CCB	0.00152	
26	22	S	D2VFK	0.00585	
27	23	S	D2VFW	0.1038	for CV
28	24	S	D2VG6	0.00164	
29	25	S	D2VGC	****	
30	26	S	D2VGN	****	
31	27	S	D2Q7F	0.01675*	
32	28	S	D2Q7T	0.00438*	
33	29	S	D2Q82	0.00756	
34	30	S	D2Q8H	0.00344	
35	31	S	D2Q8Y	0.00258	
36	32	S	CCV	0.02542/0.025 =	
37	33	S	CCB	0.00289	
38	34	S	D2Q9P	0.00260	
39	35	S	D2LNL	0.00196	
40	36	S	D2LN3	0.00254	
41	37	S	D31JJ	0.00091	
42	38	S	D31Q1	0.00218	
43	39	S	D31MK	0.00239	
44	40	S	0.025	0.02274/0.025 = 91%	
45	41	S	0.075	0.07594/0.075 = 101%	
46	42	S	CCV	0.02605/0.025 = 104%	
47	43	S	CCB	0.00102	
48	C	H	0.1 PPM CY9587	0.09884	
49	0	L		0.00019	
50	0	L		0.00038	
51	C	G	0.1 PPM CY9587	0.1000	
Last base				10KV	
Corr.				0 00156	

Gain correction made 2 = available 1
Base drift correction made
Curvature correction made

Offscale peaks which were reexamined are marked with '*'
Noncalibrate peaks which were reexamined are marked with '+'

Sample annotation:
Anal Level Type Avg Std dev %

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PK	CUP	TYP	SAMPLE ID	CYANIDE mg/L
	Init base Conc.			1214 -0.00153
1	1	P	0.1PPM CY9587	0.1011
	Rel Abs			0.04
2	2	C	0.1 PPM CY9587	0.09968
3	3	C	0.05 PPM CY9588	0.05075
4	4	C	0.025PPM CY9589	0.02394
5	5	C	0.01 PPM CY9590	0.01077
6	6	C	0.005PPM CY9597	0.00639
7	2	H	0.1 PPM CY9587	0.09818
8	0	L		-0.00005
9	0	L		-0.00019
10	2	G	0.1 PPM CY9587	0.09968
11	7	S	ZZZZ	0.00060
12	8	S	ICV	0.02447 /0.025 = 98%
13	9	S	ICB	-0.00010
14	10	S	D2VF5 MS 2X	0.05147 x2 0.10294
15	11	S	D2VF5 MSD 2X	0.06048 0.12098 — 0.09984/0.04 = 7.75% 53%
16	12	S	D2VGC 10X	0.1059 x10 = 1.059 total CN
17	13	S	D2VGG 10X	0.04248 x10 = 0.4248
18	14	S	CCV	0.02519 /0.025 = 101%
19	15	S	CCB	0.00180
20	2	H	0.1 PPM CY9587	0.09820
21	0	L		-0.00000
22	0	L		0.00005
23	2	G	0.1 PPM CY9587	0.09968
	Last base Conc.			1233 -0.00092

Gain correction made for analysis 1
Base drift correction made
Carryover correction made

Page 3 of 3

Sample statistics

Anal	Level	Cups	avg	std dev	cv
1	all	3	0.09848	0.0049	5%

Anal 1: linear fit
Correlation coefficient (R): 0.9995 ✓
Carryover factors: 1.00%, 0.00%.

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	Rel	Abs			
				0.12	
2	2	C	100UG/L CY9555		98.95
3	3	C	50UG/L CY9556		51.88
4	4	C	25UG/L CY9557		25.65
5	5	C	10UG/L CY9558		9.418
6	6	C	5UG/L CY9559		3.386
7	2	H	100UG/L CY9555		95.56
8	0	L			1.923
9	0	L			2.367
10	2	G	100UG/L CY9555		98.95
11	7	S	ZZZZZZZ		1.879
12	8	S	ICV		22.86/25 = 91%
13	9	S	ICB		1.653
14	10	S	BLK		2.458
15	11	S	LCS		39.75/40 = 99%
16	12	S	D301G		5.935
17	13	S	D301G DUP		6.324
18	14	S	D301G MS		41.90 - 6.324/40 = 89%
19	15	S	D301G MSD		41.49 = 88%
20	16	S	D3VGV	D2UGU	2.468 D2UGU ~~D2UGU~~
21	17	S	D3VGV DUP		1.937
22	18	S	D3VG6	D2UG6	2.946
23	19	S	D3VG6 DUP		2.758
24	20	S	CCV		24.55/25 = 98%
25	21	S	CCB		1.930
26	22	S	D2VH5		26.69
27	23	S	D2VH5 DUP		26.51
28	24	S	D3022		2.057
29	25	S	D3022 DUP		1.786
30	26	S	D302J		1.704
31	27	S	D302J DUP		1.753
32	28	S	D31VP		1.618
33	29	S	D31VP DUP		1.704
34	30	S	D31VT		1.567
35	31	S	D31VT DUP		2.127
36	32	S	CCV		24.34/25 = 97%
37	33	S	CCB		1.597
38	34	S	D314T		2.552
39	35	S	D314T DUP		2.334
40	36	S	D3167		1.580
41	37	S	D3167 DUP		1.496
42	38	S	D316C		1.839
43	39	S	D316C DUP		1.696
44	40	S	D316F		2.777
45	41	S	D316F DUP		3.540
46	42	S	D313P		1.507
47	43	S	D313P DUP		1.154
48	44	S	CCV		24.43/25 = 98%
49	45	S	CCB		1.286
50	46	S	D314A		22.01
51	47	S	D314A DUP		22.32
52	48	S	D315H		5.365
53	49	S	D315H DUP		4.956
54	50	S	CCV		24.38/25 = 97%
55	51	S	CCB		1.351
56	52	S	CCV 1	TEST CCV	13.37
57	53	S	CCV 2		13.30
58	54	S	CCV 3		13.13
59	55	S	CCV 4		13.31
60	56	S	CCV 5		13.22
61	57	S	CCV		25.21/25 = 101%
62	58	S	CCB		1.069
63	2	H	100UG/L CY9555		101.5
64	0	L			1.600

CP - Micro detPhenom

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MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 14 January 2000

SUBJECT: **Data Validation of: Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), PCBs, Total Metals, Total and Free Cyanide, Fluoride, and Percent Moisture**

Re: Quanterra, Inc.
Package No.: I9J070143

Soil/Sediment Samples:

S2-HA01-0.0-0.5	S2-HA01-0.5-1.0	S2-HA02-0.0-0.5
S2-HA02-0.5-2.0	S2-HA03-0.0-0.5	S2-HA03-0.0-0.5D
S2-HA03-0.5-2.0	S2-HA04-0.0-0.5	S2-HA04-0.5-2.0
LMC-S001-0.0-0.3	LMC-S002-0.0-0.4	

Trip Blanks:

TB-2789-16 TB-2799-17

Field Duplicates:

Sample S2-HA03-0.0-0.5D is a field duplicate of sample S2-HA03-0.0-0.5.

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Overview

This set of samples collected on October 5 and 6, 1999 for the Alcoa Badin Site contains eleven (11) soil and sediment samples, including one (1) field duplicate pair, and two (2) trip blanks. The samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total metals, and total cyanide, by USEPA SW-846 Methods 8260B, 8270C, series 6000/7000 and 9012A, respectively. The samples were also analyzed for free cyanide by Standard Method 18, fluoride by MCAWW 340.2, and percent solids by ASTM D2216-90. Note that samples LMC-S001-0.0-0.3 and LMC-S002-0.0-0.4 were also analyzed for polychlorinated biphenyls (PCBs) by USEPA SW-846 Method 8082. The trip blanks were only analyzed for VOCs.

Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

VOCs

The initial calibration and continuing calibration relative response factors (RRFs) for acetonitrile, propionitrile, isobutyl alcohol, and 1,4-dioxane were less than 0.05. As a result, associated positive sample values were qualified as estimated "J" while non-detect values were rejected "R".

SVOCs

The initial calibration and continuing calibration relative response factors (RRFs) for famphur and kepone were less than 0.05. In addition, the initial calibration RRF for aramite was less that 0.05. As a result, associated positive sample values were qualified as estimated "J" while non-detect values were rejected "R".

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Minor Issues

VOCs

Samples S2-HA03-0.0-0.5, S2-HA03-0.0-0.5D, and S2-HA03-0.5-2.0 were prepared/analyzed outside of the recommended holding time. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

The percent relative standard deviation between the initial calibration relative response factors for trans-1,4-dichloro-2-butene on October 4, 1999 and bromoform and trans-1,4-dichloro-2-butene on October 17, 1999 exceeded the control limit. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

A low standard was not run during the initial calibration for methylene chloride performed on October 17, 1999. As the laboratory reporting limit was below the lowest standard run, all associated values reported below the lowest standard were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

A comparison of the initial calibration mean RRFs and the continuing calibration RRFs for trichlorofluoromethane, methylene chloroide, vinyl acetate, and trans-1,4-dichloro-2-butene on October 18, 1999 and acrolein, vinyl acetate, propionitrile, isobutyl alcohol, 1,4-dioxane, tetrachloroethene, trans-1,4-dichloro-2-butene, and 1,2-dibromo-3-chlorophenol on October 20, 1999 yielded percent differences that exceeded control limits. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

Low levels of contamination were found in the following blanks: acetone (7 ug/kg), methlene chloride (8.6 mg/kg), and methyl ethyl ketone (1.6 mg/kg) in method blank D3T7M101, acetone (8 ug/kg), carbon disulfide (2.1 ug/kg), and methylene chloride (4.2 ug/kg) in method blank D3W0E101, and acetone (4.3 ug/L) and methyl ethyl ketone (0.7 ug/L) in method blank D3VEM101. As a result, sample values less than five times the associated blank values (ten times for the common laboratory contaminants acetone, methylene chloride, and methyl ethyl ketone) were qualified as non-detect "U".

One matrix spike percent recovery for chlorobenzene was below laboratory control limits. As action is not based on MS/MSD criteria alone for organic analyses, none was necessary.

The mass spectral chromatograms for acetone in samples LMC-S002-0.0-0.4, S2-HA04-0.0-0.5, S2-HA01-0.0-0.5, S2-HA01-0.5-1.0, S2-HA02-0.0-0.5, S2-HA03-0.0-0.5, S2-HA03-0.0-0.5D, S2-HA02-0.5-2.0 and idomethane in samples S2-HA04-0.0-0.5 and S2-HA01-0.5-1.0 exhibited several minor inconsistencies when compared to that of the associated standard indicating that co-elution or other minor problems were present. As a result, these compounds were qualified as estimated "J" as the compound quantitations may have been impacted.

SVOCs

The percent relative standard deviation between the initial calibration relative response factors for 2,4-dinitrophenol, n-nitrosomethylethylamine, methyl methanesulfonate, p-phenylenediamine, dimethoate, methyl parathion, famphur, and kepone on October 18, 1999 exceeded the control limit. As a

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result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

A comparison of the initial calibration mean RRFs and the continuing calibration RRFs for 4-nitrophenol, n-nitrosomethylethylamine, methyl methanesulfonate, a,a-dimethylphenethylamine, p-phenylenediamine, dimethoate, methyl parathion, 4-nitroquinoline-1-oxide, aramite, famphur, and kepone on October 19, 1999 and n-nitrosomethylethylamine, methyl methanesulfonate, 4-nitroquinoline-1-oxide, famphur, and kepone on October 20, 1999 yielded percent differences that exceeded control limits. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

The matrix spike percent recovery for 1,4-dichlorobenzene was below laboratory control limits. As action is not based on MS/MSD criteria alone for organic analyses, none was necessary.

Note that the value for hexachlorophene in the results as reported by the laboratory was presented with a detection limit of 2100 ug/kg. As this is a screening value only, no quantifiable limit should have been assigned. This was corrected in the validated data summary.

PCBs

The re-preparation of the samples LMC-S001-0.0-0.3 and LMC-S002-0.0-0.4 was performed outside of recommended holding time. As a result, these sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively. Therefore, the original analysis results are reported on the validated data summary.

The percent recovery for aroclor 1016 in the October 20, 1999 LCS was below quality control limits. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Total Metals

Low levels of blank contamination were found for arsenic, barium, cadmium, and chromium, lead, and selenium in the preparation, initial calibration, and continuing calibration blanks. As a result, positive sample results less than five (5) times the associated blank values were qualified as non-detect "U".

Barium and chromium were detected above the IDL and selenium was detected at a negative concentration above the absolute value of the IDL in the ICP interference check sample (ICS). As the levels of iron in the site samples were comparable to or exceeded the amount found in the ICS positive sample results for barium, chromium, and selenium were qualified as estimated "J" if the sample value was less than ten times the absolute value of the level found in the ICS. Additionally, non-detect values for selenium were qualified as estimated "UJ". In addition, in samples S2-HA01-0.0-0.5, S2-HA01-0.5-1.0, S2-HA02-0.5-2.0, S2-HA03-0.0-0.5, S2-HA03-0.0-0.5D, S2-HA03-0.2-2.0, S2-HA04-0.0-0.5, S2-HA04-0.5-2.0, LMC-S001-0.0-0.3. LMC-S002-0.0-0.4 the level of iron present exceeded that found in the ICS. Based on Table 2 found is SW-846 method 6010 concentrations of iron at above this level have been shown to cause positive interference with cadmium, chromium, and selenium. As a result, if the predicted interference concentration was greater than two

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times the reporting limit and greater than ten percent of the sample value these results were also qualified as estimated "J".

The percent differences between the original and serial dilution results for arsenic, barium, and lead exceeded 10 percent. As a result, associated sample results were qualified as estimated "J" and "UJ" for positive and non-detect results, respectively.

Note that sample S2-HA01-0.5-1.0 was analyzed for mercury even though this analyte was not specified on the chain-of-custody.

Total Cyanide

No problems encountered.

Free Cyanide by SM18

No problems encountered.

Fluoride

No problems encountered.

Percent Solids

No problems encountered.

Notes

Note that several non-target compound initial and continuing calibration criteria were outside quality control limits. In addition, several initial and continuing calibration criteria associated only with QC samples were outside of control limits. As this did not impact the site sample results, no action was necessary.

In addition, note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Note that only a one-point calibration (analyzed with the continuing calibration) was utilized for hexachlorophene. Therefore, results for this compound should only be regarded as screening values.

The Appendix IX compound cis-1,2-dichloroethene associated with the VOC analysis was calibrated for but not reported. In addition, the VOC pentachloroethane was analyzed and reported with the SVOC fraction. The following compounds were reported with the SVOC fraction even though they are usually reported with pesticide or herbicide fractions: 2-sec-butyl-4,6-dinitrophenol (dinoseb), famphur, kepone, parathion, and phorate. Note that a review of the raw data did not find cis-1,2-dichloroethene above the reporting limit in any sample.

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Note that the percent recoveries for arsenic, cadmium, chromium, lead, and barium were outside control limits in the final CCV. As this CCV was not associated with any site samples, no action was necessary.

Note that the laboratory did not analyze a CRDL/CRA standard with the total and dissolved metals analyses. As a result, this criteria could not be evaluated.

An instrument detection limit summary for the metal results was not provided by the laboratory and could not be evaluated.

Note that an initial calibration or subsequent initial calibration verification were not performed with the fluoride analysis. The laboratory stated that this is because the meter is standardized and the samples are read directly. In addition, a MS/MSD was not performed with the fluoride analysis. As a result, these could not be evaluated.

Note that two separate percent solids determinations were performed for all samples. One determination was performed with respect to the VOC analyses while the other determination was applied to all other sample parameters. This occurred because containers for the VOC analyses were shipped in a separate cooler from the other containers utilized for the remaining analyses. Only the percent solids determination values associated with the non-volatile analyses are presented on the validated data summary.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total cyanide samples prepared on October 18, 1999. However, a laboratory control sample is prepared with each batch and the results of this LCS were acceptable.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of four times the reporting limit was utilized to assess the absolute difference between the sample results (soils) when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The organic data were reviewed according to the U.S. EPA's National Functional Guidelines for Organic Data Review (February, 1994) while the inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

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a) All positive results with qualifier codes, if applicable; and
b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Alcoa Badin
Package I9J070143

Date Collected	Analytical Method	Units	LMC-S001-0.0-0.3 10/6/99	LMC-S002-0.0-0.4 10/6/99	S2-HA01-0.0-0.5 10/6/99	S2-HA01-0.5-1.0 10/6/99	S2-HA02-0.0-0.5 10/6/99	S2-HA02-0.5-2.0 10/6/99	S2-HA03-0.0-0.5 10/5/99	S2-HA03-0.0-0.5D 10/5/99	S2-HA03-0.5-2.0 10/5/99	S2-HA04-0.0-0.5 10/5/99	S2-HA04-0.5-2.0 10/5/99	TB-2789-16 10/5/99	TB-2799-17 10/6/99
Wet Chemistry															
Percent Solids	D2216	percent	76.8	77.8	75.5	78.6	80.3	82.3	81.2	80.1	79	83.2	83.8	NA	NA
Fluoride	E340.2	mg/kg	0.65 U	0.64 U	10.7	8.4	3.9	2.9	0.61 U	0.6 U	0.63 U	0.6 U	0.6 U	NA	NA
Cyanide (Free)	SM4500-CN-I	mg/kg	3.3 U	3.2 U	3.3 U	3.2 U	3.1 U	3.1 U	3.1 U	3 U	3.1 U	3 U	3 U	NA	NA
Cyanide, Total	SW9012A	mg/kg	3.3 U	3.2 U	3.3 U	3.2 U	3.1 U	10.3	3.1 U	3 U	3.1 U	3 U	3 U	NA	NA
Metals															
Arsenic	SW6010B	mg/kg	48.8 J	25.8 J	12.4 J	15.8 J	5.4 J	7.3 J	12.2 J	12.2 J	15.7 J	7.8 J	2.3 J	NA	NA
Barium	SW6010B	mg/kg	69.2 J	61.3 J	108 J	95.9 J	75.4 J	107 J	50.4 J	51.6 J	29.9 J	23.9 UJ	24.1 UJ	NA	NA
Cadmium	SW6010B	mg/kg	0.26 U	0.26 U	0.26 U	0.25 U	0.25 U	0.24 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U	NA	NA
Chromium	SW6010B	mg/kg	101	87.7	28	31.6	19.7	21.1	22.6	25.3	24	19.8	14.5	NA	NA
Lead	SW6010B	mg/kg	26 J	22.4 J	20.7 J	21.1 J	22.1 J	17.2 J	11.7 J	12.3 J	13.4 J	24.4 J	17.3 J	NA	NA
Selenium	SW6010B	mg/kg	0.65 UJ	0.64 UJ	0.66 UJ	0.64 UJ	0.62 UJ	0.78 UJ	1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	0.6 UJ	NA	NA
Mercury	SW7471	mg/kg				0.13 U			0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	NA	NA
PCBs															
Aroclor 1016	SW8082	ug/kg	43 UJ	42 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	SW8082	ug/kg	43 U	42 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles															
1,1,1,2-Tetrachloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,1,1-Trichloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,1,2-Trichloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,1-Dichloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,1-Dichloroethene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	8.8	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,2,3-Trichloropropane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6.9	6 U	5 U	5 U
1,2-Dibromo-3-chloropropane	SW8260B	ug/kg	13 UJ	13 UJ	13 UJ	13 UJ	12 UJ	12 UJ	12 UJ	12 UJ	13 UJ	12 UJ	12 UJ	10 U	10 U
1,2-Dibromoethane (EDB)	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,2-Dichloroethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,2-Dichloropropane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
1,4-Dioxane	SW8260B	ug/kg	640 R	650 R	630 R	660 R	620 R	610 R	620 R	620 R	630 R	600 R	600 R	5 R	5 R
2-Butanone (MEK)	SW8260B	ug/kg	26 U	26 U	25 U	26 U	25 U	24 U	25 UJ	25 UJ	25 UJ	24 U	24 U	20 U	20 U
2-Hexanone	SW8260B	ug/kg	26 U	26 U	25 U	26 U	25 U	24 U	25 UJ	25 UJ	25 UJ	24 U	24 U	20 U	20 U
4-Methyl-2-pentanone (MIBK)	SW8260B	ug/kg	26 U	26 U	25 U	26 U	25 U	24 U	25 UJ	25 UJ	25 UJ	24 U	24 U	20 U	20 U
Acetone	SW8260B	ug/kg	82 UJ	35 UJ	160 J	180 J	150 J	40 UJ	38 UJ	71 UJ	25 UJ	62 UJ	24 U	20 U	20 U
Acetonitrile	SW8260B	ug/kg	130 R	130 R	130 R	130 R	120 R	120 R	120 R	120 R	130 R	120 R	120 R	100 R	100 R
Acrolein	SW8260B	ug/kg	130 UJ	130 UJ	130 UJ	130 UJ	120 UJ	120 UJ	120 UJ	120 UJ	130 UJ	120 UJ	120 UJ	100 U	100 U
Acrylonitrile	SW8260B	ug/kg	130 U	130 U	130 U	130 U	120 U	120 U	120 UJ	120 UJ	130 UJ	120 U	120 U	100 U	100 U
Allyl chloride	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
Benzene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Bromodichloromethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Bromoform	SW8260B	ug/kg	6.4 UJ	6.5 UJ	6.3 UJ	6.6 UJ	6.2 UJ	6.1 UJ	6.2 UJ	6.2 UJ	6.3 UJ	6 UJ	6 UJ	5 U	5 U
Bromomethane	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
Carbon disulfide	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Carbon tetrachloride	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Chlorobenzene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Chloroethane	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
Chloroform	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Chloromethane	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
Chloroprene	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
cis-1,3-Dichloropropene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Dibromochloromethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Dibromomethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U

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Data Summary
Alcoa Badin
Package I9J070143

Date Collected	Analytical Method	Units	LMC-S001-0.0-0.3 10/6/99	LMC-S002-0.0-0.4 10/6/99	S2-HA01-0.0-0.5 10/6/99	S2-HA01-0.5-1.0 10/6/99	S2-HA02-0.0-0.5 10/6/99	S2-HA02-0.5-2.0 10/6/99	S2-HA03-0.0-0.5 10/5/99	S2-HA03-0.0-0.5D 10/5/99	S2-HA03-0.5-2.0 10/5/99	S2-HA04-0.0-0.5 10/5/99	S2-HA04-0.5-2.0 10/5/99	TB-2789-16 10/5/99	TB-2799-17 10/6/99
Dichlorodifluoromethane	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 U	10 U
Ethyl methacrylate	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Ethylbenzene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Iodomethane	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	9.2 J	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6.4 J	6 U	5 U	5 U
Isobutyl alcohol	SW8260B	ug/kg	260 R	260 R	250 R	260 R	250 R	240 R	250 R	250 R	250 R	240 R	240 R	200 R	200 R
Methacrylonitrile	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Methyl methacrylate	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Methylene chloride	SW8260B	ug/kg	7.4 UJ	9.3 UJ	7 UJ	10 UJ	7.7 UJ	8.3 UJ	11 UJ	9.2 UJ	7.5 UJ	7.6 UJ	8.4 UJ	5 UJ	5 UJ
Propionitrile	SW8260B	ug/kg	26 R	26 R	25 R	26 R	25 R	24 R	25 R	25 R	25 R	24 R	24 R	20 R	20 R
Styrene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Tetrachloroethene	SW8260B	ug/kg	6.4 UJ	6.5 UJ	6.3 UJ	6.6 UJ	6.2 UJ	6.1 UJ	6.2 UJ	6.2 UJ	6.3 UJ	6 UJ	6 UJ	5 U	5 U
Toluene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
trans-1,2-Dichloroethene	SW8260B	ug/kg	3.2 U	3.3 U	3.2 U	3.3 U	3.1 U	3 U	3.1 UJ	3.1 UJ	3.2 UJ	3 U	3 U	2.5 U	2.5 U
trans-1,3-Dichloropropene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
trans-1,4-Dichloro-2-butene	SW8260B	ug/kg	6.4 UJ	6.5 UJ	6.3 UJ	6.6 UJ	6.2 UJ	6.1 UJ	6.2 UJ	6.2 UJ	6.3 UJ	6 UJ	6 UJ	5 UJ	5 UJ
Trichloroethene	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Trichlorofluoromethane	SW8260B	ug/kg	13 U	13 U	13 U	13 U	12 U	12 U	12 UJ	12 UJ	13 UJ	12 U	12 U	10 UJ	10 UJ
Vinyl acetate	SW8260B	ug/kg	13 UJ	13 UJ	13 UJ	13 UJ	12 UJ	12 UJ	12 UJ	12 UJ	13 UJ	12 UJ	12 UJ	10 UJ	10 UJ
Vinyl chloride	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	10 U	10 U
Xylenes (total)	SW8260B	ug/kg	6.4 U	6.5 U	6.3 U	6.6 U	6.2 U	6.1 U	6.2 UJ	6.2 UJ	6.3 UJ	6 U	6 U	5 U	5 U
Semi-Volatiles															
1,2,4,5-Tetrachlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,2,4-Trichlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,2-Dichlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,3,5-Trinitrobenzene	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
1,3-Dichlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,3-Dinitrobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,4-Dichlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
1,4-Naphthoquinone	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
1-Naphthylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,3,4,6-Tetrachlorophenol	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
2,4,5-Trichlorophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,4,6-Trichlorophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,4-Dichlorophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,4-Dimethylphenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,4-Dinitrophenol	SW8270C	ug/kg	2100 UJ	2100 UJ	2100 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	1900 UJ	2000 UJ	1900 UJ	1900 UJ	NA	NA
2,4-Dinitrotoluene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,6-Dichlorophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2,6-Dinitrotoluene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Acetylaminofluorene	SW8270C	ug/kg	4300 U	4200 U	4400 U	4200 U	4100 U	4000 U	4000 U	3900 U	4200 U	3900 U	4000 U	NA	NA
2-Chloronaphthalene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Chlorophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Methylnaphthalene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Methylphenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Naphthylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Nitroaniline	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
2-Nitrophenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
2-Picoline	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
2-sec-Butyl-4,6-dinitrophenol	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
3,3'-Dichlorobenzidine	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
3,3'-Dimethylbenzidine	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
3-Methylcholanthrene	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
3-Nitroaniline	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
4,6-Dinitro-2-methylphenol	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
4-Aminobiphenyl	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
4-Bromophenyl phenyl ether	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA

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4-Chloro-3-methylphenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
4-Chloroaniline	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
4-Chlorophenyl phenyl ether	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
4-Methylphenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
4-Nitroaniline	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
4-Nitrophenol	SW8270C	ug/kg	2100 U	2100 U	2100 UJJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	1900 U	2000 UJ	1900 UJ	1900 UJ	NA	NA
4-Nitroquinoline-1-oxide	SW8270C	ug/kg	4300 UJ	4200 UJ	4400 UJ	4200 UJ	4100 UJ	4000 UJ	4000 UJ	3900 UJ	4200 UJ	3900 UJ	4000 UJ	NA	NA
5-Nitro-o-toluidine	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
7,12-Dimethylbenz(a)anthracene	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
a,a-Dimethylphenethylamine	SW8270C	ug/kg	2100 U	2100 U	2100 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	1900 U	2000 UJ	1900 UJ	1900 UJ	NA	NA
Acenaphthene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Acenaphthylene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Acetophenone	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Aniline	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Anthracene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Aramite	SW8270C	ug/kg	860 R	850 R	870 R	840 R	820 R	810 R	810 R	790 R	830 R	790 R	800 R	NA	NA
Benzo(a)anthracene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Benzo(a)pyrene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Benzo(b)fluoranthene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Benzo(ghi)perylene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Benzo(k)fluoranthene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Benzyl alcohol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
bis(2-Chloro-1-methylethyl) ether	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
bis(2-Chloroethoxy)methane	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
bis(2-Chloroethyl) ether	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
bis(2-Ethylhexyl) phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Butyl benzyl phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Chlorobenzilate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Chrysene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Diallate	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Dibenz(a,h)anthracene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Dibenzofuran	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Diethyl phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Dimethoate	SW8270C	ug/kg	860 UJ	850 UJ	870 UJ	840 UJ	820 UJ	810 UJ	810 UJ	790 UJ	830 UJ	790 UJ	800 UJ	NA	NA
Dimethyl phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Di-n-butyl phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Di-n-octyl phthalate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Diphenylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Disulfoton	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Ethyl methanesulfonate	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Famphur	SW8270C	ug/kg	4300 R	4200 R	4400 R	4200 R	4100 R	4000 R	4000 R	3900 R	4200 R	3900 R	4000 R	NA	NA
Fluoranthene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Fluorene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Hexachlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Hexachlorobutadiene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Hexachlorocyclopentadiene	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Hexachloroethane	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Hexachlorophene	SW8270C	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Hexachloropropene	SW8270C	ug/kg	4300 U	4200 U	4400 U	4200 U	4100 U	4000 U	4000 U	3900 U	4200 U	3900 U	4000 U	NA	NA
Indeno(1,2,3-cd)pyrene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Isodrin	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Isophorone	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Isosafrole	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Kepone	SW8270C	ug/kg	4300 R	4200 R	4400 R	4200 R	4100 R	4000 R	4000 R	3900 R	4200 R	3900 R	4000 R	NA	NA
Methapyrilene	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Methyl methanesulfonate	SW8270C	ug/kg	430 UJ	420 UJ	440 UJ	420 UJ	410 UJ	400 UJ	400 UJ	390 UJ	420 UJ	390 UJ	400 UJ	NA	NA

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Data Summary
Alcoa Badin
Package I9J070143

Date Collected	Analytical Method	Units	LMC-S001-0.0-0.3 10/6/99	LMC-S002-0.0-0.4 10/6/99	S2-HA01-0.0-0.5 10/6/99	S2-HA01-0.5-1.0 10/6/99	S2-HA02-0.0-0.5 10/6/99	S2-HA02-0.5-2.0 10/6/99	S2-HA03-0.0-0.5 10/5/99	S2-HA03-0.0-0.5D 10/5/99	S2-HA03-0.5-2.0 10/5/99	S2-HA04-0.0-0.5 10/5/99	S2-HA04-0.5-2.0 10/5/99	TB-2789-16 10/5/99	TB-2799-17 10/6/99
Methyl parathion	SW8270C	ug/kg	2100 UJ	2100 UJ	2100 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	1900 UJ	2000 UJ	1900 UJ	1900 UJ	NA	NA
Naphthalene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Nitrobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosodiethylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosodimethylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosodi-n-butylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosodi-n-propylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosodiphenylamine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosomethylethylamine	SW8270C	ug/kg	430 UJJ	420 UJ	440 UJ	420 UJ	410 UJ	400 UJ	400 UJ	390 UJ	420 UJ	390 UJ	400 UJ	NA	NA
N-Nitrosomorpholine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosopiperidine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
N-Nitrosopyrrolidine	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
O,O,O-Triethyl phosphorothioate	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
o-Toluidine	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Parathion	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
p-Dimethylaminoazobenzene	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Pentachlorobenzene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Pentachloroethane	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Pentachloronitrobenzene	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Pentachlorophenol	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Phenacetin	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Phenanthrene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Phenol	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Phorate	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
p-Phenylene diamine	SW8270C	ug/kg	4300 UJ	4200 UJ	4400 UJ	4200 UJ	4100 UJ	4000 UJ	4000 UJ	3900 UJ	4200 UJ	3900 UJ	4000 UJ	NA	NA
Pronamide	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Pyrene	SW8270C	ug/kg	430 U	420 U	440 U	420 U	410 U	400 U	400 U	390 U	420 U	390 U	400 U	NA	NA
Pyridine	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Safrole	SW8270C	ug/kg	860 U	850 U	870 U	840 U	820 U	810 U	810 U	790 U	830 U	790 U	800 U	NA	NA
Tetraethyldithiopyrophosphate	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA
Thionazin	SW8270C	ug/kg	2100 U	2100 U	2100 U	2000 U	2000 U	2000 U	2000 U	1900 U	2000 U	1900 U	1900 U	NA	NA

ND - Not Detected
NA - Not Analyzed

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Results as Reported by the Laboratory

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IT GROUP

Client Sample ID: LMC-S001-0.0-0.3

GC/MS Volatiles

Lot-Sample #...: I9J070143-001	**Work Order #...:** D3CQE101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 09:50	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 03:31	
Dilution Factor: 1		
% Moisture.....: 22	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**82**	**26**	**ug/kg**
Acetonitrile	ND	130	ug/kg
Acrolein	ND	130	ug/kg
Acrylonitrile	ND	130	ug/kg
Allyl chloride	ND	13	ug/kg
Benzene	ND	6.4	ug/kg
Bromodichloromethane	ND	6.4	ug/kg
Bromoform	ND	6.4	ug/kg
Bromomethane	ND	13	ug/kg
2-Butanone (MEK)	ND	26	ug/kg
Carbon disulfide	ND	6.4	ug/kg
Carbon tetrachloride	ND	6.4	ug/kg
Chlorobenzene	ND	6.4	ug/kg
Chloroethane	ND	13	ug/kg
Chloroform	ND	6.4	ug/kg
Chloromethane	ND	13	ug/kg
Chloroprene	ND	13	ug/kg
Dibromochloromethane	ND	6.4	ug/kg
1,2-Dibromo-3-chloro-propane	ND	13	ug/kg
1,2-Dibromoethane (EDB)	ND	6.4	ug/kg
Dibromomethane	ND	6.4	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.4	ug/kg
Dichlorodifluoromethane	ND	13	ug/kg
1,1-Dichloroethane	ND	6.4	ug/kg
1,2-Dichloroethane	ND	6.4	ug/kg
1,1-Dichloroethene	ND	6.4	ug/kg
trans-1,2-Dichloroethene	ND	3.2	ug/kg
1,2-Dichloropropane	ND	6.4	ug/kg
cis-1,3-Dichloropropene	ND	6.4	ug/kg
trans-1,3-Dichloropropene	ND	6.4	ug/kg
1,4-Dioxane	ND	640	ug/kg
Ethylbenzene	ND	6.4	ug/kg
Ethyl methacrylate	ND	6.4	ug/kg
2-Hexanone	ND	26	ug/kg
Iodomethane	ND	6.4	ug/kg
Isobutyl alcohol	ND	260	ug/kg

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IT GROUP

Client Sample ID: LMC-S001-0.0-0.3

GC/MS Volatiles

Lot-Sample #...: I9J070143-001 Work Order #...: D3CQE101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.4	ug/kg
Methylene chloride	**7.4 B**	**6.4**	**ug/kg**
Methyl methacrylate	ND	6.4	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	26	ug/kg
Propionitrile	ND	26	ug/kg
Styrene	ND	6.4	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.4	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.4	ug/kg
Tetrachloroethene	ND	6.4	ug/kg
Toluene	ND	6.4	ug/kg
1,1,1-Trichloroethane	ND	6.4	ug/kg
1,1,2-Trichloroethane	ND	6.4	ug/kg
Trichloroethene	ND	6.4	ug/kg
Trichlorofluoromethane	ND	13	ug/kg
1,2,3-Trichloropropane	ND	6.4	ug/kg
Vinyl acetate	ND	13	ug/kg
Vinyl chloride	ND	6.4	ug/kg
Xylenes (total)	ND	6.4	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	105	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	108	(63 - 141)
1,2-Dichloroethane-d4	110	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC/MS Volatiles

Lot-Sample #...:	I9J070143-002	**Work Order #...:**	D3CQW101	**Matrix.....:**	SOLID
Date Sampled...:	10/06/99 11:30	**Date Received..:**	10/07/99	**MS Run #.....:**	9293085
Prep Date.....:	10/08/99	**Analysis Date..:**	10/20/99		
Prep Batch #...:	9293269	**Analysis Time..:**	03:57		
Dilution Factor:	1				
% Moisture.....:	23	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**35**	**26**	**ug/kg**
Acetonitrile	ND	130	ug/kg
Acrolein	ND	130	ug/kg
Acrylonitrile	ND	130	ug/kg
Allyl chloride	ND	13	ug/kg
Benzene	ND	6.5	ug/kg
Bromodichloromethane	ND	6.5	ug/kg
Bromoform	ND	6.5	ug/kg
Bromomethane	ND	13	ug/kg
2-Butanone (MEK)	ND	26	ug/kg
Carbon disulfide	ND	6.5	ug/kg
Carbon tetrachloride	ND	6.5	ug/kg
Chlorobenzene	ND	6.5	ug/kg
Chloroethane	ND	13	ug/kg
Chloroform	ND	6.5	ug/kg
Chloromethane	ND	13	ug/kg
Chloroprene	ND	13	ug/kg
Dibromochloromethane	ND	6.5	ug/kg
1,2-Dibromo-3-chloro-propane	ND	13	ug/kg
1,2-Dibromoethane (EDB)	ND	6.5	ug/kg
Dibromomethane	ND	6.5	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.5	ug/kg
Dichlorodifluoromethane	ND	13	ug/kg
1,1-Dichloroethane	ND	6.5	ug/kg
1,2-Dichloroethane	ND	6.5	ug/kg
1,1-Dichloroethene	ND	6.5	ug/kg
trans-1,2-Dichloroethene	ND	3.3	ug/kg
1,2-Dichloropropane	ND	6.5	ug/kg
cis-1,3-Dichloropropene	ND	6.5	ug/kg
trans-1,3-Dichloropropene	ND	6.5	ug/kg
1,4-Dioxane	ND	650	ug/kg
Ethylbenzene	ND	6.5	ug/kg
Ethyl methacrylate	ND	6.5	ug/kg
2-Hexanone	ND	26	ug/kg
Iodomethane	ND	6.5	ug/kg
Isobutyl alcohol	ND	260	ug/kg

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC/MS Volatiles

Lot-Sample #...: I9J070143-002 **Work Order #...:** D3CQW101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.5	ug/kg
Methylene chloride	**9.3 B**	**6.5**	**ug/kg**
Methyl methacrylate	ND	6.5	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	26	ug/kg
Propionitrile	ND	26	ug/kg
Styrene	ND	6.5	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.5	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.5	ug/kg
Tetrachloroethene	ND	6.5	ug/kg
Toluene	ND	6.5	ug/kg
1,1,1-Trichloroethane	ND	6.5	ug/kg
1,1,2-Trichloroethane	ND	6.5	ug/kg
Trichloroethene	ND	6.5	ug/kg
Trichlorofluoromethane	ND	13	ug/kg
1,2,3-Trichloropropane	ND	6.5	ug/kg
Vinyl acetate	ND	13	ug/kg
Vinyl chloride	ND	6.5	ug/kg
Xylenes (total)	ND	6.5	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	105	(42 - 183)
Toluene-d8	111	(69 - 128)
Dibromofluoromethane	109	(63 - 141)
1,2-Dichloroethane-d4	112	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-003	**Work Order #...:** D3CR1101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 08:05	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 04:24	
Dilution Factor: 1		
% Moisture.....: 16	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	24	ug/kg
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.0	ug/kg
Bromodichloromethane	ND	6.0	ug/kg
Bromoform	ND	6.0	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	24	ug/kg
Carbon disulfide	ND	6.0	ug/kg
Carbon tetrachloride	ND	6.0	ug/kg
Chlorobenzene	ND	6.0	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.0	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.0	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.0	ug/kg
Dibromomethane	ND	6.0	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.0	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.0	ug/kg
1,2-Dichloroethane	ND	6.0	ug/kg
1,1-Dichloroethene	ND	6.0	ug/kg
trans-1,2-Dichloroethene	ND	3.0	ug/kg
1,2-Dichloropropane	ND	6.0	ug/kg
cis-1,3-Dichloropropene	ND	6.0	ug/kg
trans-1,3-Dichloropropene	ND	6.0	ug/kg
1,4-Dioxane	ND	600	ug/kg
Ethylbenzene	ND	6.0	ug/kg
Ethyl methacrylate	ND	6.0	ug/kg
2-Hexanone	ND	24	ug/kg
Iodomethane	ND	6.0	ug/kg
Isobutyl alcohol	ND	240	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-003 **Work Order #...:** D3CR1101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.0	ug/kg
Methylene chloride	**8.4 B**	**6.0**	**ug/kg**
Methyl methacrylate	ND	6.0	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	24	ug/kg
Propionitrile	ND	24	ug/kg
Styrene	ND	6.0	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.0	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.0	ug/kg
Tetrachloroethene	ND	6.0	ug/kg
Toluene	ND	6.0	ug/kg
1,1,1-Trichloroethane	ND	6.0	ug/kg
1,1,2-Trichloroethane	ND	6.0	ug/kg
Trichloroethene	ND	6.0	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.0	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.0	ug/kg
Xylenes (total)	ND	6.0	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	104	(42 - 183)
Toluene-d8	115	(69 - 128)
Dibromofluoromethane	113	(63 - 141)
1,2-Dichloroethane-d4	114	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-004	**Work Order #...:** D3CR8101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 07:50	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 04:51	
Dilution Factor: 1		
% Moisture.....: 17	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**62**	**24**	**ug/kg**
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.0	ug/kg
Bromodichloromethane	ND	6.0	ug/kg
Bromoform	ND	6.0	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	24	ug/kg
Carbon disulfide	ND	6.0	ug/kg
Carbon tetrachloride	ND	6.0	ug/kg
Chlorobenzene	ND	6.0	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.0	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.0	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.0	ug/kg
Dibromomethane	ND	6.0	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.0	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.0	ug/kg
1,2-Dichloroethane	ND	6.0	ug/kg
1,1-Dichloroethene	**6.9**	**6.0**	**ug/kg**
trans-1,2-Dichloroethene	ND	3.0	ug/kg
1,2-Dichloropropane	ND	6.0	ug/kg
cis-1,3-Dichloropropene	ND	6.0	ug/kg
trans-1,3-Dichloropropene	ND	6.0	ug/kg
1,4-Dioxane	ND	600	ug/kg
Ethylbenzene	ND	6.0	ug/kg
Ethyl methacrylate	ND	6.0	ug/kg
2-Hexanone	ND	24	ug/kg
Iodomethane	**6.4**	**6.0**	**ug/kg**
Isobutyl alcohol	ND	240	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-004 Work Order #...: D3CR8101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.0	ug/kg
Methylene chloride	**7.6 B**	**6.0**	**ug/kg**
Methyl methacrylate	ND	6.0	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	24	ug/kg
Propionitrile	ND	24	ug/kg
Styrene	ND	6.0	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.0	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.0	ug/kg
Tetrachloroethene	ND	6.0	ug/kg
Toluene	ND	6.0	ug/kg
1,1,1-Trichloroethane	ND	6.0	ug/kg
1,1,2-Trichloroethane	ND	6.0	ug/kg
Trichloroethene	ND	6.0	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.0	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.0	ug/kg
Xylenes (total)	ND	6.0	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	107	(42 - 183)
Toluene-d8	111	(69 - 128)
Dibromofluoromethane	109	(63 - 141)
1,2-Dichloroethane-d4	111	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-005	**Work Order #...:** D3CRC101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 10:50	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 05:17	
Dilution Factor: 1		
% Moisture.....: 21	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**160**	**25**	**ug/kg**
Acetonitrile	ND	130	ug/kg
Acrolein	ND	130	ug/kg
Acrylonitrile	ND	130	ug/kg
Allyl chloride	ND	13	ug/kg
Benzene	ND	6.3	ug/kg
Bromodichloromethane	ND	6.3	ug/kg
Bromoform	ND	6.3	ug/kg
Bromomethane	ND	13	ug/kg
2-Butanone (MEK)	ND	25	ug/kg
Carbon disulfide	ND	6.3	ug/kg
Carbon tetrachloride	ND	6.3	ug/kg
Chlorobenzene	ND	6.3	ug/kg
Chloroethane	ND	13	ug/kg
Chloroform	ND	6.3	ug/kg
Chloromethane	ND	13	ug/kg
Chloroprene	ND	13	ug/kg
Dibromochloromethane	ND	6.3	ug/kg
1,2-Dibromo-3-chloro-propane	ND	13	ug/kg
1,2-Dibromoethane (EDB)	ND	6.3	ug/kg
Dibromomethane	ND	6.3	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.3	ug/kg
Dichlorodifluoromethane	ND	13	ug/kg
1,1-Dichloroethane	ND	6.3	ug/kg
1,2-Dichloroethane	ND	6.3	ug/kg
1,1-Dichloroethene	ND	6.3	ug/kg
trans-1,2-Dichloroethene	ND	3.2	ug/kg
1,2-Dichloropropane	ND	6.3	ug/kg
cis-1,3-Dichloropropene	ND	6.3	ug/kg
trans-1,3-Dichloropropene	ND	6.3	ug/kg
1,4-Dioxane	ND	630	ug/kg
Ethylbenzene	ND	6.3	ug/kg
Ethyl methacrylate	ND	6.3	ug/kg
2-Hexanone	ND	25	ug/kg
Iodomethane	ND	6.3	ug/kg
Isobutyl alcohol	ND	250	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-005 **Work Order #...:** D3CRC101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.3	ug/kg
Methylene chloride	**7.0 B**	**6.3**	**ug/kg**
Methyl methacrylate	ND	6.3	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	25	ug/kg
Propionitrile	ND	25	ug/kg
Styrene	ND	6.3	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.3	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.3	ug/kg
Tetrachloroethene	ND	6.3	ug/kg
Toluene	ND	6.3	ug/kg
1,1,1-Trichloroethane	ND	6.3	ug/kg
1,1,2-Trichloroethane	ND	6.3	ug/kg
Trichloroethene	ND	6.3	ug/kg
Trichlorofluoromethane	ND	13	ug/kg
1,2,3-Trichloropropane	ND	6.3	ug/kg
Vinyl acetate	ND	13	ug/kg
Vinyl chloride	ND	6.3	ug/kg
Xylenes (total)	ND	6.3	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	106	(42 - 183)
Toluene-d8	111	(69 - 128)
Dibromofluoromethane	109	(63 - 141)
1,2-Dichloroethane-d4	114	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-006	**Work Order #...:** D3CRD101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 11:00	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 05:44	
Dilution Factor: 1		
% Moisture.....: 24	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**180**	**26**	**ug/kg**
Acetonitrile	ND	130	ug/kg
Acrolein	ND	130	ug/kg
Acrylonitrile	ND	130	ug/kg
Allyl chloride	ND	13	ug/kg
Benzene	ND	6.6	ug/kg
Bromodichloromethane	ND	6.6	ug/kg
Bromoform	ND	6.6	ug/kg
Bromomethane	ND	13	ug/kg
2-Butanone (MEK)	ND	26	ug/kg
Carbon disulfide	ND	6.6	ug/kg
Carbon tetrachloride	ND	6.6	ug/kg
Chlorobenzene	ND	6.6	ug/kg
Chloroethane	ND	13	ug/kg
Chloroform	ND	6.6	ug/kg
Chloromethane	ND	13	ug/kg
Chloroprene	ND	13	ug/kg
Dibromochloromethane	ND	6.6	ug/kg
1,2-Dibromo-3-chloro-propane	ND	13	ug/kg
1,2-Dibromoethane (EDB)	ND	6.6	ug/kg
Dibromomethane	ND	6.6	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.6	ug/kg
Dichlorodifluoromethane	ND	13	ug/kg
1,1-Dichloroethane	ND	6.6	ug/kg
1,2-Dichloroethane	ND	6.6	ug/kg
1,1-Dichloroethene	**8.8**	**6.6**	**ug/kg**
trans-1,2-Dichloroethene	ND	3.3	ug/kg
1,2-Dichloropropane	ND	6.6	ug/kg
cis-1,3-Dichloropropene	ND	6.6	ug/kg
trans-1,3-Dichloropropene	ND	6.6	ug/kg
1,4-Dioxane	ND	660	ug/kg
Ethylbenzene	ND	6.6	ug/kg
Ethyl methacrylate	ND	6.6	ug/kg
2-Hexanone	ND	26	ug/kg
Iodomethane	**9.2**	**6.6**	**ug/kg**
Isobutyl alcohol	ND	260	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-006 **Work Order #...:** D3CRD101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.6	ug/kg
Methylene chloride	**10 B**	**6.6**	**ug/kg**
Methyl methacrylate	ND	6.6	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	26	ug/kg
Propionitrile	ND	26	ug/kg
Styrene	ND	6.6	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.6	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.6	ug/kg
Tetrachloroethene	ND	6.6	ug/kg
Toluene	ND	6.6	ug/kg
1,1,1-Trichloroethane	ND	6.6	ug/kg
1,1,2-Trichloroethane	ND	6.6	ug/kg
Trichloroethene	ND	6.6	ug/kg
Trichlorofluoromethane	ND	13	ug/kg
1,2,3-Trichloropropane	ND	6.6	ug/kg
Vinyl acetate	ND	13	ug/kg
Vinyl chloride	ND	6.6	ug/kg
Xylenes (total)	ND	6.6	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	107	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	108	(63 - 141)
1,2-Dichloroethane-d4	109	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-007	**Work Order #...:** D3CRH101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 09:00	**Date Received..:** 10/07/99	**MS Run #.....:** 9293085
Prep Date.....: 10/08/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9293269	**Analysis Time..:** 06:10	
Dilution Factor: 1		
% Moisture.....: 20	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**150**	**25**	**ug/kg**
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.2	ug/kg
Bromodichloromethane	ND	6.2	ug/kg
Bromoform	ND	6.2	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	25	ug/kg
Carbon disulfide	ND	6.2	ug/kg
Carbon tetrachloride	ND	6.2	ug/kg
Chlorobenzene	ND	6.2	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.2	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.2	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.2	ug/kg
Dibromomethane	ND	6.2	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.2	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.2	ug/kg
1,2-Dichloroethane	ND	6.2	ug/kg
1,1-Dichloroethene	ND	6.2	ug/kg
trans-1,2-Dichloroethene	ND	3.1	ug/kg
1,2-Dichloropropane	ND	6.2	ug/kg
cis-1,3-Dichloropropene	ND	6.2	ug/kg
trans-1,3-Dichloropropene	ND	6.2	ug/kg
1,4-Dioxane	ND	620	ug/kg
Ethylbenzene	ND	6.2	ug/kg
Ethyl methacrylate	ND	6.2	ug/kg
2-Hexanone	ND	25	ug/kg
Iodomethane	ND	6.2	ug/kg
Isobutyl alcohol	ND	250	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-007 Work Order #...: D3CRH101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.2	ug/kg
Methylene chloride	**7.7 B**	**6.2**	**ug/kg**
Methyl methacrylate	ND	6.2	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	25	ug/kg
Propionitrile	ND	25	ug/kg
Styrene	ND	6.2	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.2	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.2	ug/kg
Tetrachloroethene	ND	6.2	ug/kg
Toluene	ND	6.2	ug/kg
1,1,1-Trichloroethane	ND	6.2	ug/kg
1,1,2-Trichloroethane	ND	6.2	ug/kg
Trichloroethene	ND	6.2	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.2	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.2	ug/kg
Xylenes (total)	ND	6.2	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	105	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	109	(63 - 141)
1,2-Dichloroethane-d4	110	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Volatiles

Lot-Sample #...:	I9J070143-008	**Work Order #...:**	D3CRJ101	**Matrix.....:**	SOLID
Date Sampled...:	10/05/99 18:20	**Date Received..:**	10/07/99	**MS Run #.....:**	9291172
Prep Date.....:	10/08/99	**Analysis Date..:**	10/17/99		
Prep Batch #...:	9291417	**Analysis Time..:**	21:08		
Dilution Factor:	1				
% Moisture.....:	19	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**38**	**25**	**ug/kg**
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.2	ug/kg
Bromodichloromethane	ND	6.2	ug/kg
Bromoform	ND	6.2	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	25	ug/kg
Carbon disulfide	ND	6.2	ug/kg
Carbon tetrachloride	ND	6.2	ug/kg
Chlorobenzene	ND	6.2	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.2	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.2	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.2	ug/kg
Dibromomethane	ND	6.2	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.2	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.2	ug/kg
1,2-Dichloroethane	ND	6.2	ug/kg
1,1-Dichloroethene	ND	6.2	ug/kg
trans-1,2-Dichloroethene	ND	3.1	ug/kg
1,2-Dichloropropane	ND	6.2	ug/kg
cis-1,3-Dichloropropene	ND	6.2	ug/kg
trans-1,3-Dichloropropene	ND	6.2	ug/kg
1,4-Dioxane	ND	620	ug/kg
Ethylbenzene	ND	6.2	ug/kg
Ethyl methacrylate	ND	6.2	ug/kg
2-Hexanone	ND	25	ug/kg
Iodomethane	ND	6.2	ug/kg
Isobutyl alcohol	ND	250	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Volatiles

Lot-Sample #...: I9J070143-008 Work Order #...: D3CRJ101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.2	ug/kg
Methylene chloride	**11 B**	**6.2**	**ug/kg**
Methyl methacrylate	ND	6.2	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	25	ug/kg
Propionitrile	ND	25	ug/kg
Styrene	ND	6.2	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.2	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.2	ug/kg
Tetrachloroethene	ND	6.2	ug/kg
Toluene	ND	6.2	ug/kg
1,1,1-Trichloroethane	ND	6.2	ug/kg
1,1,2-Trichloroethane	ND	6.2	ug/kg
Trichloroethene	ND	6.2	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.2	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.2	ug/kg
Xylenes (total)	ND	6.2	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	108	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	106	(63 - 141)
1,2-Dichloroethane-d4	105	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Volatiles

Lot-Sample #...:	I9J070143-009	**Work Order #...:**	D3CT3101	**Matrix.....:**	SOLID
Date Sampled...:	10/05/99 18:20	**Date Received..:**	10/07/99	**MS Run #.....:**	9291172
Prep Date.....:	10/08/99	**Analysis Date..:**	10/17/99		
Prep Batch #...:	9291417	**Analysis Time..:**	22:28		
Dilution Factor:	1				
% Moisture.....:	20	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**71**	**25**	**ug/kg**
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.2	ug/kg
Bromodichloromethane	ND	6.2	ug/kg
Bromoform	ND	6.2	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	25	ug/kg
Carbon disulfide	ND	6.2	ug/kg
Carbon tetrachloride	ND	6.2	ug/kg
Chlorobenzene	ND	6.2	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.2	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.2	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.2	ug/kg
Dibromomethane	ND	6.2	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.2	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.2	ug/kg
1,2-Dichloroethane	ND	6.2	ug/kg
1,1-Dichloroethene	ND	6.2	ug/kg
trans-1,2-Dichloroethene	ND	3.1	ug/kg
1,2-Dichloropropane	ND	6.2	ug/kg
cis-1,3-Dichloropropene	ND	6.2	ug/kg
trans-1,3-Dichloropropene	ND	6.2	ug/kg
1,4-Dioxane	ND	620	ug/kg
Ethylbenzene	ND	6.2	ug/kg
Ethyl methacrylate	ND	6.2	ug/kg
2-Hexanone	ND	25	ug/kg
Iodomethane	ND	6.2	ug/kg
Isobutyl alcohol	ND	250	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Volatiles

Lot-Sample #...: I9J070143-009 Work Order #...: D3CT3101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.2	ug/kg
Methylene chloride	**9.2 B**	**6.2**	**ug/kg**
Methyl methacrylate	ND	6.2	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	25	ug/kg
Propionitrile	ND	25	ug/kg
Styrene	ND	6.2	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.2	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.2	ug/kg
Tetrachloroethene	ND	6.2	ug/kg
Toluene	ND	6.2	ug/kg
1,1,1-Trichloroethane	ND	6.2	ug/kg
1,1,2-Trichloroethane	ND	6.2	ug/kg
Trichloroethene	ND	6.2	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.2	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.2	ug/kg
Xylenes (total)	ND	6.2	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	107	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	107	(63 - 141)
1,2-Dichloroethane-d4	112	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-010	**Work Order #...:** D3CTA101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:30	**Date Received..:** 10/07/99	**MS Run #.....:** 9291172
Prep Date.....: 10/08/99	**Analysis Date..:** 10/17/99	
Prep Batch #...: 9291417	**Analysis Time..:** 22:55	
Dilution Factor: 1		
% Moisture.....: 21	**Method.....:** SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	25	ug/kg
Acetonitrile	ND	130	ug/kg
Acrolein	ND	130	ug/kg
Acrylonitrile	ND	130	ug/kg
Allyl chloride	ND	13	ug/kg
Benzene	ND	6.3	ug/kg
Bromodichloromethane	ND	6.3	ug/kg
Bromoform	ND	6.3	ug/kg
Bromomethane	ND	13	ug/kg
2-Butanone (MEK)	ND	25	ug/kg
Carbon disulfide	ND	6.3	ug/kg
Carbon tetrachloride	ND	6.3	ug/kg
Chlorobenzene	ND	6.3	ug/kg
Chloroethane	ND	13	ug/kg
Chloroform	ND	6.3	ug/kg
Chloromethane	ND	13	ug/kg
Chloroprene	ND	13	ug/kg
Dibromochloromethane	ND	6.3	ug/kg
1,2-Dibromo-3-chloro-propane	ND	13	ug/kg
1,2-Dibromoethane (EDB)	ND	6.3	ug/kg
Dibromomethane	ND	6.3	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.3	ug/kg
Dichlorodifluoromethane	ND	13	ug/kg
1,1-Dichloroethane	ND	6.3	ug/kg
1,2-Dichloroethane	ND	6.3	ug/kg
1,1-Dichloroethene	ND	6.3	ug/kg
trans-1,2-Dichloroethene	ND	3.2	ug/kg
1,2-Dichloropropane	ND	6.3	ug/kg
cis-1,3-Dichloropropene	ND	6.3	ug/kg
trans-1,3-Dichloropropene	ND	6.3	ug/kg
1,4-Dioxane	ND	630	ug/kg
Ethylbenzene	ND	6.3	ug/kg
Ethyl methacrylate	ND	6.3	ug/kg
2-Hexanone	ND	25	ug/kg
Iodomethane	ND	6.3	ug/kg
Isobutyl alcohol	ND	250	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-010 Work Order #...: D3CTA101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.3	ug/kg
Methylene chloride	**7.5 B**	**6.3**	**ug/kg**
Methyl methacrylate	ND	6.3	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	25	ug/kg
Propionitrile	ND	25	ug/kg
Styrene	ND	6.3	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.3	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.3	ug/kg
Tetrachloroethene	ND	6.3	ug/kg
Toluene	ND	6.3	ug/kg
1,1,1-Trichloroethane	ND	6.3	ug/kg
1,1,2-Trichloroethane	ND	6.3	ug/kg
Trichloroethene	ND	6.3	ug/kg
Trichlorofluoromethane	ND	13	ug/kg
1,2,3-Trichloropropane	ND	6.3	ug/kg
Vinyl acetate	ND	13	ug/kg
Vinyl chloride	ND	6.3	ug/kg
Xylenes (total)	ND	6.3	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	105	(42 - 183)
Toluene-d8	111	(69 - 128)
Dibromofluoromethane	108	(63 - 141)
1,2-Dichloroethane-d4	114	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Volatiles

Lot-Sample #...:	I9J070143-011	**Work Order #...:**	D3CWM101	**Matrix.....:**	SOLID
Date Sampled...:	10/06/99 09:10	**Date Received..:**	10/07/99	**MS Run #.....:**	9293085
Prep Date.....:	10/08/99	**Analysis Date..:**	10/20/99		
Prep Batch #...:	9293269	**Analysis Time..:**	09:43		
Dilution Factor:	1				
% Moisture.....:	18	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**40**	**24**	**ug/kg**
Acetonitrile	ND	120	ug/kg
Acrolein	ND	120	ug/kg
Acrylonitrile	ND	120	ug/kg
Allyl chloride	ND	12	ug/kg
Benzene	ND	6.1	ug/kg
Bromodichloromethane	ND	6.1	ug/kg
Bromoform	ND	6.1	ug/kg
Bromomethane	ND	12	ug/kg
2-Butanone (MEK)	ND	24	ug/kg
Carbon disulfide	ND	6.1	ug/kg
Carbon tetrachloride	ND	6.1	ug/kg
Chlorobenzene	ND	6.1	ug/kg
Chloroethane	ND	12	ug/kg
Chloroform	ND	6.1	ug/kg
Chloromethane	ND	12	ug/kg
Chloroprene	ND	12	ug/kg
Dibromochloromethane	ND	6.1	ug/kg
1,2-Dibromo-3-chloro-propane	ND	12	ug/kg
1,2-Dibromoethane (EDB)	ND	6.1	ug/kg
Dibromomethane	ND	6.1	ug/kg
trans-1,4-Dichloro-2-butene	ND	6.1	ug/kg
Dichlorodifluoromethane	ND	12	ug/kg
1,1-Dichloroethane	ND	6.1	ug/kg
1,2-Dichloroethane	ND	6.1	ug/kg
1,1-Dichloroethene	ND	6.1	ug/kg
trans-1,2-Dichloroethene	ND	3.0	ug/kg
1,2-Dichloropropane	ND	6.1	ug/kg
cis-1,3-Dichloropropene	ND	6.1	ug/kg
trans-1,3-Dichloropropene	ND	6.1	ug/kg
1,4-Dioxane	ND	610	ug/kg
Ethylbenzene	ND	6.1	ug/kg
Ethyl methacrylate	ND	6.1	ug/kg
2-Hexanone	ND	24	ug/kg
Iodomethane	ND	6.1	ug/kg
Isobutyl alcohol	ND	240	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Volatiles

Lot-Sample #...: I9J070143-011 **Work Order #...:** D3CWM101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	6.1	ug/kg
Methylene chloride	**8.3 B**	**6.1**	**ug/kg**
Methyl methacrylate	ND	6.1	ug/kg
4-Methyl-2-pentanone (MIBK)	ND	24	ug/kg
Propionitrile	ND	24	ug/kg
Styrene	ND	6.1	ug/kg
1,1,1,2-Tetrachloroethane	ND	6.1	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.1	ug/kg
Tetrachloroethene	ND	6.1	ug/kg
Toluene	ND	6.1	ug/kg
1,1,1-Trichloroethane	ND	6.1	ug/kg
1,1,2-Trichloroethane	ND	6.1	ug/kg
Trichloroethene	ND	6.1	ug/kg
Trichlorofluoromethane	ND	12	ug/kg
1,2,3-Trichloropropane	ND	6.1	ug/kg
Vinyl acetate	ND	12	ug/kg
Vinyl chloride	ND	6.1	ug/kg
Xylenes (total)	ND	6.1	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	106	(42 - 183)
Toluene-d8	110	(69 - 128)
Dibromofluoromethane	108	(63 - 141)
1,2-Dichloroethane-d4	113	(58 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

IT GROUP

Client Sample ID: TB-2789-16

GC/MS Volatiles

Lot-Sample #...: I9J070143-012 Work Order #...: D3DM2101 Matrix.....: WATER
Date Sampled...: 10/05/99 Date Received..: 10/07/99 MS Run #.....: 9292178
Prep Date.....: 10/18/99 Analysis Date..: 10/18/99
Prep Batch #...: 9292439 Analysis Time..: 17:20
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Acetonitrile	ND	100	ug/L
Acrolein	ND	100	ug/L
Acrylonitrile	ND	100	ug/L
Allyl chloride	ND	10	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	10	ug/L
2-Butanone (MEK)	ND	20	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	10	ug/L
Chloroprene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	10	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
trans-1,4-Dichloro-2-butene	ND	5.0	ug/L
Dichlorodifluoromethane	ND	10	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	2.5	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
1,4-Dioxane	ND	500	ug/L
Ethylbenzene	ND	5.0	ug/L
Ethyl methacrylate	ND	5.0	ug/L
2-Hexanone	ND	20	ug/L
Iodomethane	ND	5.0	ug/L
Isobutyl alcohol	ND	200	ug/L

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IT GROUP

Client Sample ID: TB-2789-16

GC/MS Volatiles

Lot-Sample #...: I9J070143-012 Work Order #...: D3DM2101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
Methyl methacrylate	ND	5.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND	20	ug/L
Propionitrile	ND	20	ug/L
Styrene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Trichlorofluoromethane	ND	10	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
Vinyl acetate	ND	10	ug/L
Vinyl chloride	ND	10	ug/L
Xylenes (total)	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	2.5	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	100	(86 - 115)
Toluene-d8	103	(88 - 110)
Dibromofluoromethane	103	(86 - 118)
1,2-Dichloroethane-d4	100	(80 - 120)

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IT GROUP

Client Sample ID: TB-2799-17

GC/MS Volatiles

Lot-Sample #...: I9J070143-013	**Work Order #...:** D3DM3101	**Matrix.....:** WATER
Date Sampled...: 10/06/99	**Date Received..:** 10/07/99	**MS Run #.....:** 9292178
Prep Date.....: 10/18/99	**Analysis Date..:** 10/18/99	
Prep Batch #...: 9292439	**Analysis Time..:** 17:46	
Dilution Factor: 1		
	Method.....: SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Acetonitrile	ND	100	ug/L
Acrolein	ND	100	ug/L
Acrylonitrile	ND	100	ug/L
Allyl chloride	ND	10	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	10	ug/L
2-Butanone (MEK)	ND	20	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	10	ug/L
Chloroprene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	10	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
trans-1,4-Dichloro-2-butene	ND	5.0	ug/L
Dichlorodifluoromethane	ND	10	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	2.5	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
1,4-Dioxane	ND	500	ug/L
Ethylbenzene	ND	5.0	ug/L
Ethyl methacrylate	ND	5.0	ug/L
2-Hexanone	ND	20	ug/L
Iodomethane	ND	5.0	ug/L
Isobutyl alcohol	ND	200	ug/L

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IT GROUP

Client Sample ID: TB-2799-17

GC/MS Volatiles

Lot-Sample #...: I9J070143-013 **Work Order #...:** D3DM3101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methacrylonitrile	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
Methyl methacrylate	ND	5.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND	20	ug/L
Propionitrile	ND	20	ug/L
Styrene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Trichlorofluoromethane	ND	10	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
Vinyl acetate	ND	10	ug/L
Vinyl chloride	ND	10	ug/L
Xylenes (total)	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	2.5	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	99	(86 - 115)
Toluene-d8	103	(88 - 110)
Dibromofluoromethane	101	(86 - 118)
1,2-Dichloroethane-d4	99	(80 - 120)

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-014	**Work Order #...:** D3HMN101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 10:50	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 18:34	
Dilution Factor: 1		
% Moisture.....: 25	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2100	ug/kg
Acenaphthene	ND	440	ug/kg
Acenaphthylene	ND	440	ug/kg
Acetophenone	ND	440	ug/kg
2-Acetylaminofluorene	ND	4400	ug/kg
4-Aminobiphenyl	ND	2100	ug/kg
Aniline	ND	440	ug/kg
Anthracene	ND	440	ug/kg
Aramite	ND	870	ug/kg
Benzo(a)anthracene	ND	440	ug/kg
Benzo(b)fluoranthene	ND	440	ug/kg
Benzo(k)fluoranthene	ND	440	ug/kg
Benzo(ghi)perylene	ND	440	ug/kg
Benzo(a)pyrene	ND	440	ug/kg
Benzyl alcohol	ND	440	ug/kg
bis(2-Chloroethoxy) methane	ND	440	ug/kg
bis(2-Chloroethyl)-ether	ND	440	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	440	ug/kg
bis(2-Ethylhexyl) phthalate	ND	440	ug/kg
4-Bromophenyl phenyl ether	ND	440	ug/kg
Butyl benzyl phthalate	ND	440	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	870	ug/kg
4-Chloroaniline	ND	440	ug/kg
Chlorobenzilate	ND	440	ug/kg
4-Chloro-3-methylphenol	ND	440	ug/kg
2-Chloronaphthalene	ND	440	ug/kg
2-Chlorophenol	ND	440	ug/kg
4-Chlorophenyl phenyl ether	ND	440	ug/kg
Chrysene	ND	440	ug/kg
Diallate	ND	870	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-014 Work Order #...: D3HMN101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	440	ug/kg
Dibenzofuran	ND	440	ug/kg
Di-n-butyl phthalate	ND	440	ug/kg
1,2-Dichlorobenzene	ND	440	ug/kg
1,3-Dichlorobenzene	ND	440	ug/kg
1,4-Dichlorobenzene	ND	440	ug/kg
3,3'-Dichlorobenzidine	ND	2100	ug/kg
2,4-Dichlorophenol	ND	440	ug/kg
2,6-Dichlorophenol	ND	440	ug/kg
Diethyl phthalate	ND	440	ug/kg
Dimethoate	ND	870	ug/kg
p-Dimethylaminoazobenzene	ND	870	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	870	ug/kg
3,3'-Dimethylbenzidine	ND	2100	ug/kg
2,4-Dimethylphenol	ND	440	ug/kg
Dimethyl phthalate	ND	440	ug/kg
1,3-Dinitrobenzene	ND	440	ug/kg
4,6-Dinitro-2-methylphenol	ND	2100	ug/kg
2,4-Dinitrophenol	ND	2100	ug/kg
2,4-Dinitrotoluene	ND	440	ug/kg
2,6-Dinitrotoluene	ND	440	ug/kg
Di-n-octyl phthalate	ND	440	ug/kg
Diphenylamine	ND	440	ug/kg
Disulfoton	ND	2100	ug/kg
Ethyl methanesulfonate	ND	440	ug/kg
Famphur	ND	4400	ug/kg
Fluoranthene	ND	440	ug/kg
Fluorene	ND	440	ug/kg
Hexachlorobenzene	ND	440	ug/kg
Hexachlorobutadiene	ND	440	ug/kg
Hexachlorocyclopenta-diene	ND	2100	ug/kg
Hexachloroethane	ND	440	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4400	ug/kg
Indeno(1,2,3-cd)pyrene	ND	440	ug/kg
Isodrin	ND	440	ug/kg
Isophorone	ND	440	ug/kg
Isosafrole	ND	870	ug/kg
Kepone	ND	4400	ug/kg
Methapyrilene	ND	2100	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-014 Work Order #...: D3HMN101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	870	ug/kg
Methyl methanesulfonate	ND	440	ug/kg
2-Methylnaphthalene	ND	440	ug/kg
Methyl parathion	ND	2100	ug/kg
2-Methylphenol	ND	440	ug/kg
Naphthalene	ND	440	ug/kg
1,4-Naphthoquinone	ND	2100	ug/kg
1-Naphthylamine	ND	440	ug/kg
2-Naphthylamine	ND	440	ug/kg
2-Nitroaniline	ND	2100	ug/kg
3-Nitroaniline	ND	2100	ug/kg
4-Nitroaniline	ND	2100	ug/kg
Nitrobenzene	ND	440	ug/kg
2-Nitrophenol	ND	440	ug/kg
4-Nitrophenol	ND	2100	ug/kg
4-Nitroquinoline-1-oxide	ND	4400	ug/kg
N-Nitrosodi-n-butylamine	ND	440	ug/kg
N-Nitrosodiethylamine	ND	440	ug/kg
N-Nitrosodimethylamine	ND	440	ug/kg
N-Nitrosodiphenylamine	ND	440	ug/kg
N-Nitrosodi-n-propyl-amine	ND	440	ug/kg
N-Nitrosomethylethylamine	ND	440	ug/kg
N-Nitrosomorpholine	ND	440	ug/kg
N-Nitrosopiperidine	ND	440	ug/kg
N-Nitrosopyrrolidine	ND	440	ug/kg
5-Nitro-o-toluidine	ND	870	ug/kg
Parathion	ND	2100	ug/kg
Pentachlorobenzene	ND	440	ug/kg
Pentachloroethane	ND	2100	ug/kg
Pentachloronitrobenzene	ND	2100	ug/kg
Pentachlorophenol	ND	2100	ug/kg
Phenacetin	ND	870	ug/kg
Phenanthrene	ND	440	ug/kg
Phenol	ND	440	ug/kg
p-Phenylene diamine	ND	4400	ug/kg
Phorate	ND	2100	ug/kg
2-Picoline	ND	870	ug/kg
Pronamide	ND	870	ug/kg
4-Methylphenol	ND	440	ug/kg
Pyrene	ND	440	ug/kg
Pyridine	ND	870	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-014 Work Order #...: D3HMN101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	870	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	440	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2100	ug/kg
Tetraethyldithiopyro-phosphate	ND	2100	ug/kg
Thionazin	ND	2100	ug/kg
o-Toluidine	ND	870	ug/kg
1,2,4-Trichlorobenzene	ND	440	ug/kg
2,4,5-Trichlorophenol	ND	440	ug/kg
2,4,6-Trichlorophenol	ND	440	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2100	ug/kg
1,3,5-Trinitrobenzene	ND	2100	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	64	(25 - 121)
Phenol-d5	67	(24 - 113)
Nitrobenzene-d5	60	(23 - 120)
2-Fluorobiphenyl	69	(30 - 115)
2,4,6-Tribromophenol	46	(19 - 122)
Terphenyl-d14	87	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-015	**Work Order #...:** D3HN5101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 11:00	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 20:29	
Dilution Factor: 1		
% Moisture.....: 21	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2000	ug/kg
Acenaphthene	ND	420	ug/kg
Acenaphthylene	ND	420	ug/kg
Acetophenone	ND	420	ug/kg
2-Acetylaminofluorene	ND	4200	ug/kg
4-Aminobiphenyl	ND	2000	ug/kg
Aniline	ND	420	ug/kg
Anthracene	ND	420	ug/kg
Aramite	ND	840	ug/kg
Benzo(a)anthracene	ND	420	ug/kg
Benzo(b)fluoranthene	ND	420	ug/kg
Benzo(k)fluoranthene	ND	420	ug/kg
Benzo(ghi)perylene	ND	420	ug/kg
Benzo(a)pyrene	ND	420	ug/kg
Benzyl alcohol	ND	420	ug/kg
bis(2-Chloroethoxy) methane	ND	420	ug/kg
bis(2-Chloroethyl)-ether	ND	420	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	420	ug/kg
bis(2-Ethylhexyl) phthalate	ND	420	ug/kg
4-Bromophenyl phenyl ether	ND	420	ug/kg
Butyl benzyl phthalate	ND	420	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	840	ug/kg
4-Chloroaniline	ND	420	ug/kg
Chlorobenzilate	ND	420	ug/kg
4-Chloro-3-methylphenol	ND	420	ug/kg
2-Chloronaphthalene	ND	420	ug/kg
2-Chlorophenol	ND	420	ug/kg
4-Chlorophenyl phenyl ether	ND	420	ug/kg
Chrysene	ND	420	ug/kg
Diallate	ND	840	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-015 Work Order #...: D3HN5101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	420	ug/kg
Dibenzofuran	ND	420	ug/kg
Di-n-butyl phthalate	ND	420	ug/kg
1,2-Dichlorobenzene	ND	420	ug/kg
1,3-Dichlorobenzene	ND	420	ug/kg
1,4-Dichlorobenzene	ND	420	ug/kg
3,3'-Dichlorobenzidine	ND	2000	ug/kg
2,4-Dichlorophenol	ND	420	ug/kg
2,6-Dichlorophenol	ND	420	ug/kg
Diethyl phthalate	ND	420	ug/kg
Dimethoate	ND	840	ug/kg
p-Dimethylaminoazobenzene	ND	840	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	840	ug/kg
3,3'-Dimethylbenzidine	ND	2000	ug/kg
2,4-Dimethylphenol	ND	420	ug/kg
Dimethyl phthalate	ND	420	ug/kg
1,3-Dinitrobenzene	ND	420	ug/kg
4,6-Dinitro-2-methylphenol	ND	2000	ug/kg
2,4-Dinitrophenol	ND	2000	ug/kg
2,4-Dinitrotoluene	ND	420	ug/kg
2,6-Dinitrotoluene	ND	420	ug/kg
Di-n-octyl phthalate	ND	420	ug/kg
Diphenylamine	ND	420	ug/kg
Disulfoton	ND	2000	ug/kg
Ethyl methanesulfonate	ND	420	ug/kg
Famphur	ND	4200	ug/kg
Fluoranthene	ND	420	ug/kg
Fluorene	ND	420	ug/kg
Hexachlorobenzene	ND	420	ug/kg
Hexachlorobutadiene	ND	420	ug/kg
Hexachlorocyclopentadiene	ND	2000	ug/kg
Hexachloroethane	ND	420	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4200	ug/kg
Indeno(1,2,3-cd)pyrene	ND	420	ug/kg
Isodrin	ND	420	ug/kg
Isophorone	ND	420	ug/kg
Isosafrole	ND	840	ug/kg
Kepone	ND	4200	ug/kg
Methapyrilene	ND	2000	ug/kg

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Client Sample ID: S2-HA01-0.5-1.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-015 Work Order #...: D3HN5101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	840	ug/kg
Methyl methanesulfonate	ND	420	ug/kg
2-Methylnaphthalene	ND	420	ug/kg
Methyl parathion	ND	2000	ug/kg
2-Methylphenol	ND	420	ug/kg
Naphthalene	ND	420	ug/kg
1,4-Naphthoquinone	ND	2000	ug/kg
1-Naphthylamine	ND	420	ug/kg
2-Naphthylamine	ND	420	ug/kg
2-Nitroaniline	ND	2000	ug/kg
3-Nitroaniline	ND	2000	ug/kg
4-Nitroaniline	ND	2000	ug/kg
Nitrobenzene	ND	420	ug/kg
2-Nitrophenol	ND	420	ug/kg
4-Nitrophenol	ND	2000	ug/kg
4-Nitroquinoline-1-oxide	ND	4200	ug/kg
N-Nitrosodi-n-butylamine	ND	420	ug/kg
N-Nitrosodiethylamine	ND	420	ug/kg
N-Nitrosodimethylamine	ND	420	ug/kg
N-Nitrosodiphenylamine	ND	420	ug/kg
N-Nitrosodi-n-propyl-amine	ND	420	ug/kg
N-Nitrosomethylethylamine	ND	420	ug/kg
N-Nitrosomorpholine	ND	420	ug/kg
N-Nitrosopiperidine	ND	420	ug/kg
N-Nitrosopyrrolidine	ND	420	ug/kg
5-Nitro-o-toluidine	ND	840	ug/kg
Parathion	ND	2000	ug/kg
Pentachlorobenzene	ND	420	ug/kg
Pentachloroethane	ND	2000	ug/kg
Pentachloronitrobenzene	ND	2000	ug/kg
Pentachlorophenol	ND	2000	ug/kg
Phenacetin	ND	840	ug/kg
Phenanthrene	ND	420	ug/kg
Phenol	ND	420	ug/kg
p-Phenylene diamine	ND	4200	ug/kg
Phorate	ND	2000	ug/kg
2-Picoline	ND	840	ug/kg
Pronamide	ND	840	ug/kg
4-Methylphenol	ND	420	ug/kg
Pyrene	ND	420	ug/kg
Pyridine	ND	840	ug/kg

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IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-015 Work Order #...: D3HN5101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	840	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	420	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2000	ug/kg
Tetraethyldithiopyro-phosphate	ND	2000	ug/kg
Thionazin	ND	2000	ug/kg
o-Toluidine	ND	840	ug/kg
1,2,4-Trichlorobenzene	ND	420	ug/kg
2,4,5-Trichlorophenol	ND	420	ug/kg
2,4,6-Trichlorophenol	ND	420	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2000	ug/kg
1,3,5-Trinitrobenzene	ND	2000	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	64	(25 - 121)
Phenol-d5	68	(24 - 113)
Nitrobenzene-d5	60	(23 - 120)
2-Fluorobiphenyl	68	(30 - 115)
2,4,6-Tribromophenol	46	(19 - 122)
Terphenyl-d14	90	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-016 **Work Order #...:** D3HN6101 **Matrix.....:** SOLID
Date Sampled...: 10/06/99 09:00 **Date Received..:** 10/11/99 **MS Run #.....:** 9287102
Prep Date.....: 10/14/99 **Analysis Date..:** 10/19/99
Prep Batch #...: 9287282 **Analysis Time..:** 20:57
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2000	ug/kg
Acenaphthene	ND	410	ug/kg
Acenaphthylene	ND	410	ug/kg
Acetophenone	ND	410	ug/kg
2-Acetylaminofluorene	ND	4100	ug/kg
4-Aminobiphenyl	ND	2000	ug/kg
Aniline	ND	410	ug/kg
Anthracene	ND	410	ug/kg
Aramite	ND	820	ug/kg
Benzo(a)anthracene	ND	410	ug/kg
Benzo(b)fluoranthene	ND	410	ug/kg
Benzo(k)fluoranthene	ND	410	ug/kg
Benzo(ghi)perylene	ND	410	ug/kg
Benzo(a)pyrene	ND	410	ug/kg
Benzyl alcohol	ND	410	ug/kg
bis(2-Chloroethoxy) methane	ND	410	ug/kg
bis(2-Chloroethyl)-ether	ND	410	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	410	ug/kg
bis(2-Ethylhexyl) phthalate	ND	410	ug/kg
4-Bromophenyl phenyl ether	ND	410	ug/kg
Butyl benzyl phthalate	ND	410	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	820	ug/kg
4-Chloroaniline	ND	410	ug/kg
Chlorobenzilate	ND	410	ug/kg
4-Chloro-3-methylphenol	ND	410	ug/kg
2-Chloronaphthalene	ND	410	ug/kg
2-Chlorophenol	ND	410	ug/kg
4-Chlorophenyl phenyl ether	ND	410	ug/kg
Chrysene	ND	410	ug/kg
Diallate	ND	820	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-016 Work Order #...: D3HN6101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	410	ug/kg
Dibenzofuran	ND	410	ug/kg
Di-n-butyl phthalate	ND	410	ug/kg
1,2-Dichlorobenzene	ND	410	ug/kg
1,3-Dichlorobenzene	ND	410	ug/kg
1,4-Dichlorobenzene	ND	410	ug/kg
3,3'-Dichlorobenzidine	ND	2000	ug/kg
2,4-Dichlorophenol	ND	410	ug/kg
2,6-Dichlorophenol	ND	410	ug/kg
Diethyl phthalate	ND	410	ug/kg
Dimethoate	ND	820	ug/kg
p-Dimethylaminoazobenzene	ND	820	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	820	ug/kg
3,3'-Dimethylbenzidine	ND	2000	ug/kg
2,4-Dimethylphenol	ND	410	ug/kg
Dimethyl phthalate	ND	410	ug/kg
1,3-Dinitrobenzene	ND	410	ug/kg
4,6-Dinitro-2-methylphenol	ND	2000	ug/kg
2,4-Dinitrophenol	ND	2000	ug/kg
2,4-Dinitrotoluene	ND	410	ug/kg
2,6-Dinitrotoluene	ND	410	ug/kg
Di-n-octyl phthalate	ND	410	ug/kg
Diphenylamine	ND	410	ug/kg
Disulfoton	ND	2000	ug/kg
Ethyl methanesulfonate	ND	410	ug/kg
Famphur	ND	4100	ug/kg
Fluoranthene	ND	410	ug/kg
Fluorene	ND	410	ug/kg
Hexachlorobenzene	ND	410	ug/kg
Hexachlorobutadiene	ND	410	ug/kg
Hexachlorocyclopentadiene	ND	2000	ug/kg
Hexachloroethane	ND	410	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4100	ug/kg
Indeno(1,2,3-cd)pyrene	ND	410	ug/kg
Isodrin	ND	410	ug/kg
Isophorone	ND	410	ug/kg
Isosafrole	ND	820	ug/kg
Kepone	ND	4100	ug/kg
Methapyrilene	ND	2000	ug/kg

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Client Sample ID: S2-HA02-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-016 **Work Order #...:** D3HN6101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	820	ug/kg
Methyl methanesulfonate	ND	410	ug/kg
2-Methylnaphthalene	ND	410	ug/kg
Methyl parathion	ND	2000	ug/kg
2-Methylphenol	ND	410	ug/kg
Naphthalene	ND	410	ug/kg
1,4-Naphthoquinone	ND	2000	ug/kg
1-Naphthylamine	ND	410	ug/kg
2-Naphthylamine	ND	410	ug/kg
2-Nitroaniline	ND	2000	ug/kg
3-Nitroaniline	ND	2000	ug/kg
4-Nitroaniline	ND	2000	ug/kg
Nitrobenzene	ND	410	ug/kg
2-Nitrophenol	ND	410	ug/kg
4-Nitrophenol	ND	2000	ug/kg
4-Nitroquinoline-1-oxide	ND	4100	ug/kg
N-Nitrosodi-n-butylamine	ND	410	ug/kg
N-Nitrosodiethylamine	ND	410	ug/kg
N-Nitrosodimethylamine	ND	410	ug/kg
N-Nitrosodiphenylamine	ND	410	ug/kg
N-Nitrosodi-n-propyl-amine	ND	410	ug/kg
N-Nitrosomethylethylamine	ND	410	ug/kg
N-Nitrosomorpholine	ND	410	ug/kg
N-Nitrosopiperidine	ND	410	ug/kg
N-Nitrosopyrrolidine	ND	410	ug/kg
5-Nitro-o-toluidine	ND	820	ug/kg
Parathion	ND	2000	ug/kg
Pentachlorobenzene	ND	410	ug/kg
Pentachloroethane	ND	2000	ug/kg
Pentachloronitrobenzene	ND	2000	ug/kg
Pentachlorophenol	ND	2000	ug/kg
Phenacetin	ND	820	ug/kg
Phenanthrene	ND	410	ug/kg
Phenol	ND	410	ug/kg
p-Phenylene diamine	ND	4100	ug/kg
Phorate	ND	2000	ug/kg
2-Picoline	ND	820	ug/kg
Pronamide	ND	820	ug/kg
4-Methylphenol	ND	410	ug/kg
Pyrene	ND	410	ug/kg
Pyridine	ND	820	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-016 **Work Order #...:** D3HN6101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	820	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	410	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2000	ug/kg
Tetraethyldithiopyro-phosphate	ND	2000	ug/kg
Thionazin	ND	2000	ug/kg
o-Toluidine	ND	820	ug/kg
1,2,4-Trichlorobenzene	ND	410	ug/kg
2,4,5-Trichlorophenol	ND	410	ug/kg
2,4,6-Trichlorophenol	ND	410	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2000	ug/kg
1,3,5-Trinitrobenzene	ND	2000	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	79	(25 - 121)
Phenol-d5	79	(24 - 113)
Nitrobenzene-d5	63	(23 - 120)
2-Fluorobiphenyl	75	(30 - 115)
2,4,6-Tribromophenol	64	(19 - 122)
Terphenyl-d14	88	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-017	**Work Order #...:** D3HN7101	**Matrix.....:** SOLID
Date Sampled...: 10/06/99 09:18	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 21:26	
Dilution Factor: 1		
% Moisture.....: 18	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2000	ug/kg
Acenaphthene	ND	400	ug/kg
Acenaphthylene	ND	400	ug/kg
Acetophenone	ND	400	ug/kg
2-Acetylaminofluorene	ND	4000	ug/kg
4-Aminobiphenyl	ND	2000	ug/kg
Aniline	ND	400	ug/kg
Anthracene	ND	400	ug/kg
Aramite	ND	810	ug/kg
Benzo(a)anthracene	ND	400	ug/kg
Benzo(b)fluoranthene	ND	400	ug/kg
Benzo(k)fluoranthene	ND	400	ug/kg
Benzo(ghi)perylene	ND	400	ug/kg
Benzo(a)pyrene	ND	400	ug/kg
Benzyl alcohol	ND	400	ug/kg
bis(2-Chloroethoxy) methane	ND	400	ug/kg
bis(2-Chloroethyl)-ether	ND	400	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	400	ug/kg
bis(2-Ethylhexyl) phthalate	ND	400	ug/kg
4-Bromophenyl phenyl ether	ND	400	ug/kg
Butyl benzyl phthalate	ND	400	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	810	ug/kg
4-Chloroaniline	ND	400	ug/kg
Chlorobenzilate	ND	400	ug/kg
4-Chloro-3-methylphenol	ND	400	ug/kg
2-Chloronaphthalene	ND	400	ug/kg
2-Chlorophenol	ND	400	ug/kg
4-Chlorophenyl phenyl ether	ND	400	ug/kg
Chrysene	ND	400	ug/kg
Diallate	ND	810	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-017 Work Order #...: D3HN7101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	400	ug/kg
Dibenzofuran	ND	400	ug/kg
Di-n-butyl phthalate	ND	400	ug/kg
1,2-Dichlorobenzene	ND	400	ug/kg
1,3-Dichlorobenzene	ND	400	ug/kg
1,4-Dichlorobenzene	ND	400	ug/kg
3,3'-Dichlorobenzidine	ND	2000	ug/kg
2,4-Dichlorophenol	ND	400	ug/kg
2,6-Dichlorophenol	ND	400	ug/kg
Diethyl phthalate	ND	400	ug/kg
Dimethoate	ND	810	ug/kg
p-Dimethylaminoazobenzene	ND	810	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	810	ug/kg
3,3'-Dimethylbenzidine	ND	2000	ug/kg
2,4-Dimethylphenol	ND	400	ug/kg
Dimethyl phthalate	ND	400	ug/kg
1,3-Dinitrobenzene	ND	400	ug/kg
4,6-Dinitro-2-methylphenol	ND	2000	ug/kg
2,4-Dinitrophenol	ND	2000	ug/kg
2,4-Dinitrotoluene	ND	400	ug/kg
2,6-Dinitrotoluene	ND	400	ug/kg
Di-n-octyl phthalate	ND	400	ug/kg
Diphenylamine	ND	400	ug/kg
Disulfoton	ND	2000	ug/kg
Ethyl methanesulfonate	ND	400	ug/kg
Famphur	ND	4000	ug/kg
Fluoranthene	ND	400	ug/kg
Fluorene	ND	400	ug/kg
Hexachlorobenzene	ND	400	ug/kg
Hexachlorobutadiene	ND	400	ug/kg
Hexachlorocyclopenta-diene	ND	2000	ug/kg
Hexachloroethane	ND	400	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4000	ug/kg
Indeno(1,2,3-cd)pyrene	ND	400	ug/kg
Isodrin	ND	400	ug/kg
Isophorone	ND	400	ug/kg
Isosafrole	ND	810	ug/kg
Kepone	ND	4000	ug/kg
Methapyrilene	ND	2000	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-017 **Work Order #...:** D3HN7101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	810	ug/kg
Methyl methanesulfonate	ND	400	ug/kg
2-Methylnaphthalene	ND	400	ug/kg
Methyl parathion	ND	2000	ug/kg
2-Methylphenol	ND	400	ug/kg
Naphthalene	ND	400	ug/kg
1,4-Naphthoquinone	ND	2000	ug/kg
1-Naphthylamine	ND	400	ug/kg
2-Naphthylamine	ND	400	ug/kg
2-Nitroaniline	ND	2000	ug/kg
3-Nitroaniline	ND	2000	ug/kg
4-Nitroaniline	ND	2000	ug/kg
Nitrobenzene	ND	400	ug/kg
2-Nitrophenol	ND	400	ug/kg
4-Nitrophenol	ND	2000	ug/kg
4-Nitroquinoline-1-oxide	ND	4000	ug/kg
N-Nitrosodi-n-butylamine	ND	400	ug/kg
N-Nitrosodiethylamine	ND	400	ug/kg
N-Nitrosodimethylamine	ND	400	ug/kg
N-Nitrosodiphenylamine	ND	400	ug/kg
N-Nitrosodi-n-propylamine	ND	400	ug/kg
N-Nitrosomethylethylamine	ND	400	ug/kg
N-Nitrosomorpholine	ND	400	ug/kg
N-Nitrosopiperidine	ND	400	ug/kg
N-Nitrosopyrrolidine	ND	400	ug/kg
5-Nitro-o-toluidine	ND	810	ug/kg
Parathion	ND	2000	ug/kg
Pentachlorobenzene	ND	400	ug/kg
Pentachloroethane	ND	2000	ug/kg
Pentachloronitrobenzene	ND	2000	ug/kg
Pentachlorophenol	ND	2000	ug/kg
Phenacetin	ND	810	ug/kg
Phenanthrene	ND	400	ug/kg
Phenol	ND	400	ug/kg
p-Phenylene diamine	ND	4000	ug/kg
Phorate	ND	2000	ug/kg
2-Picoline	ND	810	ug/kg
Pronamide	ND	810	ug/kg
4-Methylphenol	ND	400	ug/kg
Pyrene	ND	400	ug/kg
Pyridine	ND	810	ug/kg

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-017 **Work Order #...:** D3HN7101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	810	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	400	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2000	ug/kg
Tetraethyldithiopyro-phosphate	ND	2000	ug/kg
Thionazin	ND	2000	ug/kg
o-Toluidine	ND	810	ug/kg
1,2,4-Trichlorobenzene	ND	400	ug/kg
2,4,5-Trichlorophenol	ND	400	ug/kg
2,4,6-Trichlorophenol	ND	400	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2000	ug/kg
1,3,5-Trinitrobenzene	ND	2000	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(25 - 121)
Phenol-d5	74	(24 - 113)
Nitrobenzene-d5	60	(23 - 120)
2-Fluorobiphenyl	70	(30 - 115)
2,4,6-Tribromophenol	60	(19 - 122)
Terphenyl-d14	86	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-018	**Work Order #...:** D3HN8101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:20	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 17:07	
Dilution Factor: 1		
% Moisture.....: 18	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2000	ug/kg
Acenaphthene	ND	400	ug/kg
Acenaphthylene	ND	400	ug/kg
Acetophenone	ND	400	ug/kg
2-Acetylaminofluorene	ND	4000	ug/kg
4-Aminobiphenyl	ND	2000	ug/kg
Aniline	ND	400	ug/kg
Anthracene	ND	400	ug/kg
Aramite	ND	810	ug/kg
Benzo(a)anthracene	ND	400	ug/kg
Benzo(b)fluoranthene	ND	400	ug/kg
Benzo(k)fluoranthene	ND	400	ug/kg
Benzo(ghi)perylene	ND	400	ug/kg
Benzo(a)pyrene	ND	400	ug/kg
Benzyl alcohol	ND	400	ug/kg
bis(2-Chloroethoxy) methane	ND	400	ug/kg
bis(2-Chloroethyl)-ether	ND	400	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	400	ug/kg
bis(2-Ethylhexyl) phthalate	ND	400	ug/kg
4-Bromophenyl phenyl ether	ND	400	ug/kg
Butyl benzyl phthalate	ND	400	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	810	ug/kg
4-Chloroaniline	ND	400	ug/kg
Chlorobenzilate	ND	400	ug/kg
4-Chloro-3-methylphenol	ND	400	ug/kg
2-Chloronaphthalene	ND	400	ug/kg
2-Chlorophenol	ND	400	ug/kg
4-Chlorophenyl phenyl ether	ND	400	ug/kg
Chrysene	ND	400	ug/kg
Diallate	ND	810	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-018 Work Order #...: D3HN8101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	400	ug/kg
Dibenzofuran	ND	400	ug/kg
Di-n-butyl phthalate	ND	400	ug/kg
1,2-Dichlorobenzene	ND	400	ug/kg
1,3-Dichlorobenzene	ND	400	ug/kg
1,4-Dichlorobenzene	ND	400	ug/kg
3,3'-Dichlorobenzidine	ND	2000	ug/kg
2,4-Dichlorophenol	ND	400	ug/kg
2,6-Dichlorophenol	ND	400	ug/kg
Diethyl phthalate	ND	400	ug/kg
Dimethoate	ND	810	ug/kg
p-Dimethylaminoazobenzene	ND	810	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	810	ug/kg
3,3'-Dimethylbenzidine	ND	2000	ug/kg
2,4-Dimethylphenol	ND	400	ug/kg
Dimethyl phthalate	ND	400	ug/kg
1,3-Dinitrobenzene	ND	400	ug/kg
4,6-Dinitro-2-methylphenol	ND	2000	ug/kg
2,4-Dinitrophenol	ND	2000	ug/kg
2,4-Dinitrotoluene	ND	400	ug/kg
2,6-Dinitrotoluene	ND	400	ug/kg
Di-n-octyl phthalate	ND	400	ug/kg
Diphenylamine	ND	400	ug/kg
Disulfoton	ND	2000	ug/kg
Ethyl methanesulfonate	ND	400	ug/kg
Famphur	ND	4000	ug/kg
Fluoranthene	ND	400	ug/kg
Fluorene	ND	400	ug/kg
Hexachlorobenzene	ND	400	ug/kg
Hexachlorobutadiene	ND	400	ug/kg
Hexachlorocyclopenta-diene	ND	2000	ug/kg
Hexachloroethane	ND	400	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4000	ug/kg
Indeno(1,2,3-cd)pyrene	ND	400	ug/kg
Isodrin	ND	400	ug/kg
Isophorone	ND	400	ug/kg
Isosafrole	ND	810	ug/kg
Kepone	ND	4000	ug/kg
Methapyrilene	ND	2000	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-018 **Work Order #...:** D3HN8101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	810	ug/kg
Methyl methanesulfonate	ND	400	ug/kg
2-Methylnaphthalene	ND	400	ug/kg
Methyl parathion	ND	2000	ug/kg
2-Methylphenol	ND	400	ug/kg
Naphthalene	ND	400	ug/kg
1,4-Naphthoquinone	ND	2000	ug/kg
1-Naphthylamine	ND	400	ug/kg
2-Naphthylamine	ND	400	ug/kg
2-Nitroaniline	ND	2000	ug/kg
3-Nitroaniline	ND	2000	ug/kg
4-Nitroaniline	ND	2000	ug/kg
Nitrobenzene	ND	400	ug/kg
2-Nitrophenol	ND	400	ug/kg
4-Nitrophenol	ND	2000	ug/kg
4-Nitroquinoline-1-oxide	ND	4000	ug/kg
N-Nitrosodi-n-butylamine	ND	400	ug/kg
N-Nitrosodiethylamine	ND	400	ug/kg
N-Nitrosodimethylamine	ND	400	ug/kg
N-Nitrosodiphenylamine	ND	400	ug/kg
N-Nitrosodi-n-propyl-amine	ND	400	ug/kg
N-Nitrosomethylethylamine	ND	400	ug/kg
N-Nitrosomorpholine	ND	400	ug/kg
N-Nitrosopiperidine	ND	400	ug/kg
N-Nitrosopyrrolidine	ND	400	ug/kg
5-Nitro-o-toluidine	ND	810	ug/kg
Parathion	ND	2000	ug/kg
Pentachlorobenzene	ND	400	ug/kg
Pentachloroethane	ND	2000	ug/kg
Pentachloronitrobenzene	ND	2000	ug/kg
Pentachlorophenol	ND	2000	ug/kg
Phenacetin	ND	810	ug/kg
Phenanthrene	ND	400	ug/kg
Phenol	ND	400	ug/kg
p-Phenylene diamine	ND	4000	ug/kg
Phorate	ND	2000	ug/kg
2-Picoline	ND	810	ug/kg
Pronamide	ND	810	ug/kg
4-Methylphenol	ND	400	ug/kg
Pyrene	ND	400	ug/kg
Pyridine	ND	810	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-018 Work Order #...: D3HN8101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	810	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	400	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2000	ug/kg
Tetraethyldithiopyro-phosphate	ND	2000	ug/kg
Thionazin	ND	2000	ug/kg
o-Toluidine	ND	810	ug/kg
1,2,4-Trichlorobenzene	ND	400	ug/kg
2,4,5-Trichlorophenol	ND	400	ug/kg
2,4,6-Trichlorophenol	ND	400	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2000	ug/kg
1,3,5-Trinitrobenzene	ND	2000	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(25 - 121)
Phenol-d5	68	(24 - 113)
Nitrobenzene-d5	52	(23 - 120)
2-Fluorobiphenyl	59	(30 - 115)
2,4,6-Tribromophenol	58	(19 - 122)
Terphenyl-d14	89	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-019	**Work Order #...:** D3HN9101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:20	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/20/99	
Prep Batch #...: 9287282	**Analysis Time..:** 23:48	
Dilution Factor: 1		
% Moisture.....: 16	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	1900	ug/kg
Acenaphthene	ND	390	ug/kg
Acenaphthylene	ND	390	ug/kg
Acetophenone	ND	390	ug/kg
2-Acetylaminofluorene	ND	3900	ug/kg
4-Aminobiphenyl	ND	1900	ug/kg
Aniline	ND	390	ug/kg
Anthracene	ND	390	ug/kg
Aramite	ND	790	ug/kg
Benzo(a)anthracene	ND	390	ug/kg
Benzo(b)fluoranthene	ND	390	ug/kg
Benzo(k)fluoranthene	ND	390	ug/kg
Benzo(ghi)perylene	ND	390	ug/kg
Benzo(a)pyrene	ND	390	ug/kg
Benzyl alcohol	ND	390	ug/kg
bis(2-Chloroethoxy) methane	ND	390	ug/kg
bis(2-Chloroethyl)-ether	ND	390	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	390	ug/kg
bis(2-Ethylhexyl) phthalate	ND	390	ug/kg
4-Bromophenyl phenyl ether	ND	390	ug/kg
Butyl benzyl phthalate	ND	390	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	790	ug/kg
4-Chloroaniline	ND	390	ug/kg
Chlorobenzilate	ND	390	ug/kg
4-Chloro-3-methylphenol	ND	390	ug/kg
2-Chloronaphthalene	ND	390	ug/kg
2-Chlorophenol	ND	390	ug/kg
4-Chlorophenyl phenyl ether	ND	390	ug/kg
Chrysene	ND	390	ug/kg
Diallate	ND	790	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-019 Work Order #...: D3HN9101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	390	ug/kg
Dibenzofuran	ND	390	ug/kg
Di-n-butyl phthalate	ND	390	ug/kg
1,2-Dichlorobenzene	ND	390	ug/kg
1,3-Dichlorobenzene	ND	390	ug/kg
1,4-Dichlorobenzene	ND	390	ug/kg
3,3'-Dichlorobenzidine	ND	1900	ug/kg
2,4-Dichlorophenol	ND	390	ug/kg
2,6-Dichlorophenol	ND	390	ug/kg
Diethyl phthalate	ND	390	ug/kg
Dimethoate	ND	790	ug/kg
p-Dimethylaminoazobenzene	ND	790	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	790	ug/kg
3,3'-Dimethylbenzidine	ND	1900	ug/kg
2,4-Dimethylphenol	ND	390	ug/kg
Dimethyl phthalate	ND	390	ug/kg
1,3-Dinitrobenzene	ND	390	ug/kg
4,6-Dinitro-2-methylphenol	ND	1900	ug/kg
2,4-Dinitrophenol	ND	1900	ug/kg
2,4-Dinitrotoluene	ND	390	ug/kg
2,6-Dinitrotoluene	ND	390	ug/kg
Di-n-octyl phthalate	ND	390	ug/kg
Diphenylamine	ND	390	ug/kg
Disulfoton	ND	1900	ug/kg
Ethyl methanesulfonate	ND	390	ug/kg
Famphur	ND	3900	ug/kg
Fluoranthene	ND	390	ug/kg
Fluorene	ND	390	ug/kg
Hexachlorobenzene	ND	390	ug/kg
Hexachlorobutadiene	ND	390	ug/kg
Hexachlorocyclopenta-diene	ND	1900	ug/kg
Hexachloroethane	ND	390	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	3900	ug/kg
Indeno(1,2,3-cd)pyrene	ND	390	ug/kg
Isodrin	ND	390	ug/kg
Isophorone	ND	390	ug/kg
Isosafrole	ND	790	ug/kg
Kepone	ND	3900	ug/kg
Methapyrilene	ND	1900	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-019 **Work Order #...:** D3HN9101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	790	ug/kg
Methyl methanesulfonate	ND	390	ug/kg
2-Methylnaphthalene	ND	390	ug/kg
Methyl parathion	ND	1900	ug/kg
2-Methylphenol	ND	390	ug/kg
Naphthalene	ND	390	ug/kg
1,4-Naphthoquinone	ND	1900	ug/kg
1-Naphthylamine	ND	390	ug/kg
2-Naphthylamine	ND	390	ug/kg
2-Nitroaniline	ND	1900	ug/kg
3-Nitroaniline	ND	1900	ug/kg
4-Nitroaniline	ND	1900	ug/kg
Nitrobenzene	ND	390	ug/kg
2-Nitrophenol	ND	390	ug/kg
4-Nitrophenol	ND	1900	ug/kg
4-Nitroquinoline-1-oxide	ND	3900	ug/kg
N-Nitrosodi-n-butylamine	ND	390	ug/kg
N-Nitrosodiethylamine	ND	390	ug/kg
N-Nitrosodimethylamine	ND	390	ug/kg
N-Nitrosodiphenylamine	ND	390	ug/kg
N-Nitrosodi-n-propyl-amine	ND	390	ug/kg
N-Nitrosomethylethylamine	ND	390	ug/kg
N-Nitrosomorpholine	ND	390	ug/kg
N-Nitrosopiperidine	ND	390	ug/kg
N-Nitrosopyrrolidine	ND	390	ug/kg
5-Nitro-o-toluidine	ND	790	ug/kg
Parathion	ND	1900	ug/kg
Pentachlorobenzene	ND	390	ug/kg
Pentachloroethane	ND	1900	ug/kg
Pentachloronitrobenzene	ND	1900	ug/kg
Pentachlorophenol	ND	1900	ug/kg
Phenacetin	ND	790	ug/kg
Phenanthrene	ND	390	ug/kg
Phenol	ND	390	ug/kg
p-Phenylene diamine	ND	3900	ug/kg
Phorate	ND	1900	ug/kg
2-Picoline	ND	790	ug/kg
Pronamide	ND	790	ug/kg
4-Methylphenol	ND	390	ug/kg
Pyrene	ND	390	ug/kg
Pyridine	ND	790	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-019 **Work Order #...:** D3HN9101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	790	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	390	ug/kg
2,3,4,6-Tetrachlorophenol	ND	1900	ug/kg
Tetraethyldithiopyro-phosphate	ND	1900	ug/kg
Thionazin	ND	1900	ug/kg
o-Toluidine	ND	790	ug/kg
1,2,4-Trichlorobenzene	ND	390	ug/kg
2,4,5-Trichlorophenol	ND	390	ug/kg
2,4,6-Trichlorophenol	ND	390	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	1900	ug/kg
1,3,5-Trinitrobenzene	ND	1900	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	63	(25 - 121)
Phenol-d5	66	(24 - 113)
Nitrobenzene-d5	54	(23 - 120)
2-Fluorobiphenyl	57	(30 - 115)
2,4,6-Tribromophenol	66	(19 - 122)
Terphenyl-d14	86	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-020	**Work Order #...:** D3HNC101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:30	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 19:02	
Dilution Factor: 1		
% Moisture.....: 21	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2000	ug/kg
Acenaphthene	ND	420	ug/kg
Acenaphthylene	ND	420	ug/kg
Acetophenone	ND	420	ug/kg
2-Acetylaminofluorene	ND	4200	ug/kg
4-Aminobiphenyl	ND	2000	ug/kg
Aniline	ND	420	ug/kg
Anthracene	ND	420	ug/kg
Aramite	ND	830	ug/kg
Benzo(a)anthracene	ND	420	ug/kg
Benzo(b)fluoranthene	ND	420	ug/kg
Benzo(k)fluoranthene	ND	420	ug/kg
enzo(ghi)perylene	ND	420	ug/kg
Benzo(a)pyrene	ND	420	ug/kg
Benzyl alcohol	ND	420	ug/kg
bis(2-Chloroethoxy) methane	ND	420	ug/kg
bis(2-Chloroethyl)-ether	ND	420	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	420	ug/kg
bis(2-Ethylhexyl) phthalate	ND	420	ug/kg
4-Bromophenyl phenyl ether	ND	420	ug/kg
Butyl benzyl phthalate	ND	420	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	830	ug/kg
4-Chloroaniline	ND	420	ug/kg
Chlorobenzilate	ND	420	ug/kg
4-Chloro-3-methylphenol	ND	420	ug/kg
2-Chloronaphthalene	ND	420	ug/kg
2-Chlorophenol	ND	420	ug/kg
4-Chlorophenyl phenyl ether	ND	420	ug/kg
Chrysene	ND	420	ug/kg
Diallate	ND	830	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-020 Work Order #...: D3HNC101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	420	ug/kg
Dibenzofuran	ND	420	ug/kg
Di-n-butyl phthalate	ND	420	ug/kg
1,2-Dichlorobenzene	ND	420	ug/kg
1,3-Dichlorobenzene	ND	420	ug/kg
1,4-Dichlorobenzene	ND	420	ug/kg
3,3'-Dichlorobenzidine	ND	2000	ug/kg
2,4-Dichlorophenol	ND	420	ug/kg
2,6-Dichlorophenol	ND	420	ug/kg
Diethyl phthalate	ND	420	ug/kg
Dimethoate	ND	830	ug/kg
p-Dimethylaminoazobenzene	ND	830	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	830	ug/kg
3,3'-Dimethylbenzidine	ND	2000	ug/kg
2,4-Dimethylphenol	ND	420	ug/kg
Dimethyl phthalate	ND	420	ug/kg
1,3-Dinitrobenzene	ND	420	ug/kg
4,6-Dinitro-2-methylphenol	ND	2000	ug/kg
2,4-Dinitrophenol	ND	2000	ug/kg
2,4-Dinitrotoluene	ND	420	ug/kg
2,6-Dinitrotoluene	ND	420	ug/kg
Di-n-octyl phthalate	ND	420	ug/kg
Diphenylamine	ND	420	ug/kg
Disulfoton	ND	2000	ug/kg
Ethyl methanesulfonate	ND	420	ug/kg
Famphur	ND	4200	ug/kg
Fluoranthene	ND	420	ug/kg
Fluorene	ND	420	ug/kg
Hexachlorobenzene	ND	420	ug/kg
Hexachlorobutadiene	ND	420	ug/kg
Hexachlorocyclopenta-diene	ND	2000	ug/kg
Hexachloroethane	ND	420	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4200	ug/kg
Indeno(1,2,3-cd)pyrene	ND	420	ug/kg
Isodrin	ND	420	ug/kg
Isophorone	ND	420	ug/kg
Isosafrole	ND	830	ug/kg
Kepone	ND	4200	ug/kg
Methapyrilene	ND	2000	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-020 **Work Order #...:** D3HNC101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	830	ug/kg
Methyl methanesulfonate	ND	420	ug/kg
2-Methylnaphthalene	ND	420	ug/kg
Methyl parathion	ND	2000	ug/kg
2-Methylphenol	ND	420	ug/kg
Naphthalene	ND	420	ug/kg
1,4-Naphthoquinone	ND	2000	ug/kg
1-Naphthylamine	ND	420	ug/kg
2-Naphthylamine	ND	420	ug/kg
2-Nitroaniline	ND	2000	ug/kg
3-Nitroaniline	ND	2000	ug/kg
4-Nitroaniline	ND	2000	ug/kg
Nitrobenzene	ND	420	ug/kg
2-Nitrophenol	ND	420	ug/kg
4-Nitrophenol	ND	2000	ug/kg
4-Nitroquinoline-1-oxide	ND	4200	ug/kg
N-Nitrosodi-n-butylamine	ND	420	ug/kg
N-Nitrosodiethylamine	ND	420	ug/kg
N-Nitrosodimethylamine	ND	420	ug/kg
N-Nitrosodiphenylamine	ND	420	ug/kg
N-Nitrosodi-n-propyl-amine	ND	420	ug/kg
N-Nitrosomethylethylamine	ND	420	ug/kg
N-Nitrosomorpholine	ND	420	ug/kg
N-Nitrosopiperidine	ND	420	ug/kg
N-Nitrosopyrrolidine	ND	420	ug/kg
5-Nitro-o-toluidine	ND	830	ug/kg
Parathion	ND	2000	ug/kg
Pentachlorobenzene	ND	420	ug/kg
Pentachloroethane	ND	2000	ug/kg
Pentachloronitrobenzene	ND	2000	ug/kg
Pentachlorophenol	ND	2000	ug/kg
Phenacetin	ND	830	ug/kg
Phenanthrene	ND	420	ug/kg
Phenol	ND	420	ug/kg
p-Phenylene diamine	ND	4200	ug/kg
Phorate	ND	2000	ug/kg
2-Picoline	ND	830	ug/kg
Pronamide	ND	830	ug/kg
4-Methylphenol	ND	420	ug/kg
Pyrene	ND	420	ug/kg
Pyridine	ND	830	ug/kg

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-020 **Work Order #...:** D3HNC101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	830	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	420	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2000	ug/kg
Tetraethyldithiopyro-phosphate	ND	2000	ug/kg
Thionazin	ND	2000	ug/kg
o-Toluidine	ND	830	ug/kg
1,2,4-Trichlorobenzene	ND	420	ug/kg
2,4,5-Trichlorophenol	ND	420	ug/kg
2,4,6-Trichlorophenol	ND	420	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2000	ug/kg
1,3,5-Trinitrobenzene	ND	2000	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(25 - 121)
Phenol-d5	68	(24 - 113)
Nitrobenzene-d5	53	(23 - 120)
2-Fluorobiphenyl	61	(30 - 115)
2,4,6-Tribromophenol	52	(19 - 122)
Terphenyl-d14	84	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-021	**Work Order #...:** D3HNG101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 19:50	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 19:31	
Dilution Factor: 1		
% Moisture.....: 16	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	1900	ug/kg
Acenaphthene	ND	390	ug/kg
Acenaphthylene	ND	390	ug/kg
Acetophenone	ND	390	ug/kg
2-Acetylaminofluorene	ND	3900	ug/kg
4-Aminobiphenyl	ND	1900	ug/kg
Aniline	ND	390	ug/kg
Anthracene	ND	390	ug/kg
Aramite	ND	790	ug/kg
Benzo(a)anthracene	ND	390	ug/kg
Benzo(b)fluoranthene	ND	390	ug/kg
Benzo(k)fluoranthene	ND	390	ug/kg
enzo(ghi)perylene	ND	390	ug/kg
Benzo(a)pyrene	ND	390	ug/kg
Benzyl alcohol	ND	390	ug/kg
bis(2-Chloroethoxy) methane	ND	390	ug/kg
bis(2-Chloroethyl)-ether	ND	390	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	390	ug/kg
bis(2-Ethylhexyl) phthalate	ND	390	ug/kg
4-Bromophenyl phenyl ether	ND	390	ug/kg
Butyl benzyl phthalate	ND	390	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	790	ug/kg
4-Chloroaniline	ND	390	ug/kg
Chlorobenzilate	ND	390	ug/kg
4-Chloro-3-methylphenol	ND	390	ug/kg
2-Chloronaphthalene	ND	390	ug/kg
2-Chlorophenol	ND	390	ug/kg
4-Chlorophenyl phenyl ether	ND	390	ug/kg
Chrysene	ND	390	ug/kg
Diallate	ND	790	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-021 Work Order #...: D3HNG101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	390	ug/kg
Dibenzofuran	ND	390	ug/kg
Di-n-butyl phthalate	ND	390	ug/kg
1,2-Dichlorobenzene	ND	390	ug/kg
1,3-Dichlorobenzene	ND	390	ug/kg
1,4-Dichlorobenzene	ND	390	ug/kg
3,3'-Dichlorobenzidine	ND	1900	ug/kg
2,4-Dichlorophenol	ND	390	ug/kg
2,6-Dichlorophenol	ND	390	ug/kg
Diethyl phthalate	ND	390	ug/kg
Dimethoate	ND	790	ug/kg
p-Dimethylaminoazobenzene	ND	790	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	790	ug/kg
3,3'-Dimethylbenzidine	ND	1900	ug/kg
2,4-Dimethylphenol	ND	390	ug/kg
Dimethyl phthalate	ND	390	ug/kg
1,3-Dinitrobenzene	ND	390	ug/kg
4,6-Dinitro-2-methylphenol	ND	1900	ug/kg
2,4-Dinitrophenol	ND	1900	ug/kg
2,4-Dinitrotoluene	ND	390	ug/kg
2,6-Dinitrotoluene	ND	390	ug/kg
Di-n-octyl phthalate	ND	390	ug/kg
Diphenylamine	ND	390	ug/kg
Disulfoton	ND	1900	ug/kg
Ethyl methanesulfonate	ND	390	ug/kg
Famphur	ND	3900	ug/kg
Fluoranthene	ND	390	ug/kg
Fluorene	ND	390	ug/kg
Hexachlorobenzene	ND	390	ug/kg
Hexachlorobutadiene	ND	390	ug/kg
Hexachlorocyclopentadiene	ND	1900	ug/kg
Hexachloroethane	ND	390	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	3900	ug/kg
Indeno(1,2,3-cd)pyrene	ND	390	ug/kg
Isodrin	ND	390	ug/kg
Isophorone	ND	390	ug/kg
Isosafrole	ND	790	ug/kg
Kepone	ND	3900	ug/kg
Methapyrilene	ND	1900	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-021 Work Order #...: D3HNG101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	790	ug/kg
Methyl methanesulfonate	ND	390	ug/kg
2-Methylnaphthalene	ND	390	ug/kg
Methyl parathion	ND	1900	ug/kg
2-Methylphenol	ND	390	ug/kg
Naphthalene	ND	390	ug/kg
1,4-Naphthoquinone	ND	1900	ug/kg
1-Naphthylamine	ND	390	ug/kg
2-Naphthylamine	ND	390	ug/kg
2-Nitroaniline	ND	1900	ug/kg
3-Nitroaniline	ND	1900	ug/kg
4-Nitroaniline	ND	1900	ug/kg
Nitrobenzene	ND	390	ug/kg
2-Nitrophenol	ND	390	ug/kg
4-Nitrophenol	ND	1900	ug/kg
4-Nitroquinoline-1-oxide	ND	3900	ug/kg
N-Nitrosodi-n-butylamine	ND	390	ug/kg
N-Nitrosodiethylamine	ND	390	ug/kg
N-Nitrosodimethylamine	ND	390	ug/kg
N-Nitrosodiphenylamine	ND	390	ug/kg
N-Nitrosodi-n-propyl-amine	ND	390	ug/kg
N-Nitrosomethylethylamine	ND	390	ug/kg
N-Nitrosomorpholine	ND	390	ug/kg
N-Nitrosopiperidine	ND	390	ug/kg
N-Nitrosopyrrolidine	ND	390	ug/kg
5-Nitro-o-toluidine	ND	790	ug/kg
Parathion	ND	1900	ug/kg
Pentachlorobenzene	ND	390	ug/kg
Pentachloroethane	ND	1900	ug/kg
Pentachloronitrobenzene	ND	1900	ug/kg
Pentachlorophenol	ND	1900	ug/kg
Phenacetin	ND	790	ug/kg
Phenanthrene	ND	390	ug/kg
Phenol	ND	390	ug/kg
p-Phenylene diamine	ND	3900	ug/kg
Phorate	ND	1900	ug/kg
2-Picoline	ND	790	ug/kg
Pronamide	ND	790	ug/kg
4-Methylphenol	ND	390	ug/kg
Pyrene	ND	390	ug/kg
Pyridine	ND	790	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-021 Work Order #...: D3HNG101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	790	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	390	ug/kg
2,3,4,6-Tetrachlorophenol	ND	1900	ug/kg
Tetraethyldithiopyro-phosphate	ND	1900	ug/kg
Thionazin	ND	1900	ug/kg
o-Toluidine	ND	790	ug/kg
1,2,4-Trichlorobenzene	ND	390	ug/kg
2,4,5-Trichlorophenol	ND	390	ug/kg
2,4,6-Trichlorophenol	ND	390	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	1900	ug/kg
1,3,5-Trinitrobenzene	ND	1900	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76	(25 - 121)
Phenol-d5	71	(24 - 113)
Nitrobenzene-d5	60	(23 - 120)
2-Fluorobiphenyl	70	(30 - 115)
2,4,6-Tribromophenol	66	(19 - 122)
Terphenyl-d14	89	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-022	**Work Order #...:** D3HNH101	**Matrix.....:** SOLID
Date Sampled...: 10/05/99 08:05	**Date Received..:** 10/11/99	**MS Run #.....:** 9287102
Prep Date.....: 10/14/99	**Analysis Date..:** 10/19/99	
Prep Batch #...: 9287282	**Analysis Time..:** 20:00	
Dilution Factor: 1		
% Moisture.....: 17	**Method.....:** SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	1900	ug/kg
Acenaphthene	ND	400	ug/kg
Acenaphthylene	ND	400	ug/kg
Acetophenone	ND	400	ug/kg
2-Acetylaminofluorene	ND	4000	ug/kg
4-Aminobiphenyl	ND	1900	ug/kg
Aniline	ND	400	ug/kg
Anthracene	ND	400	ug/kg
Aramite	ND	800	ug/kg
Benzo(a)anthracene	ND	400	ug/kg
Benzo(b)fluoranthene	ND	400	ug/kg
Benzo(k)fluoranthene	ND	400	ug/kg
Benzo(ghi)perylene	ND	400	ug/kg
Benzo(a)pyrene	ND	400	ug/kg
Benzyl alcohol	ND	400	ug/kg
bis(2-Chloroethoxy) methane	ND	400	ug/kg
bis(2-Chloroethyl)-ether	ND	400	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	400	ug/kg
bis(2-Ethylhexyl) phthalate	ND	400	ug/kg
4-Bromophenyl phenyl ether	ND	400	ug/kg
Butyl benzyl phthalate	ND	400	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	800	ug/kg
4-Chloroaniline	ND	400	ug/kg
Chlorobenzilate	ND	400	ug/kg
4-Chloro-3-methylphenol	ND	400	ug/kg
2-Chloronaphthalene	ND	400	ug/kg
2-Chlorophenol	ND	400	ug/kg
4-Chlorophenyl phenyl ether	ND	400	ug/kg
Chrysene	ND	400	ug/kg
Diallate	ND	800	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-022 Work Order #...: D3HNH101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	400	ug/kg
Dibenzofuran	ND	400	ug/kg
Di-n-butyl phthalate	ND	400	ug/kg
1,2-Dichlorobenzene	ND	400	ug/kg
1,3-Dichlorobenzene	ND	400	ug/kg
1,4-Dichlorobenzene	ND	400	ug/kg
3,3'-Dichlorobenzidine	ND	1900	ug/kg
2,4-Dichlorophenol	ND	400	ug/kg
2,6-Dichlorophenol	ND	400	ug/kg
Diethyl phthalate	ND	400	ug/kg
Dimethoate	ND	800	ug/kg
p-Dimethylaminoazobenzene	ND	800	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	800	ug/kg
3,3'-Dimethylbenzidine	ND	1900	ug/kg
2,4-Dimethylphenol	ND	400	ug/kg
Dimethyl phthalate	ND	400	ug/kg
1,3-Dinitrobenzene	ND	400	ug/kg
4,6-Dinitro-2-methylphenol	ND	1900	ug/kg
2,4-Dinitrophenol	ND	1900	ug/kg
2,4-Dinitrotoluene	ND	400	ug/kg
2,6-Dinitrotoluene	ND	400	ug/kg
Di-n-octyl phthalate	ND	400	ug/kg
Diphenylamine	ND	400	ug/kg
Disulfoton	ND	1900	ug/kg
Ethyl methanesulfonate	ND	400	ug/kg
Famphur	ND	4000	ug/kg
Fluoranthene	ND	400	ug/kg
Fluorene	ND	400	ug/kg
Hexachlorobenzene	ND	400	ug/kg
Hexachlorobutadiene	ND	400	ug/kg
Hexachlorocyclopenta-diene	ND	1900	ug/kg
Hexachloroethane	ND	400	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4000	ug/kg
Indeno(1,2,3-cd)pyrene	ND	400	ug/kg
Isodrin	ND	400	ug/kg
Isophorone	ND	400	ug/kg
Isosafrole	ND	800	ug/kg
Kepone	ND	4000	ug/kg
Methapyrilene	ND	1900	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-022 Work Order #...: D3HNH101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	800	ug/kg
Methyl methanesulfonate	ND	400	ug/kg
2-Methylnaphthalene	ND	400	ug/kg
Methyl parathion	ND	1900	ug/kg
2-Methylphenol	ND	400	ug/kg
Naphthalene	ND	400	ug/kg
1,4-Naphthoquinone	ND	1900	ug/kg
1-Naphthylamine	ND	400	ug/kg
2-Naphthylamine	ND	400	ug/kg
2-Nitroaniline	ND	1900	ug/kg
3-Nitroaniline	ND	1900	ug/kg
4-Nitroaniline	ND	1900	ug/kg
Nitrobenzene	ND	400	ug/kg
2-Nitrophenol	ND	400	ug/kg
4-Nitrophenol	ND	1900	ug/kg
4-Nitroquinoline-1-oxide	ND	4000	ug/kg
N-Nitrosodi-n-butylamine	ND	400	ug/kg
N-Nitrosodiethylamine	ND	400	ug/kg
N-Nitrosodimethylamine	ND	400	ug/kg
N-Nitrosodiphenylamine	ND	400	ug/kg
N-Nitrosodi-n-propyl-amine	ND	400	ug/kg
N-Nitrosomethylethylamine	ND	400	ug/kg
N-Nitrosomorpholine	ND	400	ug/kg
N-Nitrosopiperidine	ND	400	ug/kg
N-Nitrosopyrrolidine	ND	400	ug/kg
5-Nitro-o-toluidine	ND	800	ug/kg
Parathion	ND	1900	ug/kg
Pentachlorobenzene	ND	400	ug/kg
Pentachloroethane	ND	1900	ug/kg
Pentachloronitrobenzene	ND	1900	ug/kg
Pentachlorophenol	ND	1900	ug/kg
Phenacetin	ND	800	ug/kg
Phenanthrene	ND	400	ug/kg
Phenol	ND	400	ug/kg
p-Phenylene diamine	ND	4000	ug/kg
Phorate	ND	1900	ug/kg
2-Picoline	ND	800	ug/kg
Pronamide	ND	800	ug/kg
4-Methylphenol	ND	400	ug/kg
Pyrene	ND	400	ug/kg
Pyridine	ND	800	ug/kg

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-022 **Work Order #...:** D3HNH101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	800	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	400	ug/kg
2,3,4,6-Tetrachlorophenol	ND	1900	ug/kg
Tetraethyldithiopyro-phosphate	ND	1900	ug/kg
Thionazin	ND	1900	ug/kg
o-Toluidine	ND	800	ug/kg
1,2,4-Trichlorobenzene	ND	400	ug/kg
2,4,5-Trichlorophenol	ND	400	ug/kg
2,4,6-Trichlorophenol	ND	400	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	1900	ug/kg
1,3,5-Trinitrobenzene	ND	1900	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76	(25 - 121)
Phenol-d5	74	(24 - 113)
Nitrobenzene-d5	63	(23 - 120)
2-Fluorobiphenyl	69	(30 - 115)
2,4,6-Tribromophenol	56	(19 - 122)
Terphenyl-d14	85	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC/MS Semivolatiles

Lot-Sample #...:	I9J070143-023	**Work Order #...:**	D3J3L101	**Matrix.....:**	SOLID
Date Sampled...:	10/06/99 09:50	**Date Received..:**	10/11/99	**MS Run #.....:**	9287102
Prep Date.....:	10/14/99	**Analysis Date..:**	10/21/99		
Prep Batch #...:	9287282	**Analysis Time..:**	00:16		
Dilution Factor:	1				
% Moisture.....:	23	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2100	ug/kg
Acenaphthene	ND	430	ug/kg
Acenaphthylene	ND	430	ug/kg
Acetophenone	ND	430	ug/kg
2-Acetylaminofluorene	ND	4300	ug/kg
4-Aminobiphenyl	ND	2100	ug/kg
Aniline	ND	430	ug/kg
Anthracene	ND	430	ug/kg
Aramite	ND	860	ug/kg
Benzo(a)anthracene	ND	430	ug/kg
Benzo(b)fluoranthene	ND	430	ug/kg
Benzo(k)fluoranthene	ND	430	ug/kg
Benzo(ghi)perylene	ND	430	ug/kg
Benzo(a)pyrene	ND	430	ug/kg
Benzyl alcohol	ND	430	ug/kg
bis(2-Chloroethoxy) methane	ND	430	ug/kg
bis(2-Chloroethyl)-ether	ND	430	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	430	ug/kg
bis(2-Ethylhexyl) phthalate	ND	430	ug/kg
4-Bromophenyl phenyl ether	ND	430	ug/kg
Butyl benzyl phthalate	ND	430	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	860	ug/kg
4-Chloroaniline	ND	430	ug/kg
Chlorobenzilate	ND	430	ug/kg
4-Chloro-3-methylphenol	ND	430	ug/kg
2-Chloronaphthalene	ND	430	ug/kg
2-Chlorophenol	ND	430	ug/kg
4-Chlorophenyl phenyl ether	ND	430	ug/kg
Chrysene	ND	430	ug/kg
Diallate	ND	860	ug/kg

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-023 Work Order #...: D3J3L101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	430	ug/kg
Dibenzofuran	ND	430	ug/kg
Di-n-butyl phthalate	ND	430	ug/kg
1,2-Dichlorobenzene	ND	430	ug/kg
1,3-Dichlorobenzene	ND	430	ug/kg
1,4-Dichlorobenzene	ND	430	ug/kg
3,3'-Dichlorobenzidine	ND	2100	ug/kg
2,4-Dichlorophenol	ND	430	ug/kg
2,6-Dichlorophenol	ND	430	ug/kg
Diethyl phthalate	ND	430	ug/kg
Dimethoate	ND	860	ug/kg
p-Dimethylaminoazobenzene	ND	860	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	860	ug/kg
3,3'-Dimethylbenzidine	ND	2100	ug/kg
2,4-Dimethylphenol	ND	430	ug/kg
Dimethyl phthalate	ND	430	ug/kg
1,3-Dinitrobenzene	ND	430	ug/kg
4,6-Dinitro-2-methylphenol	ND	2100	ug/kg
2,4-Dinitrophenol	ND	2100	ug/kg
2,4-Dinitrotoluene	ND	430	ug/kg
2,6-Dinitrotoluene	ND	430	ug/kg
Di-n-octyl phthalate	ND	430	ug/kg
Diphenylamine	ND	430	ug/kg
Disulfoton	ND	2100	ug/kg
Ethyl methanesulfonate	ND	430	ug/kg
Famphur	ND	4300	ug/kg
Fluoranthene	ND	430	ug/kg
Fluorene	ND	430	ug/kg
Hexachlorobenzene	ND	430	ug/kg
Hexachlorobutadiene	ND	430	ug/kg
Hexachlorocyclopenta-diene	ND	2100	ug/kg
Hexachloroethane	ND	430	ug/kg
Hexachlorophene	ND		ug/kg
Hexachloropropene	ND	4300	ug/kg
Indeno(1,2,3-cd)pyrene	ND	430	ug/kg
Isodrin	ND	430	ug/kg
Isophorone	ND	430	ug/kg
Isosafrole	ND	860	ug/kg
Kepone	ND	4300	ug/kg
Methapyrilene	ND	2100	ug/kg

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-023 Work Order #...: D3J3L101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	860	ug/kg
Methyl methanesulfonate	ND	430	ug/kg
2-Methylnaphthalene	ND	430	ug/kg
Methyl parathion	ND	2100	ug/kg
2-Methylphenol	ND	430	ug/kg
Naphthalene	ND	430	ug/kg
1,4-Naphthoquinone	ND	2100	ug/kg
1-Naphthylamine	ND	430	ug/kg
2-Naphthylamine	ND	430	ug/kg
2-Nitroaniline	ND	2100	ug/kg
3-Nitroaniline	ND	2100	ug/kg
4-Nitroaniline	ND	2100	ug/kg
Nitrobenzene	ND	430	ug/kg
2-Nitrophenol	ND	430	ug/kg
4-Nitrophenol	ND	2100	ug/kg
4-Nitroquinoline-1-oxide	ND	4300	ug/kg
N-Nitrosodi-n-butylamine	ND	430	ug/kg
N-Nitrosodiethylamine	ND	430	ug/kg
N-Nitrosodimethylamine	ND	430	ug/kg
N-Nitrosodiphenylamine	ND	430	ug/kg
N-Nitrosodi-n-propyl-amine	ND	430	ug/kg
N-Nitrosomethylethylamine	ND	430	ug/kg
N-Nitrosomorpholine	ND	430	ug/kg
N-Nitrosopiperidine	ND	430	ug/kg
N-Nitrosopyrrolidine	ND	430	ug/kg
5-Nitro-o-toluidine	ND	860	ug/kg
Parathion	ND	2100	ug/kg
Pentachlorobenzene	ND	430	ug/kg
Pentachloroethane	ND	2100	ug/kg
Pentachloronitrobenzene	ND	2100	ug/kg
Pentachlorophenol	ND	2100	ug/kg
Phenacetin	ND	860	ug/kg
Phenanthrene	ND	430	ug/kg
Phenol	ND	430	ug/kg
p-Phenylene diamine	ND	4300	ug/kg
Phorate	ND	2100	ug/kg
2-Picoline	ND	860	ug/kg
Pronamide	ND	860	ug/kg
4-Methylphenol	ND	430	ug/kg
Pyrene	ND	430	ug/kg
Pyridine	ND	860	ug/kg

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-023 **Work Order #...:** D3J3L101 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Safrole	ND	860	ug/kg
1,2,4,5-Tetrachloro-benzene	ND	430	ug/kg
2,3,4,6-Tetrachlorophenol	ND	2100	ug/kg
Tetraethyldithiopyro-phosphate	ND	2100	ug/kg
Thionazin	ND	2100	ug/kg
o-Toluidine	ND	860	ug/kg
1,2,4-Trichlorobenzene	ND	430	ug/kg
2,4,5-Trichlorophenol	ND	430	ug/kg
2,4,6-Trichlorophenol	ND	430	ug/kg
O,O,O-Triethylphosphoro-thioate	ND	2100	ug/kg
1,3,5-Trinitrobenzene	ND	2100	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(25 - 121)
Phenol-d5	82	(24 - 113)
Nitrobenzene-d5	61	(23 - 120)
2-Fluorobiphenyl	74	(30 - 115)
2,4,6-Tribromophenol	62	(19 - 122)
Terphenyl-d14	87	(18 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC/MS Semivolatiles

Lot-Sample #...:	I9J070143-024	**Work Order #...:**	D3J3P101	**Matrix.....:**	SOLID
Date Sampled...:	10/06/99 11:30	**Date Received..:**	10/11/99	**MS Run #.....:**	9287102
Prep Date.....:	10/14/99	**Analysis Date..:**	10/21/99		
Prep Batch #...:	9287282	**Analysis Time..:**	00:45		
Dilution Factor:	1				
% Moisture.....:	22	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
a,a-Dimethylphenethyl-amine	ND	2100	ug/kg
Acenaphthene	ND	420	ug/kg
Acenaphthylene	ND	420	ug/kg
Acetophenone	ND	420	ug/kg
2-Acetylaminofluorene	ND	4200	ug/kg
4-Aminobiphenyl	ND	2100	ug/kg
Aniline	ND	420	ug/kg
Anthracene	ND	420	ug/kg
Aramite	ND	850	ug/kg
Benzo(a)anthracene	ND	420	ug/kg
Benzo(b)fluoranthene	ND	420	ug/kg
Benzo(k)fluoranthene	ND	420	ug/kg
Benzo(ghi)perylene	ND	420	ug/kg
Benzo(a)pyrene	ND	420	ug/kg
Benzyl alcohol	ND	420	ug/kg
bis(2-Chloroethoxy) methane	ND	420	ug/kg
bis(2-Chloroethyl)-ether	ND	420	ug/kg
bis(2-Chloro-1-methylethyl) ether	ND	420	ug/kg
bis(2-Ethylhexyl) phthalate	ND	420	ug/kg
4-Bromophenyl phenyl ether	ND	420	ug/kg
Butyl benzyl phthalate	ND	420	ug/kg
2-sec-Butyl-4,6-dinitro-phenol	ND	850	ug/kg
4-Chloroaniline	ND	420	ug/kg
Chlorobenzilate	ND	420	ug/kg
4-Chloro-3-methylphenol	ND	420	ug/kg
2-Chloronaphthalene	ND	420	ug/kg
2-Chlorophenol	ND	420	ug/kg
4-Chlorophenyl phenyl ether	ND	420	ug/kg
Chrysene	ND	420	ug/kg
Diallate	ND	850	ug/kg

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-024 Work Order #...: D3J3P101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dibenz(a,h)anthracene	ND	420	ug/kg
Dibenzofuran	ND	420	ug/kg
Di-n-butyl phthalate	ND	420	ug/kg
1,2-Dichlorobenzene	ND	420	ug/kg
1,3-Dichlorobenzene	ND	420	ug/kg
1,4-Dichlorobenzene	ND	420	ug/kg
3,3'-Dichlorobenzidine	ND	2100	ug/kg
2,4-Dichlorophenol	ND	420	ug/kg
2,6-Dichlorophenol	ND	420	ug/kg
Diethyl phthalate	ND	420	ug/kg
Dimethoate	ND	850	ug/kg
p-Dimethylaminoazobenzene	ND	850	ug/kg
7,12-Dimethylbenz(a)-anthracene	ND	850	ug/kg
3,3'-Dimethylbenzidine	ND	2100	ug/kg
2,4-Dimethylphenol	ND	420	ug/kg
Dimethyl phthalate	ND	420	ug/kg
1,3-Dinitrobenzene	ND	420	ug/kg
4,6-Dinitro-2-methylphenol	ND	2100	ug/kg
2,4-Dinitrophenol	ND	2100	ug/kg
2,4-Dinitrotoluene	ND	420	ug/kg
2,6-Dinitrotoluene	ND	420	ug/kg
Di-n-octyl phthalate	ND	420	ug/kg
Diphenylamine	ND	420	ug/kg
Disulfoton	ND	2100	ug/kg
Ethyl methanesulfonate	ND	420	ug/kg
Famphur	ND	4200	ug/kg
Fluoranthene	ND	420	ug/kg
Fluorene	ND	420	ug/kg
Hexachlorobenzene	ND	420	ug/kg
Hexachlorobutadiene	ND	420	ug/kg
Hexachlorocyclopenta-diene	ND	2100	ug/kg
Hexachloroethane	ND	420	ug/kg
Hexachlorophene	ND	2100	ug/kg
Hexachloropropene	ND	4200	ug/kg
Indeno(1,2,3-cd)pyrene	ND	420	ug/kg
Isodrin	ND	420	ug/kg
Isophorone	ND	420	ug/kg
Isosafrole	ND	850	ug/kg
Kepone	ND	4200	ug/kg
Methapyrilene	ND	2100	ug/kg

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC/MS Semivolatiles

Lot-Sample #...: I9J070143-024 Work Order #...: D3J3P101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Methylcholanthrene	ND	850	ug/kg
Methyl methanesulfonate	ND	420	ug/kg
2-Methylnaphthalene	ND	420	ug/kg
Methyl parathion	ND	2100	ug/kg
2-Methylphenol	ND	420	ug/kg
Naphthalene	ND	420	ug/kg
1,4-Naphthoquinone	ND	2100	ug/kg
1-Naphthylamine	ND	420	ug/kg
2-Naphthylamine	ND	420	ug/kg
2-Nitroaniline	ND	2100	ug/kg
3-Nitroaniline	ND	2100	ug/kg
4-Nitroaniline	ND	2100	ug/kg
Nitrobenzene	ND	420	ug/kg
2-Nitrophenol	ND	420	ug/kg
4-Nitrophenol	ND	2100	ug/kg
4-Nitroquinoline-1-oxide	ND	4200	ug/kg
N-Nitrosodi-n-butylamine	ND	420	ug/kg
N-Nitrosodiethylamine	ND	420	ug/kg
N-Nitrosodimethylamine	ND	420	ug/kg
N-Nitrosodiphenylamine	ND	420	ug/kg
N-Nitrosodi-n-propyl-amine	ND	420	ug/kg
N-Nitrosomethylethylamine	ND	420	ug/kg
N-Nitrosomorpholine	ND	420	ug/kg
N-Nitrosopiperidine	ND	420	ug/kg
N-Nitrosopyrrolidine	ND	420	ug/kg
5-Nitro-o-toluidine	ND	850	ug/kg
Parathion	ND	2100	ug/kg
Pentachlorobenzene	ND	420	ug/kg
Pentachloroethane	ND	2100	ug/kg
Pentachloronitrobenzene	ND	2100	ug/kg
Pentachlorophenol	ND	2100	ug/kg
Phenacetin	ND	850	ug/kg
Phenanthrene	ND	420	ug/kg
Phenol	ND	420	ug/kg
p-Phenylene diamine	ND	4200	ug/kg
Phorate	ND	2100	ug/kg
2-Picoline	ND	850	ug/kg
Pronamide	ND	850	ug/kg
4-Methylphenol	ND	420	ug/kg
Pyrene	ND	420	ug/kg
Pyridine	ND	850	ug/kg

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC Semivolatiles

Lot-Sample #...:	I9J070143-023	Work Order #...:	D3J3L10D	Matrix.....:	SOLID
Date Sampled...:	10/06/99 09:50	Date Received..:	10/11/99	MS Run #.....:	9294065
Prep Date.....:	10/20/99	Analysis Date..:	10/27/99		
Prep Batch #...:	9294203	Analysis Time..:	19:18		
Dilution Factor:	1				
% Moisture.....:	23	Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	43	ug/kg
Aroclor 1221	ND	43	ug/kg
Aroclor 1232	ND	43	ug/kg
Aroclor 1242	ND	43	ug/kg
Aroclor 1248	ND	43	ug/kg
Aroclor 1254	ND	43	ug/kg
Aroclor 1260	ND	43	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	81	(11 - 144)
Decachlorobiphenyl	82	(29 - 158)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

GC Semivolatiles

Lot-Sample #...:	I9J070143-024	Work Order #...:	D3J3P10D	Matrix.....:	SOLID
Date Sampled...:	10/06/99 11:30	Date Received..:	10/11/99	MS Run #.....:	9294065
Prep Date.....:	10/20/99	Analysis Date..:	10/27/99		
Prep Batch #...:	9294203	Analysis Time..:	20:36		
Dilution Factor:	1				
% Moisture.....:	22	Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	42	ug/kg
Aroclor 1221	ND	42	ug/kg
Aroclor 1232	ND	42	ug/kg
Aroclor 1242	ND	42	ug/kg
Aroclor 1248	ND	42	ug/kg
Aroclor 1254	ND	42	ug/kg
Aroclor 1260	ND	42	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	59	(11 - 144)
Decachlorobiphenyl	80	(29 - 158)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

GC Semivolatiles

Lot-Sample #...:	I9J070143-023	Work Order #...:	D3J3L20D	Matrix.....:	SOLID
Date Sampled...:	10/06/99 09:50	Date Received..:	10/11/99	MS Run #.....:	9305168
Prep Date.....:	11/01/99	Analysis Date..:	11/02/99		
Prep Batch #...:	9305396	Analysis Time..:	18:44		
Dilution Factor:	1				
% Moisture.....:	23	Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	43	ug/kg
Aroclor 1221	ND	43	ug/kg
Aroclor 1232	ND	43	ug/kg
Aroclor 1242	ND	43	ug/kg
Aroclor 1248	ND	43	ug/kg
Aroclor 1254	ND	43	ug/kg
Aroclor 1260	ND	43	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	43	(11 - 144)
Decachlorobiphenyl	82	(29 - 158)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

TOTAL Metals

Lot-Sample #...: I9J070143-014 Matrix.....: SOLID
Date Sampled...: 10/06/99 10:50 Date Received..: 10/11/99
% Moisture.....: 25

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	12.4	1.3	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN102
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	
Cadmium	ND	0.26	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN103
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	
Chromium	28.0	0.66	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN104
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	
Barium	108	26.5	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN107
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	
Lead	20.7	0.40	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN105
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	
enium	ND	0.66	mg/kg	SW846 6010B	10/15-10/18/99	D3HMN106
		Dilution Factor: 1		Analysis Time..: 13:23	MS Run #.....: 9288180	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

TOTAL Metals

Lot-Sample #...: I9J070143-015 Matrix.....: SOLID
Date Sampled...: 10/06/99 11:00 Date Received..: 10/11/99
% Moisture.....: 21

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	15.8	1.3	mg/kg	SW846 6010B	10/15-10/18/99	D3HN5102
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Cadmium	ND	0.25	mg/kg	SW846 6010B	10/15-10/18/99	D3HN5103
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Chromium	31.6	0.64	mg/kg	SW846 6010B	10/15-10/18/99	D3HN5104
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Barium	95.9	25.4	mg/kg	SW846 6010B	10/15-10/18/99	D3HN5107
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Lead	21.1	0.38	mg/kg	SW846 6010B	10/15-10/18/99	D3HN5105
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Selenium	ND	0.64	mg/kg	SW846 6010B	10/15-10/18/99	D3HN51[illegible]
		Dilution Factor: 1		Analysis Time..: 13:28	MS Run #.....: 9288180	
Prep Batch #...: 9292189						
Mercury	ND	0.13	mg/kg	SW846 7471A	10/19/99	D3HN5108
		Dilution Factor: 1		Analysis Time..: 14:57	MS Run #.....: 9292058	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

TOTAL Metals

Lot-Sample #...: I9J070143-016 Matrix.....: SOLID
Date Sampled...: 10/06/99 09:00 Date Received..: 10/11/99
% Moisture.....: 20

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	5.4	1.2	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6102
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	
Cadmium	ND	0.25	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6103
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	
Chromium	19.7	0.62	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6104
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	
Barium	75.4	24.9	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6107
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	
Lead	22.1	0.37	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6105
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	
lenium	ND	0.62	mg/kg	SW846 6010B	10/15-10/18/99	D3HN6106
		Dilution Factor: 1		Analysis Time..: 13:33	MS Run #.....: 9288180	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

TOTAL Metals

Lot-Sample #...: I9J070143-017 Matrix.....: SOLID
Date Sampled...: 10/06/99 09:18 Date Received..: 10/11/99
% Moisture.....: 18

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	7.3	1.2	mg/kg	SW846 6010B	10/15-10/18/99	D3HN7102
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	
Cadmium	ND	0.24	mg/kg	SW846 6010B	10/15-10/18/99	D3HN7103
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	
Chromium	21.1	0.61	mg/kg	SW846 6010B	10/15-10/18/99	D3HN7104
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	
Barium	107	24.4	mg/kg	SW846 6010B	10/15-10/18/99	D3HN7107
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	
Lead	17.2	0.37	mg/kg	SW846 6010B	10/15-10/18/99	D3HN7105
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	
Selenium	0.78	0.61	mg/kg	SW846 6010B	10/15-10/18/99	D3HN71[illegible]
		Dilution Factor: 1		Analysis Time..: 13:38	MS Run #.....: 9288180	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

TOTAL Metals

Lot-Sample #...: I9J070143-018
Date Sampled...: 10/05/99 18:20 Date Received..: 10/11/99
% Moisture.....: 18
Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	12.2 L	1.2 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8102
Cadmium	ND	0.24 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8103
Chromium	22.6	0.61 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8104
Barium	50.4 L	24.4 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8107
Lead	11.7 L	0.37 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8105
lenium	1.0	0.61 Dilution Factor: 1	mg/kg	SW846 6010B Analysis Time..: 13:43	10/15-10/18/99 MS Run #.....: 9288180	D3HN8106
Prep Batch #...: 9292189						
Mercury	ND	0.12 Dilution Factor: 1	mg/kg	SW846 7471A Analysis Time..: 14:46	10/19/99 MS Run #.....: 9292058	D3HN8117

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

L Serial dilution of a digestate in the analytical batch indicates that physical and chemical interferences are present.

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

TOTAL Metals

Lot-Sample #...: I9J070143-019 Matrix.....: SOLID
Date Sampled...: 10/05/99 18:20 Date Received..: 10/11/99
% Moisture.....: 16

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	12.2	1.2	mg/kg	SW846 6010B	10/15-10/18/99	D3HN9102
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Cadmium	ND	0.24	mg/kg	SW846 6010B	10/15-10/18/99	D3HN9103
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Chromium	25.3	0.60	mg/kg	SW846 6010B	10/15-10/18/99	D3HN9104
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Barium	51.6	23.8	mg/kg	SW846 6010B	10/15-10/18/99	D3HN9107
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Lead	12.3	0.36	mg/kg	SW846 6010B	10/15-10/18/99	D3HN9105
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Selenium	1.2	0.60	mg/kg	SW846 6010B	10/15-10/18/99	D3HN91..
		Dilution Factor: 1		Analysis Time..: 14:13	MS Run #.....: 9288180	
Prep Batch #...: 9292189						
Mercury	ND	0.12	mg/kg	SW846 7471A	10/19/99	D3HN910E
		Dilution Factor: 1		Analysis Time..: 14:58	MS Run #.....: 9292058	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

TOTAL Metals

Lot-Sample #...: I9J070143-020 Matrix.....: SOLID
Date Sampled...: 10/05/99 18:30 Date Received..: 10/11/99
% Moisture.....: 21

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	15.7	1.3	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC102
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
Cadmium	ND	0.25	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC103
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
Chromium	24.0	0.63	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC104
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
Barium	29.9	25.2	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC107
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
Lead	13.4	0.38	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC105
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
lenium	1.1	0.63	mg/kg	SW846 6010B	10/15-10/18/99	D3HNC106
		Dilution Factor: 1		Analysis Time..: 14:18	MS Run #.....: 9288180	
Prep Batch #...: 9292189						
Mercury	ND	0.13	mg/kg	SW846 7471A	10/19/99	D3HNC10E
		Dilution Factor: 1		Analysis Time..: 14:51	MS Run #.....: 9292058	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

TOTAL Metals

Lot-Sample #...: I9J070143-021 Matrix.....: SOLID
Date Sampled...: 10/05/99 19:50 Date Received..: 10/11/99
% Moisture.....: 16

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	**7.8**	**1.2**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNG102**
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Cadmium	ND	0.24	mg/kg	SW846 6010B	10/15-10/18/99	D3HNG103
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Chromium	**19.8**	**0.60**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNG104**
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Barium	ND	23.9	mg/kg	SW846 6010B	10/15-10/18/99	D3HNG107
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Lead	**24.4**	**0.36**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNG105**
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Selenium	**1.1**	**0.60**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNG1..**
		Dilution Factor: 1		Analysis Time..: 14:23	MS Run #.....: 9288180	
Prep Batch #...: 9292189						
Mercury	ND	0.12	mg/kg	SW846 7471A	10/19/99	D3HNG10E
		Dilution Factor: 1		Analysis Time..: 14:52	MS Run #.....: 9292058	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

TOTAL Metals

Lot-Sample #...: I9J070143-022 Matrix.....: SOLID
Date Sampled...: 10/05/99 08:05 Date Received..: 10/11/99
% Moisture.....: 17

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	**2.3**	**1.2**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNH102**
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Cadmium	ND	0.24	mg/kg	SW846 6010B	10/15-10/18/99	D3HNH103
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Chromium	**14.5**	**0.60**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNH104**
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Barium	ND	24.1	mg/kg	SW846 6010B	10/15-10/18/99	D3HNH107
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Lead	**17.3**	**0.36**	**mg/kg**	**SW846 6010B**	**10/15-10/18/99**	**D3HNH105**
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Selenium	ND	0.60	mg/kg	SW846 6010B	10/15-10/18/99	D3HNH106
		Dilution Factor: 1		Analysis Time..: 14:28	MS Run #.....: 9288180	
Prep Batch #...: 9292189						
Mercury	ND	0.12	mg/kg	SW846 7471A	10/19/99	D3HNH10E
		Dilution Factor: 1		Analysis Time..: 14:55	MS Run #.....: 9292058	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

TOTAL Metals

Lot-Sample #...: I9J070143-023 Matrix.....: SOLID
Date Sampled...: 10/06/99 09:50 Date Received..: 10/11/99
% Moisture.....: 23

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	48.8	1.3	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L102
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	
Cadmium	ND	0.26	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L103
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	
Chromium	101	0.65	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L104
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	
Barium	69.2	26.1	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L107
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	
Lead	26.0	0.39	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L105
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	
Selenium	ND	0.65	mg/kg	SW846 6010B	10/15-10/18/99	D3J3L106
		Dilution Factor: 1		Analysis Time..: 14:33	MS Run #.....: 9288180	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

TOTAL Metals

Lot-Sample #...: I9J070143-024 Matrix.....: SOLID
Date Sampled...: 10/06/99 11:30 Date Received..: 10/11/99
% Moisture.....: 22

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9288387						
Arsenic	25.8	1.3	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P102
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	
Cadmium	ND	0.26	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P103
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	
Chromium	87.7	0.64	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P104
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	
Barium	61.3	25.7	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P107
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	
Lead	22.4	0.39	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P105
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	
lenium	ND	0.64	mg/kg	SW846 6010B	10/15-10/18/99	D3J3P106
		Dilution Factor: 1		Analysis Time..: 14:38	MS Run #.....: 9288180	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-014 **Work Order #...:** D3HMN **Matrix.....:** SOLID
Date Sampled...: 10/06/99 10:50 **Date Received..:** 10/11/99
% Moisture.....: 25

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.3	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	ND	3.3	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	**10.7**	**0.66**	**mg/kg**	**MCAWW 340.2**	**10/21-10/23/99**	**9295116**
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	**75.5**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....: 9291186	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

General Chemistry

Lot-Sample #...: I9J070143-015 Work Order #...: D3HN5 Matrix.....: SOLID
Date Sampled...: 10/06/99 11:00 Date Received..: 10/11/99
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.2	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	ND	3.2	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	8.4	0.64	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	78.6	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....: 9291186	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-016 **Work Order #...:** D3HN6 **Matrix.....:** SOLID
Date Sampled...: 10/06/99 09:00 **Date Received..:** 10/11/99
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.1	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	ND	3.1	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	**3.9**	**0.62**	**mg/kg**	**MCAWW 340.2**	**10/21-10/23/99**	**9295116**
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	**80.3**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....: 9291186	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-017 Work Order #...: D3HN7 Matrix.....: SOLID
Date Sampled...: 10/06/99 09:18 Date Received..: 10/11/99
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.1	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	10.3	3.1	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	2.9	0.61	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	81.9	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....: 9291186	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-018 Work Order #...: D3HN8 Matrix.....: SOLID
Date Sampled...: 10/05/99 18:20 Date Received..: 10/11/99
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.1	mg/kg	SM18 4500-CN-I	10/18-10/19/99	9291150
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291029
Cyanide, Total	ND	3.1	mg/kg	SW846 9012A	10/18-10/19/99	9291133
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291020
Fluoride	ND	0.61	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9295014
Percent Solids	**81.9**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....:	9291186

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

General Chemistry

Lot-Sample #...: I9J070143-019 **Work Order #...:** D3HN9 **Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:20 **Date Received..:** 10/11/99
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.0	mg/kg	SM18 4500-CN-I	10/18-10/19/99	9291150
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291029
Cyanide, Total	ND	3.0	mg/kg	SW846 9012A	10/18-10/19/99	9291133
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291020
Fluoride	ND	0.60	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9295014
Percent Solids	**83.9**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....:	9291186

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-020 **Work Order #...:** D3HNC **Matrix.....:** SOLID
Date Sampled...: 10/05/99 18:30 **Date Received..:** 10/11/99
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.1	mg/kg	SM18 4500-CN-I	10/18-10/19/99	9291150
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291029
Cyanide, Total	ND	3.1	mg/kg	SW846 9012A	10/18-10/19/99	9291133
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291020
Fluoride	ND	0.63	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9295014
Percent Solids	**79.5**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....:	9291186

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-021 Work Order #...: D3HNG Matrix.....: SOLID
Date Sampled...: 10/05/99 19:50 Date Received..: 10/11/99
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.0	mg/kg	SM18 4500-CN-I	10/18-10/19/99	9291150
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291029
Cyanide, Total	ND	3.0	mg/kg	SW846 9012A	10/18-10/19/99	9291133
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291020
Fluoride	ND	0.60	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9295014
Percent Solids	**83.6**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....:	9291186

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-022 **Work Order #...:** D3HNH **Matrix.....:** SOLID
Date Sampled...: 10/05/99 08:05 **Date Received..:** 10/11/99
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.0	mg/kg	SM18 4500-CN-I	10/18-10/19/99	9291150
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291029
Cyanide, Total	ND	3.0	mg/kg	SW846 9012A	10/18-10/19/99	9291133
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9291020
Fluoride	ND	0.60	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....:	9295014
Percent Solids	**82.9**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291447**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....:	9291186

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S001-0.00-0.3

General Chemistry

Lot-Sample #...: I9J070143-023 Work Order #...: D3J3L Matrix.....: SOLID
Date Sampled...: 10/06/99 09:50 Date Received..: 10/11/99
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.3	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	ND	3.3	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	ND	0.65	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	**76.8**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291448**
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9291187	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

General Chemistry

Lot-Sample #...: I9J070143-024 **Work Order #...:** D3J3P **Matrix.....:** SOLID
Date Sampled...: 10/06/99 11:30 **Date Received..:** 10/11/99
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	3.2	mg/kg	SM18 4500-CN-I	10/19/99	9292129
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292022	
Cyanide, Total	ND	3.2	mg/kg	SW846 9012A	10/19/99	9292130
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9292023	
Fluoride	ND	0.64	mg/kg	MCAWW 340.2	10/21-10/23/99	9295116
		Dilution Factor: 1		Analysis Time..: 00:00	MS Run #.....: 9295014	
Percent Solids	**77.8**	**0.10**	**%**	**ASTM D 2216-90**	**10/18-10/19/99**	**9291448**
		Dilution Factor: 1		Analysis Time..: 15:00	MS Run #.....: 9291187	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

IT GROUP

Client Sample ID: LMC-S001-0.0-0.3

General Chemistry

Lot-Sample #...: I9J070143-001 Work Order #...: D3CQE Matrix.....: SOLID
Date Sampled...: 10/06/99 09:50 Date Received..: 10/07/99
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	78.4	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 00:00 MS Run #.....: 9291186

IT GROUP

Client Sample ID: LMC-S002-0.0-0.4

General Chemistry

Lot-Sample #...: I9J070143-002 Work Order #...: D3CQW Matrix.....: SOLID
Date Sampled...: 10/06/99 11:30 Date Received..: 10/07/99
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	76.9	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA04-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-003 Work Order #...: D3CR1 Matrix.....: SOLID
Date Sampled...: 10/06/99 08:05 Date Received..: 10/07/99
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	83.8	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

01281

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IT GROUP

Client Sample ID: S2-HA04-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-004 Work Order #...: D3CR8 Matrix.....: SOLID
Date Sampled...: 10/06/99 07:50 Date Received..: 10/07/99
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	83.2	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA01-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-005 Work Order #...: D3CRC Matrix.....: SOLID
Date Sampled...: 10/06/99 10:50 Date Received..: 10/07/99
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	79.0	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

IT GROUP

Client Sample ID: S2-HA01-0.5-1.0

General Chemistry

Lot-Sample #...: I9J070143-006 Work Order #...: D3CRD Matrix.....: SOLID
Date Sampled...: 10/06/99 11:00 Date Received..: 10/07/99
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	76.2	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA02-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-007 Work Order #...: D3CRH Matrix.....: SOLID
Date Sampled...: 10/06/99 09:00 Date Received..: 10/07/99
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	80.0	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

IT GROUP

Client Sample ID: S2-HA03-0.0-0.5

General Chemistry

Lot-Sample #...: I9J070143-008 Work Order #...: D3CRJ Matrix.....: SOLID
Date Sampled...: 10/05/99 18:20 Date Received..: 10/07/99
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	81.2	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA03-0.0-0.5D

General Chemistry

Lot-Sample #...: I9J070143-009 Work Order #...: D3CT3 Matrix.....: SOLID
Date Sampled...: 10/05/99 18:20 Date Received..: 10/07/99
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	80.1	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA03-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-010 Work Order #...: D3CTA Matrix.....: SOLID
Date Sampled...: 10/05/99 18:30 Date Received..: 10/07/99
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	79.0	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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IT GROUP

Client Sample ID: S2-HA02-0.5-2.0

General Chemistry

Lot-Sample #...: I9J070143-011 Work Order #...: D3CWM Matrix.....: SOLID
Date Sampled...: 10/06/99 09:10 Date Received..: 10/07/99
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	82.3	0.10	%	ASTM D 2216-90	10/18-10/19/99	9291447

Dilution Factor: 1 Analysis Time..: 15:00 MS Run #.....: 9291186

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Support Documentation

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LOT NUMBER I9J070143
Nonconformance I00286
Affected Sample Numbers: 10, 8, 9Affected Methods: 8260B
Case Narrative:
This analyte [Methylene Chloride] is present at a reportable level in the associated method blank; however the analyte is a common laboratory contaminant and the method blank concentration is less than five times the RL.
Details:
This analyte [Methylene Chloride] is present at a reportable level in the associated method blank; however the analyte is a common laboratory contaminant and the method blank concentration is less than five times the RL.

Corrective Action:
All reportable amounts of methylene chloride in all associated samples are flagged with a "B" qualifier.

Nonconformance I00302
Affected Sample Numbers: 1, 11, 2, 3, 4, 5, 6, 7Affected Methods: 8260B
Case Narrative:
This analyte Methylene Chloride is present at a reportable level in the associated method blank; however the analyte is a common laboratory contaminant and the method blank concentration is less than five times the RL.
Details:
This analyte Methylene Chloride is present at a reportable level in the associated method blank; however the analyte is a common laboratory contaminant and the method blank concentration is less than five times the RL.

Corrective Action:
B flagged associated samples. Sample hits were just above the RL of 5.0 in the samples. Method blank had 4.2, so i lowered the rl in the method blank to 4.0 so that it would show up in the report.

Nonconformance I00337
Affected Sample Numbers: 23, 24Affected Methods: 8082
Case Narrative:
LCS recovery for AR 1016 was below control limits. No further action was taken because MS/MSD were in control.
Details:
LCS recovery for AR 1016 was below control limits. No further action was taken because MS/MSD were in control.

Needs a reprep of batch according to policy.

Corrective Action:
Low boiling components in pesticide/PCB anaylsis are recovered poorly if too high a temperature is used in the extraction and blow -down procedure. This seems to be the case and is confirmed by the very low recovery for the low boiling surrogate TCMX.

hain of ustody Record

Quanterra

A-4124 0797

ient: IT GROUP	Project Manager: MARK ROTMAN	Date: 10/8/99	Chain of Custody Number: 26008
ddress: 1600 W. CARSON ST.	Telephone Number (Area Code)/Fax Number: 412-321-2278	Lab Number:	Page 6 of 8
ty: Pgh. State: PA Zip Code: 15219	Site Contact: G. WERKHEISER	Lab Contact:	
oject Name: ALCOA BADEN	Carrier/Waybill Number:		
ontract/Purchase Order/Quote No.: 80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: TOT. METALS	SVOCs	TCL VOA	TCL PEST/PCBs	Special Instructions/ Conditions of Receipt
2-HA03-0.0-0.5	10/5/99	1820			1	3						✓	✓	✓		4°C - 10/11/99 - SM
2-HA03-~~0.5~~ 0.0-0.5	10/5/99	1820			✓	1						✓	✓	✓		As, Ba, Cd, Cr, Pb Se, Hg.
2-HA03-0.5-2.0	10/5/99	1830			✓	1						✓	✓	✓	✓	
2-HA04-0.0-0.5	10/6/99	0750			✓	1						✓	✓	✓	✓	
2-HA04-0.5-2.0	10/6/99	0805			✓	1						✓	✓	✓		
2-HA05-0.0-0.5	10/5/99	1710			✓	1						✓	✓	✓	✓	
2-HA05-0.5-2.0	10/5/99	1720			✓	1						✓	✓	✓	✓	
2-HA06-~~0.5~~ 0.0-0.5	10/5/99	1750			✓	1						✓	✓	✓	✓	
2-HA06-0.5-2.0	10/5/99	1755			✓	1						✓	✓	✓	✓	As, Ba, Cd, Cr, Pb Se, Hg
E-HA01-0.0-0.5	10/5/99	0920			✓	1						✓	✓	✓	✓	
E-HA01-0.5-2.0	10/5/99	0935			✓	1						✓	✓	✓	✓	
E-HA02-0.0-0.5	10/5/99	1040			✓	1						✓	✓	✓	✓	As, Ba, Cd, Cr, Pb Se, Hg

ossible Hazard Identification
] Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

urn Around Time Required
] 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other PER CONTRACT

QC Requirements (Specify)

Relinquished By	Date	Time	1. Received By	Date	Time
[signature]	10/8/99	1000	JAMES GOBER	10/11/99	0925
Relinquished By	Date	Time	2. Received By	Date	Time
Relinquished By	Date	Time	3. Received By	Date	Time

omments

STRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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Chain of Custody Record

I9J070.43

Quanterra

UA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
IT Group	Mark Portman	10/8/99	25123
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 5 of 8
1600 W. Carson St.	412-921-2278		
City	**State** / **Zip Code**	**Site Contact**	**Lab Contact**
Pgh	PA 15219	G. Wertman	
Project Name	**Carrier/Waybill Number**		
ACOA BAP/N			
Contract/Purchase Order/Quote No.			
80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: VOCs (Soils)	SVOCs	VOC Bellyk	Tot. Cr/Pb	Tot/Diss Cr	Tot/Diss Pb	Special Instructions/ Conditions of Receipt
S3-HA03-0.5-2.0	10/7/99	1525			1	5						✓	✓	—	✓	✓	—	4°C - 10/11/99 - SA
S3-HA02-0.0-0.5	10/7/99	1205			1	1						-	-	✓	✓	✓	✓	AR, Ba, Cd, Cr, Pb Se, Hg
S3-HA02-0.5-1.7	10/7/99	1215			1	1									✓	✓	✓	AR, Ba, Cd, Cr, Pb Se, Hg
S3-HA01-0.0-0.5	10/7/99	1130			1	1									✓	✓	✓	
S3-HA01-0.5-2.0	10/7/99	1140			1	1									✓	✓	✓	AR, Ba, Cd, Cr, Pb Se, Hg
S3-HA06-0.0-0.5	10/7/99	1310			1	5						✓	✓	✓	✓	✓	✓	AR, Ba, Cd, Cr, Pb Se, Hg
S3-HA06-0.5-2.0	10/7/99	1320			1	5						✓	✓	✓	✓	✓	✓	AR, Ba, Cd, Cr, Pb, Se, Hg
S3-HA00-0.0-0.50	10/7/99	1310			1	5						✓	✓	✓	✓	✓	✓	AR, Ba, Cd, Cr, Pb, Se, Hg
S2-HA01-0.0-0.5	10/6/99	1050 1100			1	1							✓		✓	✓	✓	AR, Ba, Cd, Cr, Pb Se
S2-HA01-0.5-1.0	10/6/99	1100			1	1							✓		✓	✓	✓	
S2-HA02-0.0-0.5	10/6/99	0900			1	1							✓		✓	✓	✓	
S2-HA02-0.5-2.0	10/6/99	0919			1	1							✓		✓	✓	✓	AR, Ba, Cd, Cr, Pb Se

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Per Contract

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
	10/9/99	1000	James Roberts	10/11/99	0925
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments
Extra vol for MS/MSD

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Chain of Custody Record

I9J070143

Quanterra

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
IT Group	Mark Rostan	10/8/99	26010
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 8 of 8**
1600 W. Carson St.	412-331-2278		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Pgh / PA / 15219	G. Wellcomes		
Project Name	**Carrier/Waybill Number**		
Alcoa Baden			
Contract/Purchase Order/Quote No.			
80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: Total Metals	TCLP Metals	Total Cyanide	SVOC	Pesticides/PCB	VOC	PCB's	Total Fluoride/TSS	Special Instructions/ Conditions of Receipt
SS1) - SS05 - 0.0-0.5	10/8/99	1510			✓	5						✓	✓	✓	✓	✓	✓			4°C - 10/11/99 - GA
SS1 - SS05 - 0.0-0.5D	10/8/99	1511			✓	5						✓	✓	✓	✓	✓				Ag, Ba, Cd, Ca, Cr, Hg
TB - 2789 - 16	10/5/99	1030	✓						3								✓			Ag, Ba, Cd, Ca, Cr, Pb, Se
TB - 2809 - 18	10/7/99	0730	✓						3								✓			
TB - 2819 - 19	10/8/99	0230	✓						3								✓			
LMC - SS01 - 0.0 - 0.3	10/6/99	0950		✓		1						✓	✓	✓	✓			✓		Ag, Ba, Cd, Ca, Cr, Pb, Se
LMC - SS02 - 0.0 - 0.4	10/6/99	1130		✓		1						✓	✓	✓	✓			✓		Ag, Ba, Cd, Ca, Cr, Pb, Se
LMC - SW01 - 2799	10/6/99	1620	✓			1		2	6			✓	✓	✓	✓			✓	✓	Ag, Ba, Cd, Ca, Cr, Pb, Se
LMC - SW02 - 2799	10/6/99	1730	✓			3		2	3	1		✓	✓	✓	✓			✓	✓	Ag, Ba, Cd, Ca, Cr, Pb, Se
LMC - SS02 - 0.0 - 0.4 EB	10/6/99	1530	✓			3		2	3	1		✓	✓	✓	✓			✓	✓	Ag, Ba, Cd, Ca, Cr, Pb, Se
SS-HA04 - 0.5 - 2.0 EB	10/7/99	1610	✓			3		1	3	1		✓	✓	✓	✓		✓		✓	Ag, Ba, Cd, Ca, Cr, Pb, Se
Temp Blank																				

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other per contract

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
[signature]	10/9/99	1000	JAMES COBERLY	10/11/99	1007/092
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments
EXTRA VOL. for MS/MSD

80000

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Chain of Custody Record

I9J070143

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
FT Corporation	Mark Portman	10/6/99	25728
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 2**
1600 W. Carson	412-321-2278		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Pgh / PA / 15219	G Weckman		
Project Name	**Carrier/Waybill Number**		
Acme Bodin	814838495266		
Contract/Purchase Order/Quote No.			
80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: VOC (Env)	VOC Bulk	Special Instructions/ Conditions of Receipt
LMC-S001-0.0-0.3	10/6/99	0950			✓	4						✓	✓	
LMC-S002-0.0-0.4	10/6/99	1130			✓	4						✓	✓	4c - 10/7/99 - 8
S2-HA04-0.5-2.0	10/6/99	0805			✓	4						✓	✓	
S2-HA04-0.0-0.5	10/6/99	0750			✓	4						✓	✓	
S2-HA01-0.0-0.5	10/6/99	1050			✓	4						✓	✓	
S2-HA01-0.5-1.0	10/6/99	1100			✓	4						✓	✓	
S2-HA02-0.0-0.5	10/6/99	0900			✓	4						✓	✓	
S2-HA03-0.0-0.5	10/5/99	1820			✓	12						✓	✓	EXTRA VOL. for MS/MSD
S2-HA03-0.0-0.5D	10/5/99	1820			✓	4						✓	✓	
S2-HA03-0.5-2.0	10/5/99	1830			✓	4						✓	✓	
TB-2789-16	10/5/99	0800	✓						3			✓		
TB-2799-17	10/6/99	0730	✓						3			✓		

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Reconnaissance

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
[signature]	10/6/99	1345	JAMES COOPER	10/7/99	0905
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

0011

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Chain of Custody Record

Quanterra

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
IT Corporation	MARK PATMAN	10/6/99	24869
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
1600 W. Carson St	412-321-2228		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Pgh / PA / 15219	G. Wertman		
Project Name	**Carrier/Waybill Number**		
ALCOA BADIN	814838495266		
Contract/Purchase Order/Quote No.			
80333			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: VOC (Water)	VOC Bulk	Special Instructions/ Conditions of Receipt
S2-HA02-0.5-2.0	10/6/99	0910			✓	4						✓	✓	4°C - 10/7/99 - 59
TEMP BLANK	10/6/99		✓			✓								

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Per contract

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	[signature]	10/6/99	1345	JAMES [illegible]	10/7/99	0905
2.						
3.						

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

0012

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Lot No.: 14,10 W175

CONDITION UPON RECEIPT / VARIANCE REPORT
AUSTIN LABORATORY

CLIENT / PROJECT: I.T. Corp

RFA / COC NUMBERS: 25118, 25120, 25121, 25122, 25123, 26008

QUOTE # / NOTES: *WATERS LOGGED ON SEPERATE 26009, 26010 LOT PER S.G.

SAMPLES ARRIVED AT LAB: (Date/Time, Initials)	SAMPLES CHECKED IN: (Date/Time, Initials)	SAMPLES LOGGED IN:	LOG-IN REVIEWED:
10/9/99-1004 *10/11/99-0925	10/11/99-1700 -BG		

CONDITION / VARIANCE:

Yes	No		Condition / Variance (Check One)
☑	☐	1.	Custody seals on coolers/samples intact; explain if 'No':
☑	☐	2.	Samples received intact; if 'No' list sample ID/tests:
☑	☐	3.	Enough sample received for proper analysis; if 'No' list sample ID/tests:
☑	☐	4.	Cooler temperature within 4°C + 2°C; record temperature: 4°C — 10/11/99 — BG
☐	☑	5.	Acid preserved pH < 2:
☐	☑	6.	Base preserved pH > 10:
☐	☑	7.	Residual chlorine 'ND':
☐	☐	8.	Samples received in proper container; if 'No' list sample ID/tests: No CONT. SIZES ON COFC. SEE BACK!
☑	☐	9.	Proper paperwork received; explain if 'No':
☐	☑	10.	Sample IDs on containers match sample IDs on COC; explain if 'No': SB3-HA03-0.0-0.5 Δ NOT ON COFC, SB3-HA03-0.0-0.5 ON COFC TWICE.
☑	☐	11.	Proper # of containers received; explain if 'No': ~~RECV'D SB3-HA03-0.0-0.5 Δ NOT ON COFC, SB3-HA03-0.0-0.5 ON COFC TWICE.~~
☑	☐	12.	Volatile samples filled completely; if 'No' list ID and headspace: ☐ ID ____; mm headspace ____ ☐ ID ____; mm headspace ____ ☐ ID ____; mm headspace ____
☑	☐	13.	All coolers on airbill received with shipment; if 'No' list number: ☑ # listed 7 # received 7
☑	☐	14.	Other (explain): No TB

COMMENTS:

CORRECTIVE ACTION:

Client's Name: ____ Informed verbally on: ____ By: ____

Client's Name: ____ Informed in writing on: ____ By: ____

Sample(s) processed "as is". Comments: ____

Sample(s) on hold until: ____ If released, notify: ____

REVIEW:

Project Management: ____ Date: 10/11/99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Doesn't apply to samples in this pkg.

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Incorporated

Lot No.: 9J070143

CONDITION UPON RECEIPT / VARIANCE REPORT
AUSTIN LABORATORY

CLIENT / PROJECT: I.T. Corp. RFA / COC NUMBERS:

QUOTE # / NOTES: 32077

SAMPLES ARRIVED AT LAB: (Date/Time, Initials)	SAMPLES CHECKED IN: (Date/Time, Initials)	SAMPLES LOGGED IN:	LOG-IN REVIEWED:
10/7/99-0905-BG	10/7/99-1115-BG	DB	BG

CONDITION / VARIANCE:

Yes	No		Condition / Variance (Check One)
☑	☐	1.	Custody seals on coolers/samples intact; explain if 'No':
☑	☐	2.	Samples received intact; if 'No' list sample ID/tests:
☑	☐	3.	Enough sample received for proper analysis; if 'No' list sample ID/tests:
☑	☐	4.	Cooler temperature within 4°C + 2°C; record temperature: 4°C - 10/7/99 - BG
☐	☑	5.	Acid preserved pH < 2:
☐	☑	6.	Base preserved pH > 10:
☐	☑	7.	Residual chlorine 'ND':
☑	☐	8.	Samples received in proper container; if 'No' list sample ID/tests:
☑	☐	9.	Proper paperwork received; explain if 'No':
☑	☐	10.	Sample IDs on containers match sample IDs on COC; explain if 'No': NO CONT. SIZE ON COC. RECV'D 3X5g + 60ml FOR EA.
☑	☐	11.	Proper # of containers received; explain if 'No':
☑	☐	12.	Volatile samples filled completely; if 'No' list ID and headspace: ☐ ID ____; mm headspace ____ ☐ ID ____; mm headspace ____ ☐ ID ____; mm headspace ____
☑	☐	13.	All coolers on airbill received with shipment; if 'No' list number: ☑ # listed 1 # received 1
☑	☐	14.	Other (explain): 6 TB

COMMENTS:

CORRECTIVE ACTION:

Client's Name: ____ Informed verbally on: ____ By: ____

Client's Name: ____ Informed in writing on: ____ By: ____

Sample(s) processed "as is". Comments: ____

Sample(s) on hold until: ____ If released, notify: ____

REVIEW:

Project Management: ____ Date: 10/12/99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

00020

WORK ORDER COC # 25729 & 24869

Green, Sandra

From: Mark Portman[SMTP:mportman@mfgenv.com]
Sent: Wednesday, October 13, 1999 11:08 AM
To: Sandra Green
Cc: Henk van der Meyden
Subject: Review of Sample Confirmation Reports

Hi Sandra:

I have reviewed the sample confirmation reports you FAXED me yesterday and have the following changes:

S2-HA03-0.0-0.5 - add mercury
S2-HA03-0.5-2.0 - add mercury
S2-HA04-0.0-0.5 - add mercury
S2-HA04-0.5-2.0 - add mercury

I9 J07943 ✓ -18, 4Zn 22

S43-HAxx-yyyy series should be for Cadmium, Chromium, Lead, and Arsenic only (remove Selenium and Barium)

I9 JH0187 ✓ -22 4Zn 52
94, 95

Please call or E-mail me with any questions. Thank you -- Mark

Hg not added for these samples → M 12/14/99

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name: QUANTERRA Client: IT GROUP

b Code: QESAUS SDG No:

trix Spike ID: LAB MS/MSD Level: (low/med) LOW

t #: I9J110187 WO #: D3HKL102
BATCH: 9293264

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
1,1-Dichloroethene	56.1	ND	54.2	97	69 - 122	
Trichloroethene	56.1	ND	44.2	79	50 - 130	
Benzene	56.1	ND	49.7	89	74 - 120	
Toluene	56.1	ND	45.1	80	76 - 126	
Chlorobenzene	56.1	ND	40.9	73*	78 - 121	a

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

olumn to be used to flag recovery and RPD values with an asterisk
alues outside of QC limits

: 0 out of 0 outside limits
ke Recovery: 1 out of 5 outside limits

MENTS:

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FORM 5

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: J100399

Lab File ID: J100301 BFB Injection Date: 10/04/99

Instrument ID: MSJ1 BFB Injection Time: 0329

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.8
75	30.0 - 60.0% of mass 95	48.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	63.5
175	5.0 - 9.0% of mass 174	4.6 (7.2)1
176	95.0 - 101.0% of mass 174	60.5 (95.2)1
177	5.0 - 9.0% of mass 176	4.2 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	I9I250115-35	D2WP7107	J100327	10/04/99	1500
02	I9I250115-39	D2WPC107	J100328	10/04/99	1526
03	I9I250115-43	D2WPG107	J100329	10/04/99	1552
04	I9I250115-45	D2WPJ103	J100330	10/04/99	1618
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

} out of ICAL time

Note extra samples

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: J101799

Lab File ID: J101701 BFB Injection Date: 10/17/99

Instrument ID: MSJ1 BFB Injection Time: 1616

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.1
75	30.0 - 60.0% of mass 95	49.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	69.6
175	5.0 - 9.0% of mass 174	5.3 (7.7)1
176	95.0 - 101.0% of mass 174	67.7 (97.3)1
177	5.0 - 9.0% of mass 176	4.4 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	I9J010165-14	D3A63103	J101724	10/18/99	0228
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

- out of 12 hr time at site samples

Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 04-OCT-1999 05:04
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\ins_data\MsJ\msj1.i\J100399.b\J8260.m
Cal Date : 12-Oct-1999 19:37 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2
10 Acrolein	0.06033	0.06059	0.05921	0.06294	0.06479	0.06258	AVRG		0.06174		3.33433
11 Trichlorotrifluoroethane	0.20504	0.23331	0.22895	0.24589	0.24857	0.24790	AVRG		0.23494		7.13878
12 Acetone	0.11962	0.09177	0.07661	0.07586	0.07355	0.06731	AVRG		0.08412		22.79237
13 1,1-Dichloroethene	0.23769	0.25062	0.24596	0.26419	0.26995	0.26480	AVRG		0.25553		4.95799
14 Bromoethane	0.22507	0.23383	0.22349	0.23757	0.23790	0.23427	AVRG		0.23202		2.69018
15 Acetonitrile	0.03742	0.02911	0.03323	0.03377	0.03342	0.03145	AVRG		0.03307		8.32480
16 Allyl Chloride	0.13398	0.14547	0.14423	0.15631	0.15791	0.15827	AVRG		0.14936		6.55018
17 Iodomethane	0.41878	0.42340	0.41601	0.43935	0.44145	0.43495	AVRG		0.42899		2.55770
18 Methylene Chloride	0.57171	0.43537	0.35997	0.32917	0.31512	0.30160	AVRG		0.38549		26.70285
19 Acrylonitrile	0.10726	0.10794	0.10625	0.11007	0.11194	0.10791	AVRG		0.10856		1.90921
20 Methyl-tert-Butyl Ether	0.75798	0.82633	0.77279	0.84861	0.85658	0.83572	AVRG		0.81634		5.03265
21 Carbon Disulfide	0.83905	0.88039	0.85917	0.90375	0.88477	0.82451	AVRG		0.86527		3.45788
22 Trans-1,2-Dichloroethene	0.27854	0.29167	0.28723	0.30452	0.30757	0.30043	AVRG		0.29499		3.77698
23 Vinyl acetate	0.16304	0.17132	0.15923	0.16572	0.16679	0.16276	AVRG		0.16481		2.51020
24 1,1-Dichloroethane	0.32572	0.33984	0.32871	0.35089	0.35486	0.35524	AVRG		0.34254		3.83832
25 Chloroprene	0.22917	0.24335	0.24133	0.26599	0.27164	0.27292	AVRG		0.25407		7.26514
26 2-Butanone	+++++ ok	0.09339	0.08947	0.09500	0.09658	0.09409	AVRG		0.09370		2.82867

Corrected for Acetonitrile

02213

Aqueous

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 04-OCT-1999 05:04
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\ins_data\MsJ\msj1.i\J100399.b\J8260.m
Cal Date : 12-Oct-1999 19:37 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
27 Propionitrile	0.02865	0.02820	0.02875	0.03044	0.03096	0.03011	AVRG		0.02952		3.82183	✓
28 2,2-Dichloropropane	0.17759	0.19138	0.17888	0.19299	0.18944	0.18862	AVRG		0.18649		3.52741	
29 cis-1,2-Dichloroethene	0.22101	0.22496	0.22281	0.23495	0.24083	0.24460	AVRG		0.23153		4.31436	
30 Methacrylonitrile	0.09105	0.09222	0.09075	0.09706	0.09966	0.09999	AVRG		0.09512		4.51232	
31 Isobutyl alcohol	0.00630	0.00732	0.00715	0.00806	0.00871	0.00924	AVRG		0.00780		13.87767	<- ✓
32 Chloroform	0.34601	0.35523	0.34563	0.36459	0.37000	0.36796	AVRG		0.35824		3.03358	
33 Bromochloromethane	0.10339	0.10525	0.10238	0.11052	0.11417	0.11635	AVRG		0.10868		5.39273	
34 Tetrahydrofuran	0.06553	0.06222	0.05892	0.06057	0.06275	0.06212	AVRG		0.06202		3.57814	
36 1,1,1-Trichloroethane	0.26071	0.27758	0.27281	0.29763	0.30169	0.30641	AVRG		0.28614		6.41023	
37 1,1-Dichloropropene	0.24033	0.26066	0.25783	0.27677	0.28199	0.28478	AVRG		0.26706		6.42423	
38 1-Chlorobutane	+++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	not TC
39 Carbon Tetrachloride	0.19229	0.21623	0.22126	0.24757	0.26429	0.27442	AVRG		0.23601		13.30282	
41 1,2-Dichloroethane	0.28600	0.29008	0.27774	0.29227	0.29638	0.29617	AVRG		0.28978		2.44001	
42 Benzene	0.82218	0.84580	0.82395	0.86497	0.87196	0.84391	AVRG		0.84546		2.41832	
44 Trichloroethene	0.21257	0.22119	0.21043	0.23005	0.23470	0.23829	AVRG		0.22454		5.17887	
45 Methyl Methacrylate	0.15245	0.16172	0.16030	0.17695	0.18649	0.19057	AVRG		0.17141		9.04513	
46 1,2-Dichloropropane	0.20067	0.20861	0.20312	0.21480	0.22247	0.22379	AVRG		0.21224		4.59127	

00274

Agrees

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 04-OCT-1999 05:04
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\ins_data\MsJ\msj1.i\J100399.b\J8260.m
Cal Date : 12-Oct-1999 19:37 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
47 Bromodichloromethane	0.24399	0.25647	0.25336	0.28002	0.29377	0.30148	AVRG		0.27152		8.68257
48 1,4-Dioxane	0.00386	0.00328	0.00293	0.00293	0.00304	0.00269	AVRG		0.00312		13.03582
49 Dibromomethane	0.12044	0.12468	0.12205	0.12834	0.13335	0.13706	AVRG		0.12765		5.12101
50 2-Chloroethylvinyl Ether	+++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
51 4-Methyl-2-Pentanone	0.18320	0.19264	0.18762	0.20430	0.21249	0.20916	AVRG		0.19823		6.09186
52 cis-1,3-Dichloropropene	0.30199	0.32020	0.31827	0.35329	0.36515	0.37339	AVRG		0.33872		8.58018
54 Toluene	3.81680	3.93109	3.82242	3.97962	3.93531	3.77256	AVRG		3.87630		2.13873
55 Ethyl Methacrylate	0.26158	0.28350	0.28668	0.32090	0.33830	0.34609	AVRG		0.30618		11.05109
56 trans-1,3-Dichloropropene	1.12517	1.18652	1.20127	1.32998	1.37541	1.38709	AVRG		1.26757		8.71760
57 2-Hexanone	0.57862	0.55019	0.56306	0.59834	0.61116	0.60676	AVRG		0.58469		4.23733
58 1,1,2-Trichloroethane	0.80357	0.82842	0.81416	0.85898	0.87784	0.88170	AVRG		0.84411		3.94994
59 1,3-Dichloropropane	1.48836	1.52323	1.48317	1.55912	1.55705	1.53761	AVRG		1.52476		2.16422
60 Tetrachloroethene	0.79942	0.83754	0.83174	1.06397	0.93025	0.92420	AVRG		0.89785		10.80243
61 Dibromochloromethane	0.60492	0.65112	0.66223	0.77943	0.83632	0.88242	AVRG		0.73607		15.27631
62 1,2-Dibromoethane	0.19259	0.20130	0.19847	0.21744	0.22215	0.22616	AVRG		0.20969		6.66047
63 1-Chlorohexane	1.06693	1.20102	1.18926	1.30031	1.32326	1.34674	AVRG		1.23792		8.54790
65 Chlorobenzene	2.57077	2.59292	2.55589	2.67894	2.69656	2.69110	AVRG		2.63103		2.45884

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 04-OCT-1999 05:04
End Cal Date : 04-OCT-1999 07:14
Quant Method : ISTD
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\ins_data\MsJ\msj1.i\J100399.b\J8260.m
Cal Date : 12-Oct-1999 19:37 millers

Compound	5.0000 Level 1	10.0000 Level 2	20.0000 Level 3	50.0000 Level 4	100.0000 Level 5	200.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2
66 Ethyl Benzene	1.34315	1.40131	1.37247	1.48064	1.52975	1.60553	AVRG		1.45547		6.94622
67 1,1,1,2-Tetrachloroethane	0.73074	0.75779	0.76762	0.87086	0.92760	1.01234	AVRG		0.84449		13.20089
68 M- & P-Xylene	1.65627	1.75064	1.71728	1.86532	1.90455	1.89035	AVRG		1.79740		5.74192
69 O-Xylene	1.64797	1.69414	1.66607	1.79869	1.85883	1.88268	AVRG		1.75806		5.80099
70 Styrene	2.67667	2.84949	2.83733	3.10063	3.15265	3.16521	AVRG		2.96366		6.85656
71 Isopropylbenzene	4.01835	4.32898	4.33036	4.65759	4.66875	4.43839	AVRG		4.40707		5.51444
72 Bromoform	0.29465	0.31462	0.34057	0.43016	0.51190	0.58244	AVRG		0.41239		28.21900
73 1,1,2,2-Tetrachloroethane	1.06339	1.07725	1.07664	1.14716	1.17081	1.15551	AVRG		1.11513		4.27240
75 1,2,3-Trichloropropane	0.22321	0.22336	0.21332	0.22812	0.23455	0.23491	AVRG		0.22625		3.60220
76 trans-1,4-dichloro-2-butene	0.09563	0.10642	0.12435	0.16022	0.19110	0.20660	AVRG		0.14739		31.04950
77 N-Propylbenzene	3.06040	3.27529	3.20850	3.40765	3.37810	3.11968	AVRG		3.24160		4.27747
78 Bromobenzene	0.61124	0.64417	0.62565	0.67041	0.68986	0.71373	AVRG		0.65918		5.95006
79 1,3,5-Trimethylbenzene	2.10043	2.29223	2.24983	2.41699	2.47620	2.43076	AVRG		2.32774		6.06393
80 2-Chlorotoluene	2.22488	2.29585	2.25665	2.36525	2.44587	2.41630	AVRG		2.33413		3.81331
81 4-Chlorotoluene	2.03885	2.11685	2.00472	2.15608	2.16142	2.08593	AVRG		2.09398		3.02037
82 tert-Butylbenzene	1.78634	1.98940	1.95781	2.07726	2.14392	2.11532	AVRG		2.01167		6.54606
83 1,2,4-Trimethylbenzene	2.29799	2.38085	2.35560	2.52579	2.60675	2.56739	AVRG		2.45573		5.17334

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-1999 17:09
End Cal Date : 17-OCT-1999 19:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J8260S.m
Cal Date : 17-Oct-1999 19:40 tap
Curve Type : Average

Calibration File Names:
Level 1: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J101703.D
Level 2: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J101704.D
Level 3: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J101705.D
Level 4: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J101706.D
Level 5: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101799.B\J101707.D
Level 6: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101799.B\J101708.D

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
M	1 1,2-Dichloroethene (total)	0.24077	0.25447	0.25158	0.26067	0.26576	0.25839	0.25527	3.386
M	2 Xylenes (total)	1.53016	1.68622	1.67669	1.77167	1.82085	1.73491	1.70342	5.898
	3 Dichlorodifluoromethane	0.17497	0.17668	0.15789	0.15787	0.15597	0.14401	0.16123	7.717
	4 Chloromethane	0.24747	0.23868	0.22941	0.22647	0.22094	0.20506	0.22800	6.428
	5 Vinyl Chloride	0.26581	0.28143	0.26442	0.24787	0.17339	0.11689	0.22497	28.998
	6 Bromomethane	0.21127	0.22162	0.21106	0.21873	0.22000	0.18394	0.21110	6.651
	7 Chloroethane	0.18021	0.18498	0.17621	0.18035	0.17760	0.14379	0.17386	8.646
	8 Trichlorofluoromethane	0.41422	0.41250	0.38702	0.39366	0.39804	0.35659	0.39367	5.347
	9 Ethyl ether	0.21440	0.23538	0.21887	0.22893	0.21588	0.20328	0.21946	5.171
	10 Acrolein	0.05743	0.06299	0.05774	0.06784	0.06218	0.05890	0.06118	6.529
	11 Trichlorotrifluoroethane	0.24204	0.24225	0.22702	0.24246	0.24616	0.22842	0.23806	3.429
	12 Acetone	+++++	0.15229	0.11733	0.11079	0.08676	0.07661	0.10876	27.159
	13 1,1-Dichloroethene	0.24474	0.25346	0.24144	0.25602	0.25992	0.24906	0.25077	2.790
	14 Bromoethane	0.22307	0.23726	0.23039	0.23569	0.24035	0.23226	0.23317	2.611
	15 Acetonitrile	0.02319	0.02286	0.02122	0.02076	0.02476	0.01967	0.02207	8.412
	16 Allyl Chloride	0.12373	0.13575	0.13634	0.14510	0.14985	0.14395	0.13912	6.668
	17 Iodomethane	0.40723	0.42465	0.41991	0.43049	0.42853	0.41352	0.42072	2.143
	18 Methylene Chloride	+++++	0.56424	0.40982	0.34210	0.31402	0.29959	0.38595	28.059
	19 Acrylonitrile	0.10451	0.10434	0.09388	0.11224	0.10175	0.09655	0.10221	6.370
	20 Methyl-tert-Butyl Ether	0.76878	0.80212	0.76902	0.83287	0.80641	0.76399	0.79053	3.496
	21 Carbon Disulfide	0.74890	0.81075	0.77353	0.80101	0.79592	0.73288	0.77716	3.996
	22 Trans-1,2-Dichloroethene	0.27085	0.28949	0.28096	0.29284	0.29662	0.28449	0.28587	3.239
	23 Vinyl acetate	0.23078	0.25734	0.24829	0.26734	0.26408	0.24159	0.25157	5.567
	24 1,1-Dichloroethane	0.30234	0.32833	0.31467	0.33034	0.33938	0.33485	0.32499	4.272
	25 Chloroprene	0.25397	0.27408	0.27553	0.28994	0.30049	0.29302	0.28117	5.978

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-1999 17:09
End Cal Date : 17-OCT-1999 19:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J8260S.m
Cal Date : 17-Oct-1999 19:40 tap
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD	
26 2-Butanone	0.09297	0.09953	0.08802	0.11377	0.10194	0.10104	0.09955	8.830	
27 Propionitrile	0.02340	0.02620	0.02440	0.03219	0.02933	0.02867	0.02736	12.091	✓
28 2,2-Dichloropropane	0.15951	0.16858	0.16392	0.17238	0.17388	0.16014	0.16640	3.698	
29 cis-1,2-Dichloroethene	0.21068	0.21945	0.22220	0.22850	0.23490	0.23229	0.22467	4.013	
30 Methacrylonitrile	0.07086	0.08072	0.07783	0.09496	0.09060	0.09159	0.08443	11.132	
31 Isobutyl alcohol	0.00590	0.00573	0.00532	0.00906	0.00899	0.01016	0.00753	27.984	<- ✓
32 Chloroform	0.31447	0.34147	0.33224	0.35170	0.35880	0.35302	0.34195	4.807	
33 Bromochloromethane	0.09903	0.10443	0.10217	0.10844	0.10998	0.11137	0.10590	4.553	
34 Tetrahydrofuran	0.05658	0.05870	0.05321	0.06716	0.06087	0.06119	0.05962	7.943	
36 1,1,1-Trichloroethane	0.25798	0.27307	0.27029	0.27951	0.29275	0.28436	0.27633	4.367	
37 1,1-Dichloropropene	0.22843	0.24170	0.23663	0.25394	0.26134	0.25684	0.24648	5.226	
38 1-Chlorobutane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	not RF ✓
39 Carbon Tetrachloride	0.20320	0.21801	0.21887	0.23578	0.25403	0.25370	0.23060	9.006	
41 1,2-Dichloroethane	0.23883	0.25769	0.25362	0.27344	0.26694	0.26655	0.25951	4.765	
42 Benzene	0.77514	0.82220	0.79509	0.82371	0.82663	0.77815	0.80349	2.951	
44 Trichloroethene	0.24666	0.23129	0.20974	0.23193	0.23463	0.23382	0.23134	5.181	
45 Methyl Methacrylate	0.11662	0.13146	0.13898	0.17561	0.16984	0.16725	0.14996	16.134	
46 1,2-Dichloropropane	0.17144	0.17845	0.17798	0.19185	0.20307	0.20297	0.18763	7.271	
47 Bromodichloromethane	0.20761	0.23351	0.22873	0.25962	0.26917	0.27341	0.24534	10.627	
48 1,4-Dioxane	0.00208	0.00259	0.00258	0.00359	0.00318	0.00325	0.00288	19.380	✓
49 Dibromomethane	0.10778	0.11985	0.11785	0.13179	0.12935	0.12985	0.12274	7.573	
50 2-Chloroethylvinyl Ether	0.17144	0.17845	0.17798	0.19185	0.20307	0.20297	0.18763	7.271	
51 4-Methyl-2-Pentanone	0.17767	0.20255	0.19594	0.25811	0.23901	0.24936	0.22044	14.840	
52 cis-1,3-Dichloropropene	0.23387	0.27792	0.28287	0.32087	0.32749	0.32830	0.29522	12.683	
54 Toluene	3.67873	3.86019	3.85634	3.95161	3.96453	3.62500	3.82273	3.683	
55 Ethyl Methacrylate	0.17744	0.22007	0.22637	0.29864	0.29499	0.30354	0.25351	20.800	
56 trans-1,3-Dichloropropene	0.82385	1.00096	1.07553	1.21308	1.24952	1.26348	1.10440	15.600	
57 2-Hexanone	0.40850	0.50037	0.47994	0.63630	0.58298	0.60475	0.53547	16.208	
58 1,1,2-Trichloroethane	0.74248	0.78553	0.77973	0.85324	0.83705	0.83417	0.80537	5.306	
59 1,3-Dichloropropane	1.30468	1.38046	1.37428	1.48253	1.46166	1.43105	1.40578	4.665	
60 Tetrachloroethene	2.29597	1.78088	1.59257	1.83398	1.82177	1.92261	1.87463	12.456	
61 Dibromochloromethane	0.50093	0.58154	0.63395	0.73720	0.78932	0.83351	0.67941	18.926	
62 1,2-Dibromoethane	0.15850	0.18011	0.17503	0.20217	0.19854	0.19962	0.18566	9.375	

Soil

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-1999 17:09
End Cal Date : 17-OCT-1999 19:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J8260S.m
Cal Date : 17-Oct-1999 19:40 tap
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	___ RRF	% RSD
63 1-Chlorohexane	0.99758	1.13444	1.15496	1.24001	1.28892	1.24598	1.17698	8.971
65 Chlorobenzene	2.43716	2.61483	2.55487	2.64198	2.65619	2.55072	2.57596	3.137
66 Ethyl Benzene	1.22765	1.36363	1.31881	1.41064	1.47788	1.46750	1.37768	6.914
67 1,1,1,2-Tetrachloroethane	0.66013	0.75161	0.77633	0.86490	0.91611	0.96499	0.82234	13.799
68 M- & P-Xylene	1.58391	1.72599	1.70666	1.79481	1.83745	1.73146	1.73004	5.016
69 O-Xylene	1.42265	1.60670	1.61675	1.72538	1.78765	1.74180	1.65015	8.027
70 Styrene	2.18541	2.56343	2.64040	2.90568	2.97996	2.89617	2.69517	11.082
71 Isopropylbenzene	3.69031	4.13640	4.14183	4.42731	4.50276	4.12636	4.17083	6.873
72 Bromoform	0.22994	0.29666	0.32183	0.43245	0.47170	0.53356	0.38102	30.513
73 1,1,2,2-Tetrachloroethane	0.55181	0.97017	0.96700	1.12000	1.06801	1.03899	0.95266	21.510
75 1,2,3-Trichloropropane	0.20011	0.22580	0.21513	0.24906	0.23383	0.23220	0.22602	7.456
76 trans-1,4-dichloro-2-butene	0.07182	0.10223	0.12485	0.17359	0.18257	0.19626	0.14189	35.082
77 N-Propylbenzene	2.87771	3.27754	3.21661	3.35622	3.32437	2.92318	3.16260	6.606
78 Bromobenzene	0.62008	0.68422	0.65885	0.69498	0.70315	0.68952	0.67513	4.572
79 1,3,5-Trimethylbenzene	1.92699	2.21312	2.19305	2.37672	2.41329	2.26494	2.23135	7.757
80 2-Chlorotoluene	2.05720	2.28129	2.21021	2.29527	2.33484	2.23711	2.23599	4.381
81 4-Chlorotoluene	1.90318	2.15298	2.03762	2.11513	2.10456	1.95762	2.04518	4.787
82 tert-Butylbenzene	1.57939	1.96371	1.96114	2.12857	2.19400	2.01061	1.97290	10.862
83 1,2,4-Trimethylbenzene	2.00811	2.29552	2.27741	2.42716	2.47911	2.30389	2.29853	7.122
84 Pentachloroethane	0.01165	0.10218	0.12408	0.12421	0.14834	0.13457	0.10751	45.891
85 Sec-Butylbenzene	2.48865	2.87558	2.84168	3.02621	3.05574	2.75432	2.84036	7.271
86 4-Isopropyltoluene	1.94713	2.28459	2.27973	2.45828	2.50570	2.35679	2.30537	8.579
87 1,3-Dichlorobenzene	1.20259	1.31505	1.24300	1.29532	1.32375	1.28113	1.27681	3.620
89 1,4-Dichlorobenzene	1.27707	1.36271	1.28542	1.33700	1.33933	1.30640	1.31799	2.559
90 n-Butylbenzene	1.86943	2.12958	2.13377	2.31603	2.33772	2.19323	2.16329	7.818
91 1,2-Dichlorobenzene	1.12589	1.23909	1.18905	1.25542	1.25401	1.24471	1.21803	4.215
92 Hexachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
93 1,2-Dibromo-3-chloropropane	0.06631	0.09856	0.10060	0.14492	0.14377	0.15437	0.11809	29.491
94 1,2,4-Trichlorobenzene	0.67113	0.74805	0.74142	0.81341	0.84000	0.85309	0.77785	8.979
95 Hexachlorobutadiene	0.28747	0.31628	0.31388	0.35966	0.38626	0.40001	0.34393	13.029
96 Naphthalene	1.88442	2.17032	2.14115	2.55468	2.38725	2.19193	2.22162	10.305
97 1,2,3-Trichlorobenzene	0.69583	0.75352	0.73533	0.81795	0.84691	0.86608	0.78594	8.610

Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-1999 17:09
End Cal Date : 17-OCT-1999 19:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101799.b\J8260S.m
Cal Date : 17-Oct-1999 19:40 tap
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	___ RRF	% RSD
$ 35 Dibromofluoromethane	0.17469	0.20762	0.20774	0.22548	0.21811	0.21555	0.20820	8.524
$ 40 1,2-Dichloroethane-d4	0.04754	0.05629	0.05402	0.05693	0.05517	0.05574	0.05428	6.353
$ 53 Toluene-d8	0.72871	0.87670	0.86050	0.96374	0.89364	0.82221	0.85758	9.153
$ 74 4-Bromofluorobenzene	0.76919	0.89924	0.87400	0.93457	0.89933	0.87484	0.87520	6.448

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101802.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101899.B\J8260.m

Injection Date: 18-OCT-1999 10:57
Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Init. Cal. Times: 05:04 07:14
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$ 35 Dibromofluoromethane	50.88612	50.00000	0.010	-1.8	50.0	
$ 40 1,2-Dichloroethane-d4	49.82971	50.00000	0.010	0.3	50.0	
$ 53 Toluene-d8	50.34617	50.00000	0.010	-0.7	50.0	
$ 74 4-Bromofluorobenzene	51.83702	50.00000	0.010	-3.7	50.0	
3 Dichlorodifluoromethane	0.18900	0.20501	0.010	8.5	50.0	
4 Chloromethane	0.25626	0.28519	0.100	11.3	50.0	
5 Vinyl Chloride	0.26465	0.21490	0.010	-18.8	20.0	
6 Bromomethane	0.22053	0.27272	0.010	23.7	50.0	
7 Chloroethane	0.18965	0.22884	0.010	20.7	50.0	
8 Trichlorofluoromethane	0.34587	0.46018	0.010	33.1	50.0	✓
9 Ethyl ether	0.24958	0.19456	0.010	-22.0	50.0	
10 Acrolein	0.06174	0.05170	0.010	-16.3	50.0	
11 Trichlorotrifluoroethane	0.23494	0.20839	0.010	-11.3	50.0	
12 Acetone	0.08412	0.06802	0.010	-19.1	50.0	
13 1,1-Dichloroethene	0.25553	0.22164	0.010	-13.3	20.0	
14 Bromoethane	0.23202	0.20526	0.010	-11.5	50.0	
15 Acetonitrile	0.03307	0.02661	0.010	-19.5	50.0	✓
16 Allyl Chloride	0.14936	0.13478	0.010	-9.8	50.0	
17 Iodomethane	0.42899	0.36589	0.010	-14.7	50.0	
18 Methylene Chloride	0.38549	0.26130	0.010	-32.2	50.0	✓
19 Acrylonitrile	0.10856	0.08837	0.010	-18.6	50.0	
20 Methyl-tert-Butyl Ether	0.81634	0.73665	0.010	-9.8	50.0	
21 Carbon Disulfide	0.86527	0.71091	0.010	-17.8	50.0	
22 Trans-1,2-Dichloroethene	0.29499	0.26501	0.010	-10.2	50.0	
23 Vinyl acetate	0.16481	0.11508	0.010	30.2	50.0	✓
24 1,1-Dichloroethane	0.34254	0.33996	0.100	-0.8	50.0	
25 Chloroprene	0.25407	0.30276	0.010	19.2	50.0	
26 2-Butanone	0.09370	0.09610	0.010	2.6	50.0	
27 Propionitrile	0.02952	0.02812	0.010	-4.7	50.0	✓
28 2,2-Dichloropropane	0.18649	0.18843	0.010	1.0	50.0	
29 cis-1,2-Dichloroethene	0.23153	0.23145	0.010	-0.0	50.0	
30 Methacrylonitrile	0.09512	0.09264	0.010	-2.6	50.0	
31 Isobutyl alcohol	0.00780	0.00779	0.010	-0.1	50.0	✓ <-
32 Chloroform	0.35824	0.35361	0.010	-1.3	20.0	
33 Bromochloromethane	0.10868	0.10881	0.010	0.1	50.0	
34 Tetrahydrofuran	0.06202	0.05582	0.010	-10.0	50.0	

10-18-99

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101802.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101899.B\J8260.m

Injection Date: 18-OCT-1999 10:57
Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Init. Cal. Times: 05:04 07:14
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
36	1,1,1-Trichloroethane	0.28614	0.29273	0.010	2.3	50.0	
37	1,1-Dichloropropene	0.26706	0.26811	0.010	0.4	50.0	
38	1-Chlorobutane	++++	0.01123	0.010	++++	50.0	<- Not TC
39	Carbon Tetrachloride	0.23601	0.24620	0.010	4.3	50.0	
41	1,2-Dichloroethane	0.28978	0.27476	0.010	-5.2	50.0	
42	Benzene	0.84546	0.83043	0.010	-1.8	50.0	
44	Trichloroethene	0.22454	0.22267	0.010	-0.8	50.0	
45	Methyl Methacrylate	0.17141	0.16888	0.010	-1.5	50.0	
46	1,2-Dichloropropane	0.21224	0.20263	0.010	-4.5	20.0	
47	Bromodichloromethane	0.27152	0.26389	0.010	-2.8	50.0	
48	1,4-Dioxane	0.00312	0.00286	0.001	-8.4	50.0	✓
49	Dibromomethane	0.12765	0.12904	0.010	1.1	50.0	
50	2-Chloroethylvinyl Ether	++++	0.20263	0.010	++++	50.0	<- Not TC
51	4-Methyl-2-Pentanone	0.19823	0.18475	0.010	-6.8	50.0	
52	cis-1,3-Dichloropropene	0.33872	0.33887	0.010	0.0	50.0	
54	Toluene	3.87630	3.87682	0.010	0.0	20.0	
55	Ethyl Methacrylate	0.30618	0.30279	0.010	-1.1	50.0	
56	trans-1,3-Dichloropropene	1.26757	1.28431	0.010	1.3	50.0	
57	2-Hexanone	0.58469	0.54365	0.010	-7.0	50.0	
58	1,1,2-Trichloroethane	0.84411	0.81372	0.010	-3.6	50.0	
59	1,3-Dichloropropane	1.52476	1.44747	0.010	-5.1	50.0	
60	Tetrachloroethene	0.89785	0.90769	0.010	1.1	50.0	
61	Dibromochloromethane	0.73607	0.73460	0.010	-0.2	50.0	
62	1,2-Dibromoethane	0.20969	0.20081	0.010	-4.2	50.0	
63	1-Chlorohexane	1.23792	1.30852	0.010	5.7	50.0	
65	Chlorobenzene	2.63103	2.57815	0.300	-2.0	50.0	✓
66	Ethyl Benzene	1.45547	1.45082	0.010	-0.3	20.0	
67	1,1,1,2-Tetrachloroethane	0.84449	0.86272	0.010	2.2	50.0	✓
68	M- & P-Xylene	1.79740	1.78932	0.010	-0.4	50.0	
69	O-Xylene	1.75806	1.73300	0.010	-1.4	50.0	
70	Styrene	2.96366	2.94198	0.010	-0.7	50.0	
71	Isopropylbenzene	4.40707	4.43716	0.010	0.7	50.0	
72	Bromoform	0.41239	0.42769	0.100	3.7	50.0	✓
73	1,1,2,2-Tetrachloroethane	1.11513	1.02454	0.300	-8.1	50.0	✓
75	1,2,3-Trichloropropane	0.22625	0.21326	0.010	-5.7	50.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101802.D
Analysis Type: WATER
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101899.B\J8260.m

Injection Date: 18-OCT-1999 10:57
Init. Cal. Date(s): 04-OCT-1999 04-OCT-1999
Init. Cal. Times: 05:04 07:14
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
	76 trans-1,4-dichloro-2-butene	0.14739	0.18631	0.010	26.4	50.0	✓
	77 N-Propylbenzene	3.24160	3.29754	0.010	1.7	50.0	
	78 Bromobenzene	0.65918	0.66397	0.010	0.7	50.0	
	79 1,3,5-Trimethylbenzene	2.32774	2.33777	0.010	0.4	50.0	
	80 2-Chlorotoluene	2.33413	2.25852	0.010	-3.2	50.0	
	81 4-Chlorotoluene	2.09398	2.08347	0.010	-0.5	50.0	
	82 tert-Butylbenzene	2.01167	2.00921	0.010	-0.1	50.0	
	83 1,2,4-Trimethylbenzene	2.45573	2.41561	0.010	-1.6	50.0	
	84 Pentachloroethane	0.25888	0.28140	0.010	8.7	50.0	
	85 Sec-Butylbenzene	2.93794	2.94662	0.010	0.3	50.0	
	86 4-Isopropyltoluene	2.45790	2.46560	0.010	0.3	50.0	
	87 1,3-Dichlorobenzene	1.32751	1.31026	0.010	-1.3	50.0	
	89 1,4-Dichlorobenzene	1.37326	1.33933	0.010	-2.5	50.0	
	90 n-Butylbenzene	2.39521	2.33134	0.010	-2.7	50.0	
	91 1,2-Dichlorobenzene	1.28347	1.24232	0.010	-3.2	50.0	
	92 Hexachloroethane	++++	0.00580	0.010	++++	50.0	<- Not Rec
	93 1,2-Dibromo-3-chloropropane	0.12758	0.12629	0.010	-1.0	50.0	
	94 1,2,4-Trichlorobenzene	0.90819	0.90913	0.010	0.1	50.0	
	95 Hexachlorobutadiene	0.35316	0.35764	0.010	1.3	50.0	
	96 Naphthalene	2.56381	2.56381	0.010	0.0	50.0	
	97 1,2,3-Trichlorobenzene	0.90413	0.89276	0.010	-1.3	50.0	
M	1 1,2-Dichloroethene (total)	0.26326	0.24823	0.010	-5.7	50.0	
M	2 Xylenes (total)	1.78429	1.77054	0.010	-0.8	50.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101902.D
Analysis Type: SOIL
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101999.B\J8260S.m

Injection Date: 20-OCT-1999 00:15
Init. Cal. Date(s): 17-OCT-1999 17-OCT-1999
Init. Cal. Times: 17:09 19:22
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$ 35 Dibromofluoromethane	0.20820	0.22310	0.010	7.2	50.0	
$ 40 1,2-Dichloroethane-d4	0.05428	0.05672	0.010	4.5	50.0	
$ 53 Toluene-d8	0.85758	0.95247	0.010	11.1	50.0	
$ 74 4-Bromofluorobenzene	0.87520	0.90534	0.010	3.4	50.0	
3 Dichlorodifluoromethane	0.16123	0.14736	0.010	-8.6	50.0	
4 Chloromethane	0.22800	0.22834	0.100	0.1	50.0	
5 Vinyl Chloride	0.22497	0.25158	0.010	11.8	20.0	
6 Bromomethane	0.21110	0.23156	0.010	9.7	50.0	
7 Chloroethane	0.17386	0.19118	0.010	10.0	50.0	
8 Trichlorofluoromethane	0.39367	0.46268	0.010	17.5	50.0	
9 Ethyl ether	0.21946	0.22870	0.010	4.2	50.0	
10 Acrolein	0.06118	0.07658	0.010	25.2	50.0	✓
11 Trichlorotrifluoroethane	0.23806	0.29661	0.010	24.6	50.0	
12 Acetone	0.10876	0.11792	0.010	8.4	50.0	
13 1,1-Dichloroethene	0.25077	0.29087	0.010	16.0	20.0	
14 Bromoethane	0.23317	0.26484	0.010	13.6	50.0	
15 Acetonitrile	0.02207	0.02585	0.010	17.1	50.0	✓
16 Allyl Chloride	0.13912	0.16399	0.010	17.9	50.0	
17 Iodomethane	0.42072	0.48570	0.010	15.4	50.0	
18 Methylene Chloride	0.38595	0.34151	0.010	-11.5	50.0	
19 Acrylonitrile	0.10221	0.11815	0.010	15.6	50.0	
20 Methyl-tert-Butyl Ether	0.79053	0.89984	0.010	13.8	50.0	
21 Carbon Disulfide	0.77716	0.94711	0.010	21.9	50.0	
22 Trans-1,2-Dichloroethene	0.28587	0.33500	0.010	17.2	50.0	
23 Vinyl acetate	0.25157	0.33550	0.010	33.4	50.0	✓
24 1,1-Dichloroethane	0.32499	0.35087	0.100	8.0	50.0	
25 Chloroprene	0.28117	0.32124	0.010	14.3	50.0	
26 2-Butanone	0.09955	0.11891	0.010	19.5	50.0	
27 Propionitrile	0.02736	0.03475	0.010	27.0	50.0	✓
28 2,2-Dichloropropane	0.16640	0.19999	0.010	20.2	50.0	
29 cis-1,2-Dichloroethene	0.22467	0.24198	0.010	7.7	50.0	
30 Methacrylonitrile	0.08443	0.09882	0.010	17.0	50.0	
31 Isobutyl alcohol	0.00753	0.00959	0.010	27.4	50.0	<-✓
32 Chloroform	0.34195	0.37483	0.010	9.6	20.0	
33 Bromochloromethane	0.10590	0.11110	0.010	4.9	50.0	
34 Tetrahydrofuran	0.05962	0.07096	0.010	19.0	50.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101902.D
Analysis Type: SOIL
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101999.B\J8260S.m

Injection Date: 20-OCT-1999 00:15
Init. Cal. Date(s): 17-OCT-1999 17-OCT-1999
Init. Cal. Times: 17:09 19:22
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
36	1,1,1-Trichloroethane	0.27633	0.31735	0.010	14.8	50.0	
37	1,1-Dichloropropene	0.24648	0.28647	0.010	16.2	50.0	
38	1-Chlorobutane	++++	0.01253	0.010	++++	50.0	<- NY no+ re
39	Carbon Tetrachloride	0.23060	0.27638	0.010	19.9	50.0	
41	1,2-Dichloroethane	0.25951	0.27184	0.010	4.8	50.0	
42	Benzene	0.80349	0.88053	0.010	9.6	50.0	
44	Trichloroethene	0.23134	0.25017	0.010	8.1	50.0	
45	Methyl Methacrylate	0.14996	0.17194	0.010	14.7	50.0	
46	1,2-Dichloropropane	0.18763	0.20653	0.010	10.1	20.0	
47	Bromodichloromethane	0.24534	0.27392	0.010	11.6	50.0	
48	1,4-Dioxane	0.00288	0.00382	0.001	32.8	50.0	✓
49	Dibromomethane	0.12274	0.13712	0.010	11.7	50.0	
50	2-Chloroethylvinyl Ether	0.18763	0.20653	0.010	10.1	50.0	
51	4-Methyl-2-Pentanone	0.22044	0.25839	0.010	17.2	50.0	
52	cis-1,3-Dichloropropene	0.29522	0.34057	0.010	15.4	50.0	
54	Toluene	3.82273	4.26092	0.010	11.5	20.0	
55	Ethyl Methacrylate	0.25351	0.30310	0.010	19.6	50.0	
56	trans-1,3-Dichloropropene	1.10440	1.26821	0.010	14.8	50.0	
57	2-Hexanone	0.53547	0.66838	0.010	24.8	50.0	
58	1,1,2-Trichloroethane	0.80537	0.83812	0.010	4.1	50.0	
59	1,3-Dichloropropane	1.40578	1.46968	0.010	4.5	50.0	
60	Tetrachloroethene	1.87463	1.07852	0.010	-42.5	50.0	✓
61	Dibromochloromethane	0.67941	0.77278	0.010	13.7	50.0	
62	1,2-Dibromoethane	0.18566	0.20807	0.010	12.1	50.0	
63	1-Chlorohexane	1.17698	1.42487	0.010	21.1	50.0	
65	Chlorobenzene	2.57596	2.78096	0.300	8.0	50.0	
66	Ethyl Benzene	1.37768	1.57340	0.010	14.2	20.0	
67	1,1,1,2-Tetrachloroethane	0.82234	0.90918	0.010	10.6	50.0	
68	M- & P-Xylene	1.73004	1.96348	0.010	13.5	50.0	
69	O-Xylene	1.65015	1.84940	0.010	12.1	50.0	
70	Styrene	2.69517	3.04041	0.010	12.8	50.0	
71	Isopropylbenzene	4.17083	4.82697	0.010	15.7	50.0	
72	Bromoform	0.38102	0.45749	0.100	20.1	50.0	
73	1,1,2,2-Tetrachloroethane	0.95266	1.16484	0.300	22.3	50.0	
75	1,2,3-Trichloropropane	0.22602	0.24857	0.010	10.0	50.0	

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msj1.i
Lab File ID: J101902.D
Analysis Type: SOIL
Lab Sample ID: STD050
Method: \\QAUSTX02\INS_DATA\MSJ\MSJ1.I\J101999.B\J8260S.m

Injection Date: 20-OCT-1999 00:15
Init. Cal. Date(s): 17-OCT-1999 17-OCT-1999
Init. Cal. Times: 17:09 19:22
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
76	trans-1,4-dichloro-2-butene	0.14189	0.20342	0.010	43.4	50.0	✓
77	N-Propylbenzene	3.16260	3.67179	0.010	16.1	50.0	
78	Bromobenzene	0.67513	0.71856	0.010	6.4	50.0	
79	1,3,5-Trimethylbenzene	2.23135	2.52882	0.010	13.3	50.0	
80	2-Chlorotoluene	2.23599	2.45158	0.010	9.6	50.0	
81	4-Chlorotoluene	2.04518	2.22543	0.010	8.8	50.0	
82	tert-Butylbenzene	1.97290	2.19697	0.010	11.4	50.0	
83	1,2,4-Trimethylbenzene	2.29853	2.60352	0.010	13.3	50.0	
84	Pentachloroethane	0.10751	0.28726	0.010	167.2	50.0	<- Not a target Not TC
85	Sec-Butylbenzene	2.84036	3.30242	0.010	16.3	50.0	
86	4-Isopropyltoluene	2.30537	2.70183	0.010	17.2	50.0	
87	1,3-Dichlorobenzene	1.27681	1.40710	0.010	10.2	50.0	
89	1,4-Dichlorobenzene	1.31799	1.42036	0.010	7.8	50.0	
90	n-Butylbenzene	2.16329	2.58634	0.010	19.6	50.0	
91	1,2-Dichlorobenzene	1.21803	1.31041	0.010	7.6	50.0	
93	1,2-Dibromo-3-chloropropane	0.11809	0.15937	0.010	35.0	50.0	✓
94	1,2,4-Trichlorobenzene	0.77785	0.90103	0.010	15.8	50.0	
95	Hexachlorobutadiene	0.34393	0.40731	0.010	18.4	50.0	
96	Naphthalene	2.22162	2.82787	0.010	27.3	50.0	not TC
97	1,2,3-Trichlorobenzene	0.78594	0.89622	0.010	14.0	50.0	
M 1	1,2-Dichloroethene (total)	0.25527	0.28849	0.010	13.0	50.0	
M 2	Xylenes (total)	1.70342	1.92545	0.010	13.0	50.0	

Soil

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: J101799

Lab File ID (Standard): J101708 Date Analyzed: 10/17/99

Instrument ID: MSJ1 Time Analyzed: 1922

GC Column: RTX502.2 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1 AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	1467920	6.11	354304	10.13	558925	13.81
	UPPER LIMIT	2935840	6.61	708608	10.63	1117850	14.31
	LOWER LIMIT	733960	5.61	177152	9.63	279463	13.31
	CLIENT SAMPLE NO.						
01	BLANK	1304548	6.11	336845	10.13	499959	13.81
02	LCS	1416364	6.11	341252	10.13	503866	13.81
03	BLANK	1300997	6.11	332313	10.13	501511	13.81
04	I9J070143-08	1343617	6.11	327852	10.13	485755	13.82
05	I9J070143-08	1277671	6.11	330768	10.13	506250	13.81
06	I9J070143-08	1281649	6.11	324765	10.13	486575	13.82
07	I9J070143-09	1151743	6.11	283167	10.13	428336	13.81
08	I9J070143-10	1299362	6.11	321418	10.13	494566	13.82
09	I9J010165-05	1212951	6.11	207022	10.14	250020*	13.84
10	I9J010165-06	1465731	6.11	310758	10.13	322290	13.82
11	I9J010165-07	1411820	6.11	338061	10.13	420153	13.82
12	I9J010165-10	925841	6.11	120358*	10.13	106581*	13.82
13	I9J010165-11	1253595	6.11	231855	10.13	207484*	13.82
14	I9J010165-12	1492832	6.11	366542	10.13	637086	13.82
15	I9J010165-13	1000960	6.12	127904*	10.14	92947*	13.85
16	I9J010165-14	1165748	6.11	265517	10.13	306940	13.81
17							
18							
19							
20							
21							
22							

not sure again of

IS1 = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 = 1,4 Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

PDE120 Quanterra, Incorporated Date 10/18/1999
Page: 1 Data Review Time 19:1

Lot/Sample: I9J180000-417B (INTRA-LAB BLANK) TICs.....: N Report Results: Y
WO#.....: D3T7H-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX A 4D QK 01 Dry Weight..: N Upload.....: Y
Method....: SOLID / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

Analysis Date: 10/17/99
Inject Time..: 19:49 Inject Vol: 5.0 Units: mL
Analyst.....: 074745 Steve C. Miller
Dil Factor: 1.00 Instr File: J101709.
Instr ID: J1 Column: RTX 502.2 ID: .53
Sampling date.....:10/05/99
Leach Date.....: 0/00/00
Leach Batch.....:
Buffer Type.....:
Leach Weight.....: .0
Leach Volume.....: 0 Units:
Entered by.....:MILLERS 99/10/18 19:16:21
Prep Comments.....:
Analysis Comments...:
Result Units.....:ug/kg

Prep Date....: 10/08/99
QC Batch.....: 9291417
MS Run Number:
Prep Time.....: 9:00- 9:00
Init Wgt/Vol.: 5 Units: g
Final Wgt/Vol: 5.00 Units: mL
pH Values.: I) .0 1) .0 2) .0
Extract Solv.: Amt..:
Exchange Solv: Amt..:
Spike....:
Surrogate: 1UL QM23183

Total Solids.: .00

SYN#	Analyte	* SPK	Exc Code	Result	Limit	MDL	Data Qual	Report Qual
00011	Acetone			(7.000B)	20	2.051	J	J
00020	Acetonitrile			ND	100	15.599		
00039	Acrolein			ND	100	14.569		
00046	Acrylonitrile			ND	100	0.901		
00196	Benzene			ND	5.0	1.307		
00323	Bromodichloromethane			ND	5.0	1.02		
00340	Bromoform			ND	5.0	0.55		
00343	Bromomethane			ND	10	1.35		
00459	Carbon disulfide			ND	5.0	1.431		
00463	Carbon tetrachloride			ND	5.0	1.177		
00521	Chlorobenzene			ND	5.0	1.216		
00531	Chloroprene			ND	10			
00535	Dibromochloromethane			ND	5.0	0.996		
00539	1,2-Dibromo-3-chloropro			ND	10	1.277		
00550	Chloroethane			ND	10	1.579		
00569	Chloroform			ND	5.0	1.289		
00574	Chloromethane			ND	10	1.724		
00606	Allyl chloride			ND	10	1.141		
00888	Dibromomethane			ND	5.0	0.691		
00922	trans-1,4-Dichloro-2-bu			ND	5.0	1.611		
00924	Dichlorodifluoromethane			ND	10	1.696		
00933	1,1-Dichloroethane			ND	5.0	1.43		

(Continued on next page)

Lot/Sample: I9J180000-417B INTRA-LAB BLANK TICs.....: N Report Results: Y
WO#.....: D3T7H-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX A 4D QK 01 Dry Weight..: N Upload.....: Y
Method....: SOLID / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

SYN#	Analyte	* SPK	Exc Code	Result	Limit	MDL	Data Qual	Report Qual
00936	1,2-Dichloroethane			ND	5.0	0.817		
00943	1,1-Dichloroethene			ND	5.0	1.241		
00950	trans-1,2-Dichloroethen			ND	2.5	1.428		
00986	1,2-Dichloropropane			ND	5.0	0.906		
00998	cis-1,3-Dichloropropene			ND	5.0	1.077		
01000	trans-1,3-Dichloroprope			ND	5.0	0.979		
01199	1,4-Dioxane			ND	500	20.949		
01332	Ethylbenzene			ND	5.0	1.361		
01360	Ethyl methacrylate			ND	5.0	0.875		
01428	Trichlorofluoromethane			ND	10	1.418		
01515	2-Hexanone			ND	20	0.917		
01536	Iodomethane			ND	5.0	1.259		
01556	Isobutyl alcohol			ND	200			
01713	Methacrylonitrile			ND	5.0	0.557		
01811	Methylene chloride			8.5911	5.0	2.121		
01823	Methyl methacrylate			ND	5.0	0.844		
02238	Propionitrile			ND	20	1.561		
2355	Styrene			ND	5.0	0.825		
02437	1,1,1,2-Tetrachloroetha			ND	5.0	1.194		
02439	1,1,2,2-Tetrachloroetha			ND	5.0	0.671		
02445	Tetrachloroethene			ND	5.0	1.115		
02489	Toluene			ND	5.0	1.195		
02518	1,1,1-Trichloroethane			ND	5.0	1.38		
02522	1,1,2-Trichloroethane			ND	5.0	0.665		
02525	Trichloroethene			ND	5.0	1.287		
02563	1,2,3-Trichloropropane			ND	5.0	1.178		
02610	Vinyl acetate			ND	10	2.014		
02613	Vinyl chloride			ND	5.0	3.102		
02627	Xylenes (total)			ND	5.0	3.102		
03261	1,2-Dibromoethane (EDB)			ND	5.0	0.696		
03271	2-Butanone (MEK)			1.5718	20	0.59	J	J
03283	4-Methyl-2-pentanone (M			ND	20	0.766		

SYN#	Surrogate Recovery	Exc Code	Spike Amount	Measured Amount	Percent Recovery	Data Qual	Report Qual
00337	4-Bromofluorobenzene		50	53.361	106.722		
02735	1,2-Dichloroethane-d4		50	55.528	111.056		
02740	Toluene-d8		50	58.238	116.476		

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PDE120 Quanterra, Incorporated Date 10/19/1999
Page: 1 Data Review Time 23:38

Lot/Sample: I9J190000-439B (INTRA-LAB BLANK) TICs.....: N Report Results: Y
WO#.....: D3VEM-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX I 15 QK 01 Dry Weight..: N Upload.....: Y
Method....: WATER / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

Analysis Date: 10/18/99
Inject Time..: 12:08 Inject Vol: 5.0 Units: mL
Analyst.....: 011612 Sam Bivone
Dil Factor: 1.00 Instr File: J101804.
Instr ID: J1 Column: RTX 502.2 ID: .53
Sampling date.....:10/06/99
Leach Date.....: 0/00/00
Leach Batch.....:
Buffer Type.....:
Leach Weight.....: .0
Leach Volume.....: 0 Units:
Entered by.....:MILLERS 99/10/19 23:35:43
Prep Comments.....:
Analysis Comments...:
Result Units.....:ug/L

Prep Date....: 10/18/99
QC Batch.....: 9292439
MS Run Number:
Prep Time....: 9:31- 9:31
Init Wgt/Vol.: 5 Units: mL
Final Wgt/Vol: 5.00 Units: mL
pH Values.: I) .0 1) .0 2) .0
Extract Solv.: Amt..:
Exchange Solv: Amt..:
Spike....:
Surrogate: 1UL QM23183

Total Solids.: .00

SYN#	Analyte	* SPK	Exc Code	Result	Limit	MDL	Data Qual	Report Qual
00011	Acetone			(4.362B)	20	2.037	J	J
00020	Acetonitrile			ND	100	13.584		
00039	Acrolein			ND	100	17.1		
00046	Acrylonitrile			ND	100	1.032		
00196	Benzene			ND	5	1.336		
00323	Bromodichloromethane			ND	5	1.045		
00340	Bromoform			ND	5	0.642		
00343	Bromomethane			ND	10	2.005		
00459	Carbon disulfide			ND	5	1.459		
00463	Carbon tetrachloride			ND	5	1.35		
00521	Chlorobenzene			ND	5	1.14		
00531	Chloroprene			ND	5	0.5		
00535	Dibromochloromethane			ND	5	0.838		
00539	1,2-Dibromo-3-chloropro			ND	10	1.062		
00550	Chloroethane			ND	5.0	1.223		
00569	Chloroform			ND	5	1.065		
00574	Chloromethane			ND	10	1.179		
00606	Allyl chloride			ND	10	1.826		
00888	Dibromomethane			ND	5	1.085		
00922	trans-1,4-Dichloro-2-bu			ND	5	0.74		
00924	Dichlorodifluoromethane			ND	10	1.158		
00933	1,1-Dichloroethane			ND	5	1.25		

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Lot/Sample: I9J190000-439B INTRA-LAB BLANK TICs.....: N Report Results: Y
WO#.....: D3VEM-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX I 15 QK 01 Dry Weight..: N Upload.....: Y
Method....: WATER / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

SYN#	Analyte	* Exc SPK Code	Result	Limit	MDL	Data Qual	Report Qual
00936	1,2-Dichloroethane		ND	5	0.856		
00943	1,1-Dichloroethene		ND	5	1.379		
00948	cis-1,2-Dichloroethene		ND	2.5	1.165		
00950	trans-1,2-Dichloroethen		ND	2.5	1.379		
00952	1,2-Dichloroethene (tot		ND	5.0	2.472		
00986	1,2-Dichloropropane		ND	5	1.077		
00998	cis-1,3-Dichloropropene		ND	5	1.015		
01000	trans-1,3-Dichloroprope		ND	5	1.075		
01199	1,4-Dioxane		ND	500	35.129		
01332	Ethylbenzene		ND	5	1.168		
01360	Ethyl methacrylate		ND	5	0.674		
01428	Trichlorofluoromethane		ND	10	1.298		
01515	2-Hexanone		ND	20	0.5		
01536	Iodomethane		ND	5	1.646		
01556	Isobutyl alcohol		ND	200	35.492		
01713	Methacrylonitrile		ND	5	0.542		
01811	Methylene chloride		ND	5	1.267		
01823	Methyl methacrylate		ND	5	0.528		
)2238	Propionitrile		ND	20	1.549		
02355	Styrene		ND	5	1.002		
02437	1,1,1,2-Tetrachloroetha		ND	5	1.138		
02439	1,1,2,2-Tetrachloroetha		ND	5	0.995		
02445	Tetrachloroethene		ND	5	1.542		
02489	Toluene		ND	5	1.244		
02518	1,1,1-Trichloroethane		ND	5	1.354		
02522	1,1,2-Trichloroethane		ND	5	0.822		
02525	Trichloroethene		ND	5	1.227		
02563	1,2,3-Trichloropropane		ND	5	0.66		
02610	Vinyl acetate		ND	10	1.814		
02613	Vinyl chloride		ND	5.0	1.676		
02623	o-Xylene		ND	2.5	1.142		
02627	Xylenes (total)		ND	5	3.468		
02772	Methyl tert-butyl ether		ND	5.0	0.904		
02940	m-Xylene & p-Xylene		ND	5.0	2.331		
03261	1,2-Dibromoethane (EDB)		ND	5	0.688		
03271	2-Butanone (MEK)		0.69754	20	0.691	J	J
03283	4-Methyl-2-pentanone (M		ND	20	0.788		

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PDE120 Quanterra, Incorporated Date 10/20/1999
Page: 1 Data Review Time 11:58:27

Lot/Sample: I9J200000-269B INTRA-LAB BLANK TICs.....: N Report Results: Y
WO#.....: D3W0E-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX A 4D QK 01 Dry Weight..: N Upload.....:
Method....: SOLID / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

Analysis Date: 10/20/99
Inject Time..: 1:18 Inject Vol: 5.0 Units: mL
Analyst.....: 074745 Steve C. Miller
Dil Factor: 1.00 Instr File: J101904
Instr ID: J1 Column: RTX 502.2 ID: .53
Sampling date.....:10/06/99
Leach Date.....: 0/00/00
Leach Batch.....:
Buffer Type.....:
Leach Weight.....: .0
Leach Volume.....: 0 Units:
Entered by.....:MILLERS 99/10/20 11:55:10
Prep Comments.....:
Analysis Comments...:
Result Units.....:ug/kg

Prep Date....: 10/08/99
QC Batch.....: 9293269
MS Run Number:
Prep Time....: 9:00- 9:00
Init Wgt/Vol.: 5 Units: g
Final Wgt/Vol: 5.00 Units: mL
pH Values.: I) .0 1) .0 2) .0
Extract Solv.: Amt..:
Exchange Solv: Amt..:
Spike....:
Surrogate: 1UL QM23183

Total Solids.: .00

SYN#	Analyte	* Exc SPK Code	Result	Limit	MDL	Data Qual	Report Qual
0011	Acetone		8.0016	20	2.051	J	J
00020	Acetonitrile		ND	100	15.599		
00039	Acrolein		ND	100	14.569		
00046	Acrylonitrile		ND	100	0.901		
00196	Benzene		ND	5.0	1.307		
00323	Bromodichloromethane		ND	5.0	1.02		
00340	Bromoform		ND	5.0	0.55		
00343	Bromomethane		ND	10	1.35		
00459	Carbon disulfide		2.0895	5.0	1.431	J	J
00463	Carbon tetrachloride		ND	5.0	1.177		
00521	Chlorobenzene		ND	5.0	1.216		
00531	Chloroprene		ND	10			
00535	Dibromochloromethane		ND	5.0	0.996		
00539	1,2-Dibromo-3-chloropro		ND	10	1.277		
00550	Chloroethane		ND	10	1.579		
00569	Chloroform		ND	5.0	1.289		
00574	Chloromethane		ND	10	1.724		
00606	Allyl chloride		ND	10	1.141		
00888	Dibromomethane		ND	5.0	0.691		
00922	trans-1,4-Dichloro-2-bu		ND	5.0	1.611		
00924	Dichlorodifluoromethane		ND	10	1.696		
00933	1,1-Dichloroethane		ND	5.0	1.43		

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Lot/Sample: I9J200000-269B INTRA-LAB BLANK TICs.....: N Report Results: Y
WO#.....: D3W0E-1-01 Est. Results: Y Sig Fig Alg...: A
SAC.....: XX A 4D QK 01 Dry Weight..: N Upload.....:
Method....: SOLID / Volatile Organics, GC/MS (8260B) / SW846 / 8260B

SYN#	Analyte	* SPK	Exc Code	Result	Limit	MDL	Data Qual	Report Qual
00936	1,2-Dichloroethane			ND	5.0	0.817		
00943	1,1-Dichloroethene			ND	5.0	1.241		
00950	trans-1,2-Dichloroethen			ND	2.5	1.428		
00986	1,2-Dichloropropane			ND	5.0	0.906		
00998	cis-1,3-Dichloropropene			ND	5.0	1.077		
01000	trans-1,3-Dichloroprope			ND	5.0	0.979		
01199	1,4-Dioxane			ND	500	20.949		
01332	Ethylbenzene			ND	5.0	1.361		
01360	Ethyl methacrylate			ND	5.0	0.875		
01428	Trichlorofluoromethane			ND	10	1.418		
01515	2-Hexanone			ND	20	0.917		
01536	Iodomethane			ND	5.0	1.259		
01556	Isobutyl alcohol			ND	200			
01713	Methacrylonitrile			ND	5.0	0.557		
01811	Methylene chloride			4.2090	5.0	2.121	J	J
01823	Methyl methacrylate			ND	5.0	0.844		
02238	Propionitrile			ND	20	1.561		
02355	Styrene			ND	5.0	0.825		
02437	1,1,1,2-Tetrachloroetha			ND	5.0	1.194		
02439	1,1,2,2-Tetrachloroetha			ND	5.0	0.671		
02445	Tetrachloroethene			ND	5.0	1.115		
02489	Toluene			ND	5.0	1.195		
02518	1,1,1-Trichloroethane			ND	5.0	1.38		
02522	1,1,2-Trichloroethane			ND	5.0	0.665		
02525	Trichloroethene			ND	5.0	1.287		
02563	1,2,3-Trichloropropane			ND	5.0	1.178		
02610	Vinyl acetate			ND	10	2.014		
02613	Vinyl chloride			ND	5.0	3.102		
02627	Xylenes (total)			ND	5.0	3.102		
03261	1,2-Dibromoethane (EDB)			ND	5.0	0.696		
03271	2-Butanone (MEK)			ND	20	0.59		
03283	4-Methyl-2-pentanone (M			ND	20	0.766		

SYN#	Surrogate Recovery	Exc Code	Spike Amount	Measured Amount	Percent Recovery	Data Qual	Report Qual
00337	4-Bromofluorobenzene		50	52.830	105.66		
02735	1,2-Dichloroethane-d4		50	53.394	106.788		
02740	Toluene-d8		50	59.068	118.136		

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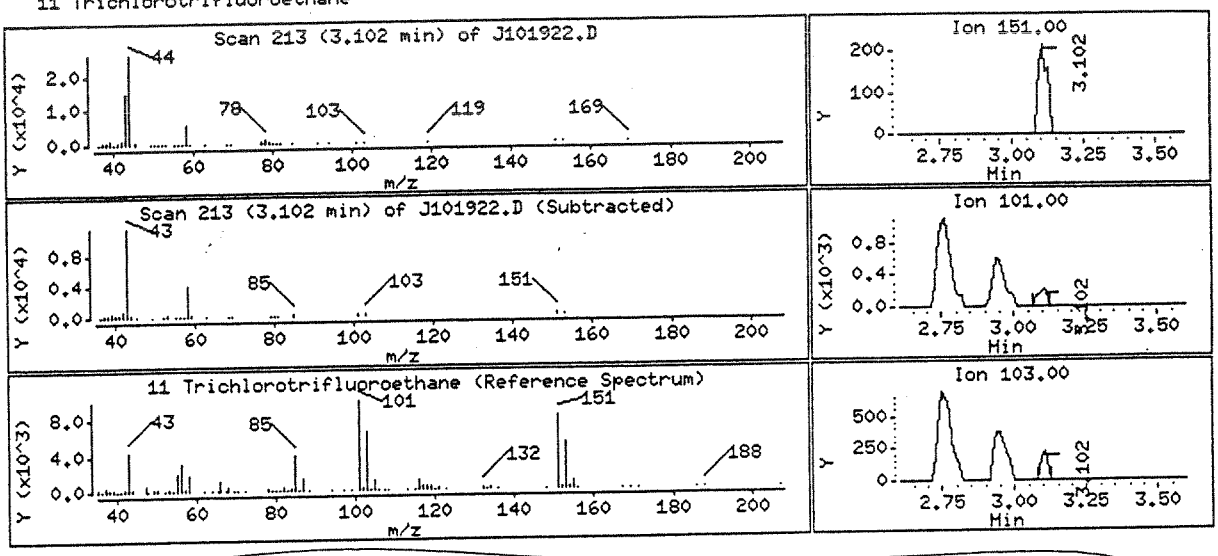
Data File: \\QAUSTX02\INS_DATA\HsJ\msj1.i\J101999.b\J101922.D

Date : 20-OCT-1999 09:43

Sample Info: D3CWM101;I9J070143-11

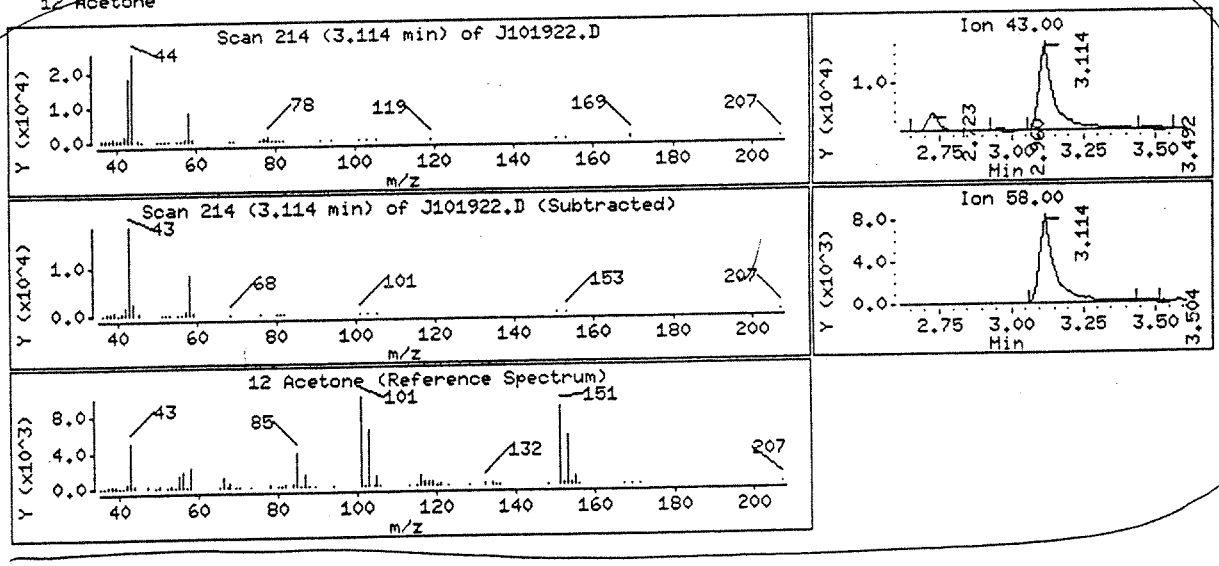
11 Trichlorotrifluoroethane

Concentration: 0.11434 ug/Kg



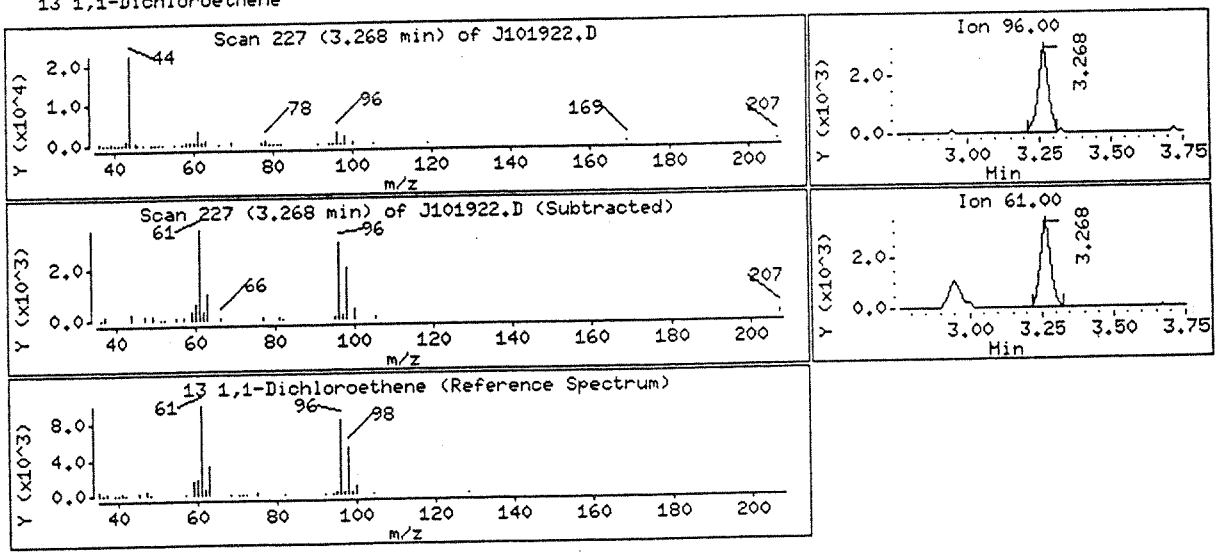
12 Acetone

Concentration: 32.608 ug/Kg



13 1,1-Dichloroethene

Concentration: 1.6275 ug/Kg



S2 - MW2 - 0.5 - 2.0

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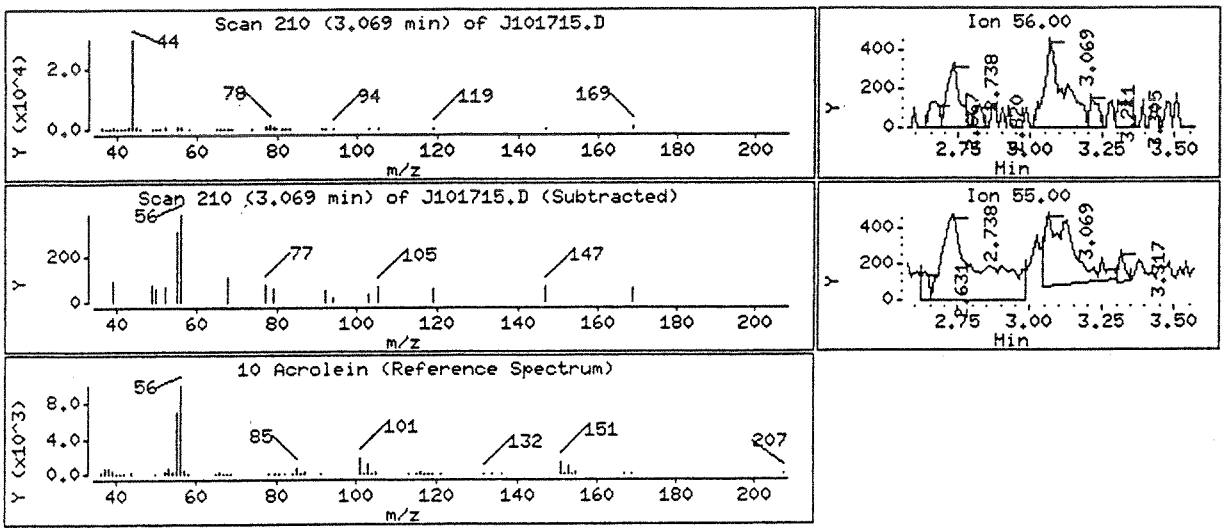
Date : 17-OCT-1999 22:28

Sample Info: D3CT3101;I9J070143-09

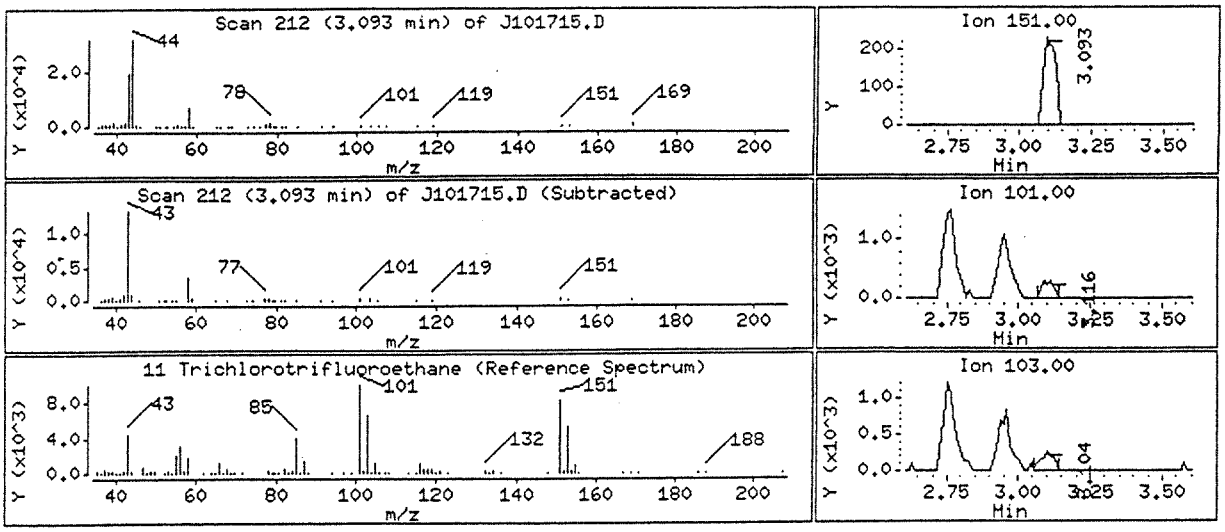
10 Acrolein

Concentration: 1.4052 ug/Kg



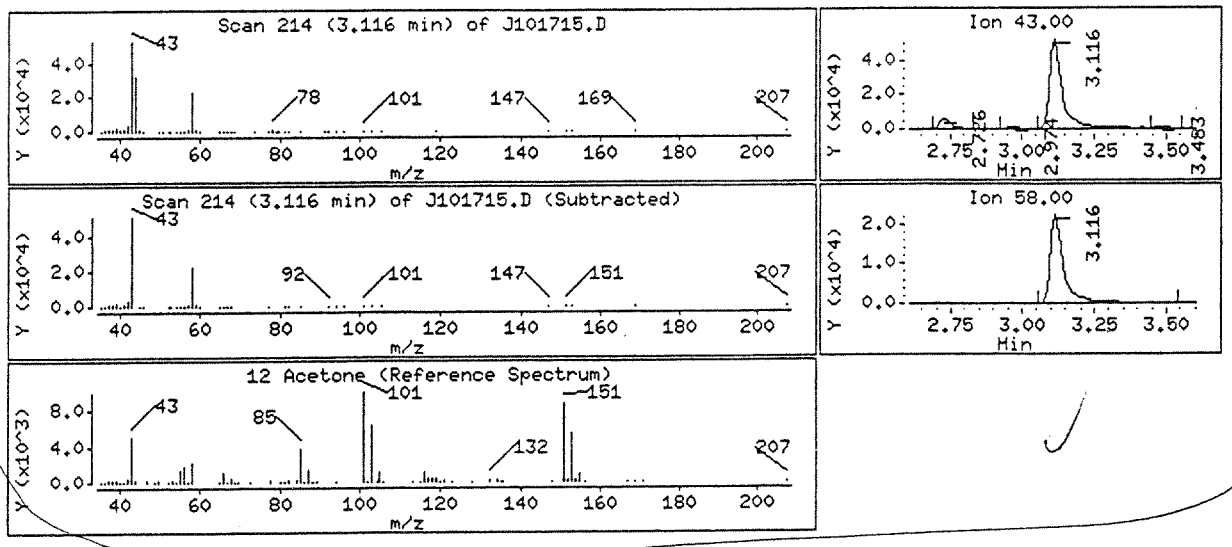
11 Trichlorotrifluoroethane

Concentration: 0.10889 ug/Kg



12 Acetone

Concentration: 56.630 ug/Kg



S2-HA03-0.0-0.5D

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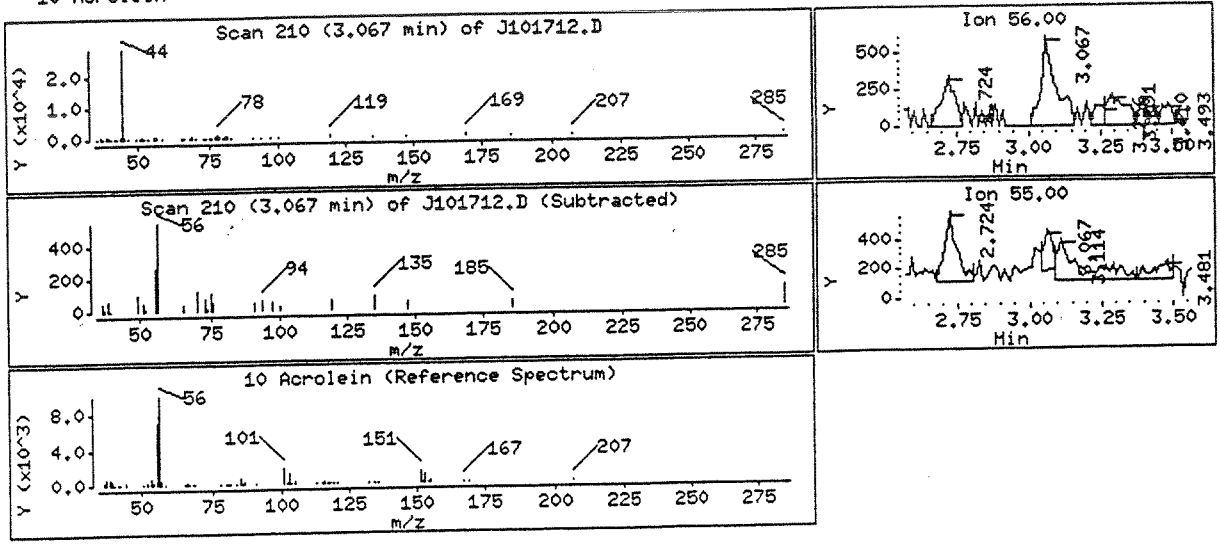
Date : 17-OCT-1999 21:08

Sample Info: D3CRJ101;I9J070143-08

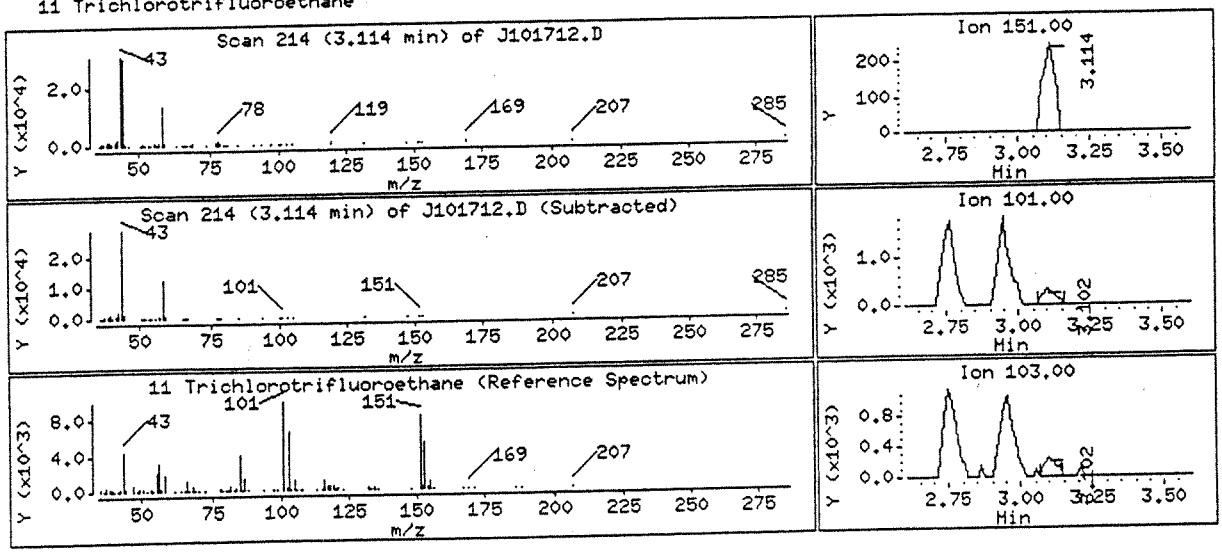
10 Acrolein

Concentration: 1.4278 ug/Kg



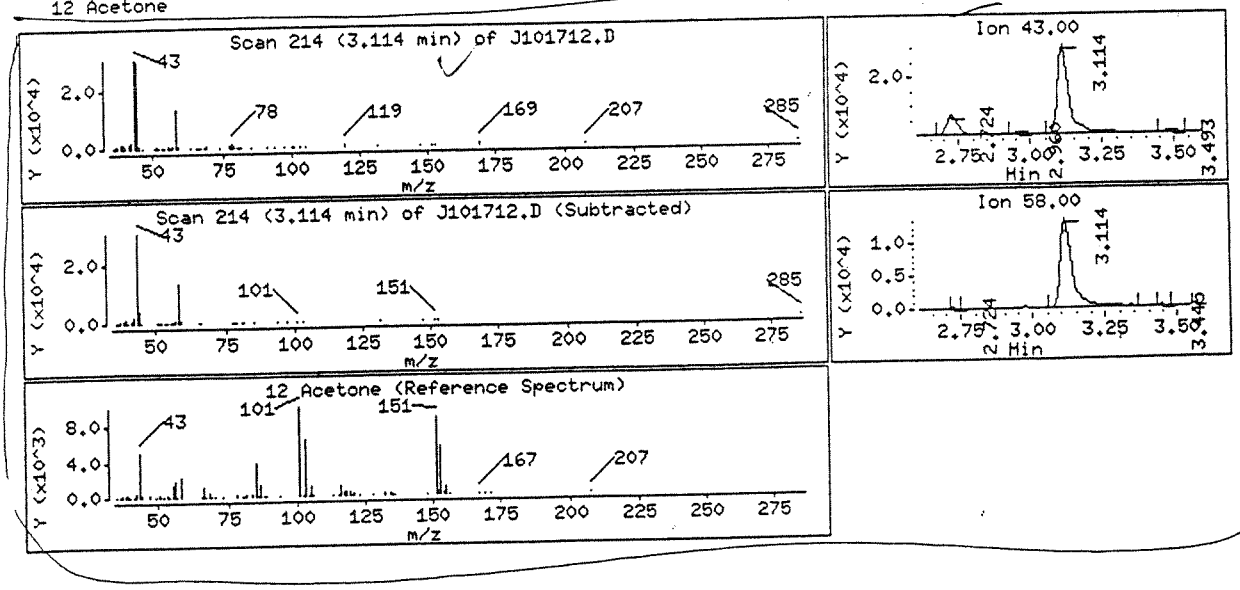
11 Trichlorotrifluoroethane

Concentration: 0.12132 ug/Kg



12 Acetone

Concentration: 31.130 ug/Kg



00185

SZ - MA03 -G.O. -0.5

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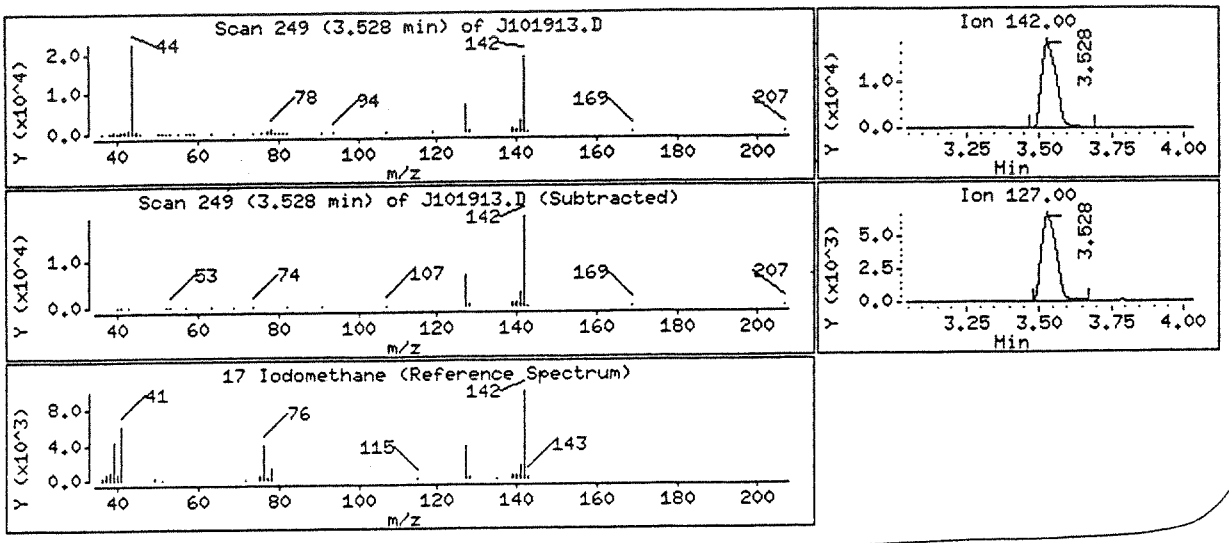
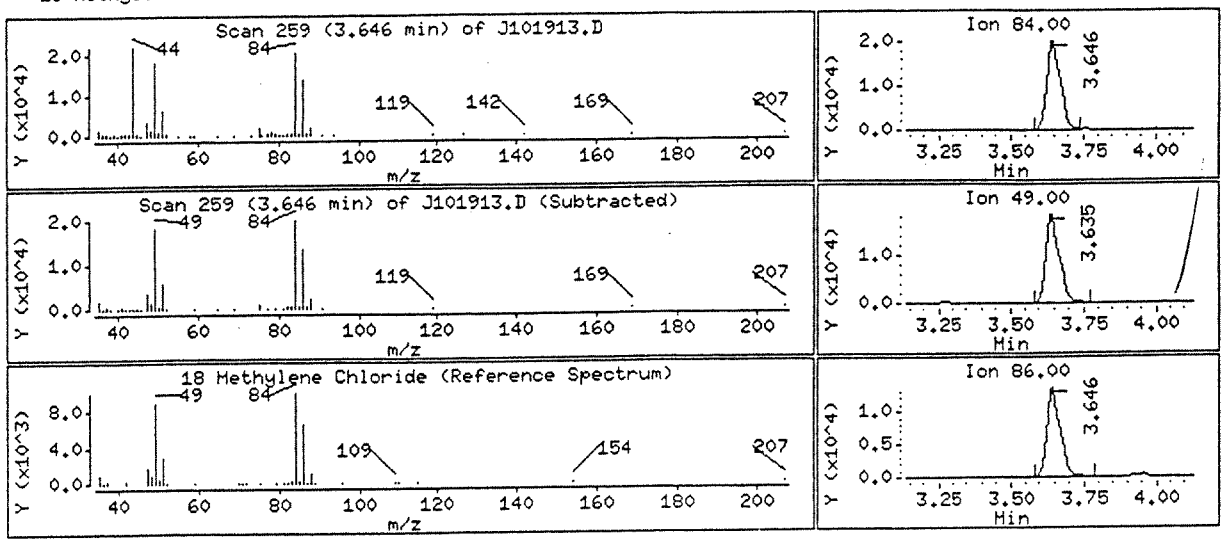
17 Iodomethane

Concentration: 6.9685 ug/Kg



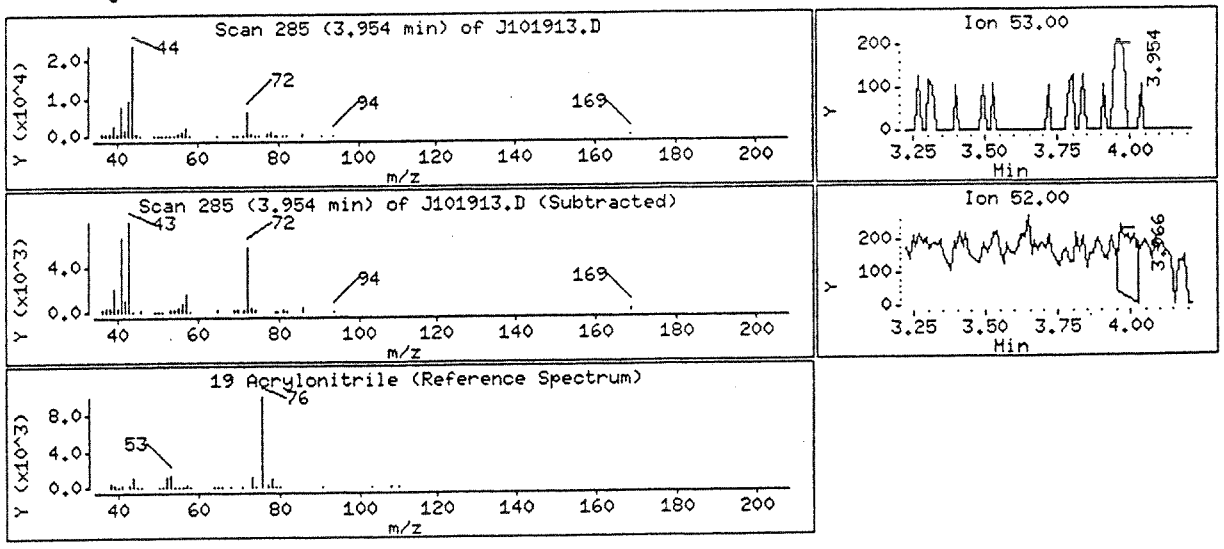
18 Methylene Chloride

Concentration: 7.6895 ug/Kg



19 Acrylonitrile

Concentration: 0.24781 ug/Kg



S2-MA01-0.5-1.0

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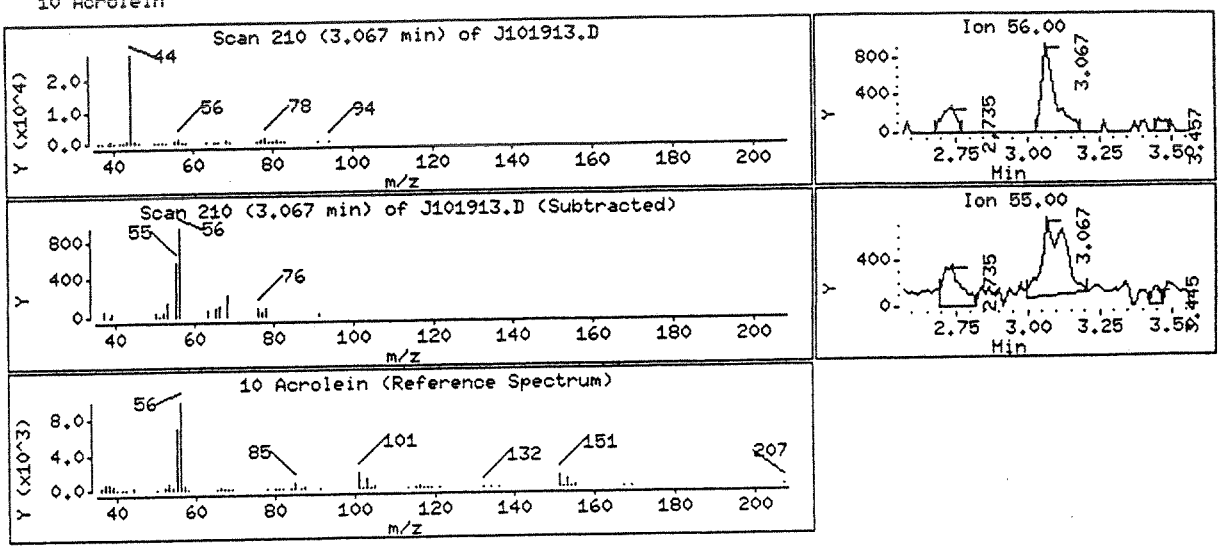
Date : 20-OCT-1999 05:44

Sample Info: D3CRD101;I9J070143-06

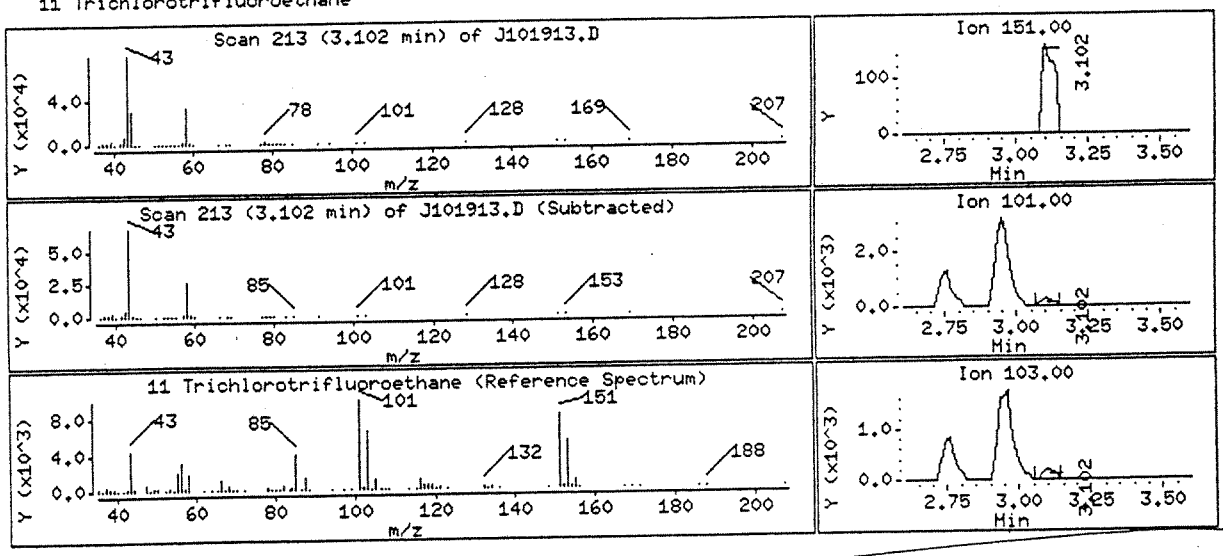
10 Acrolein

Concentration: 2.2935 ug/Kg



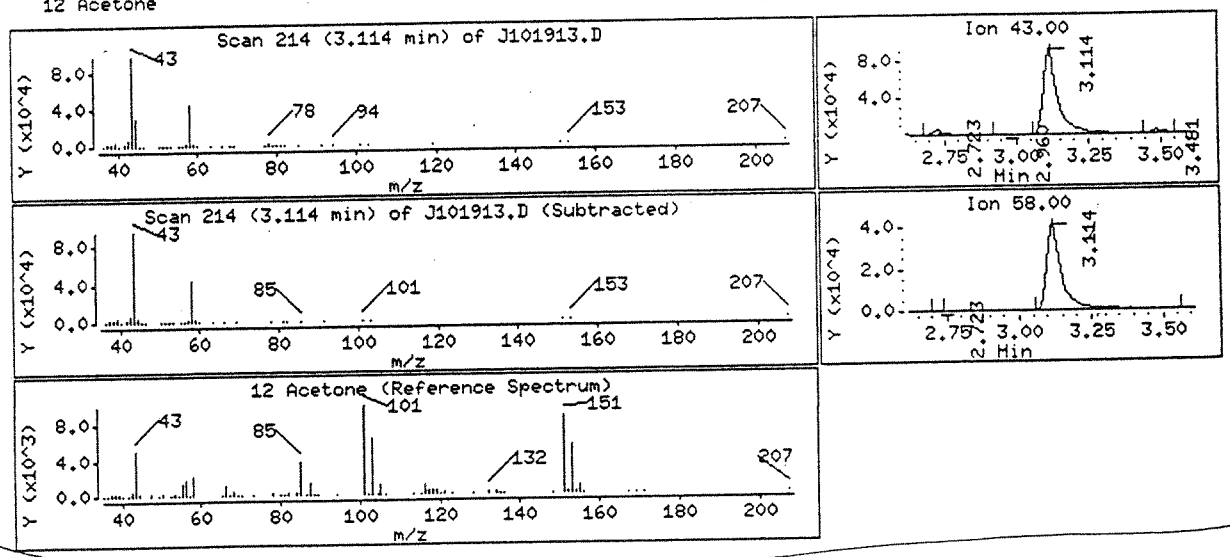
11 Trichlorotrifluoroethane

Concentration: 0.089032 ug/Kg



12 Acetone

Concentration: 134.22 ug/Kg



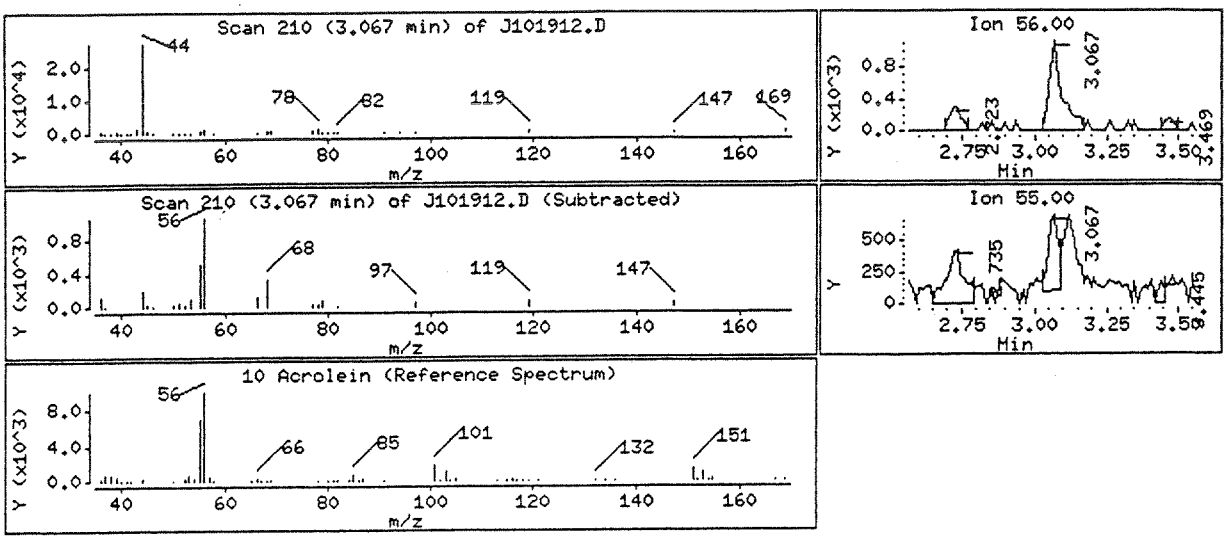
Data File: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101999.b\J101912.D

Date : 20-OCT-1999 05:17

Sample Info: D3CRC101;I9J070143-05

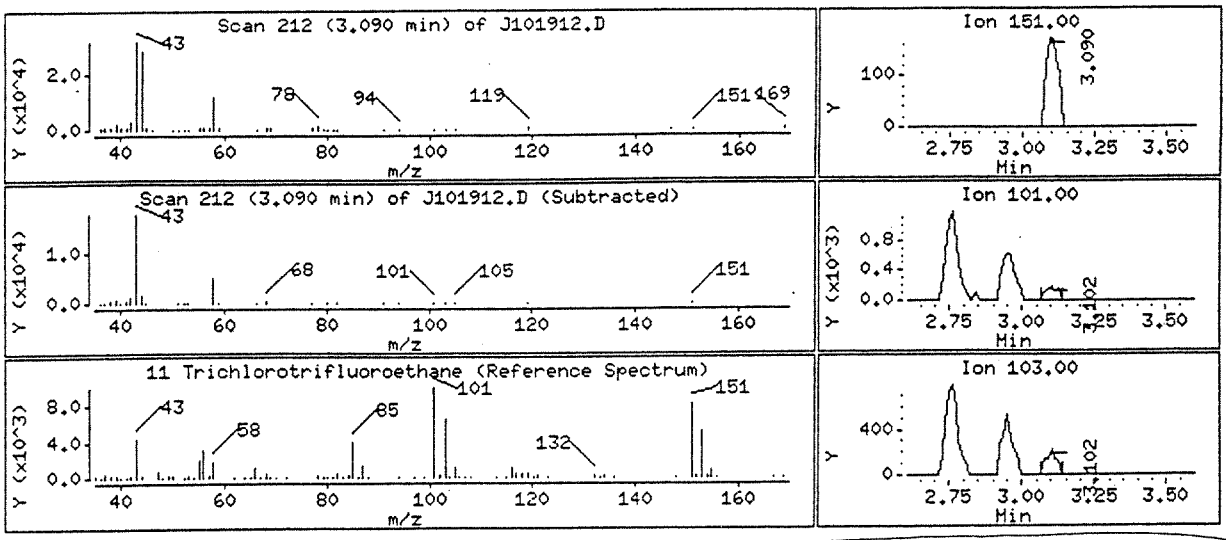
10 Acrolein

Concentration: 2.5551 ug/Kg



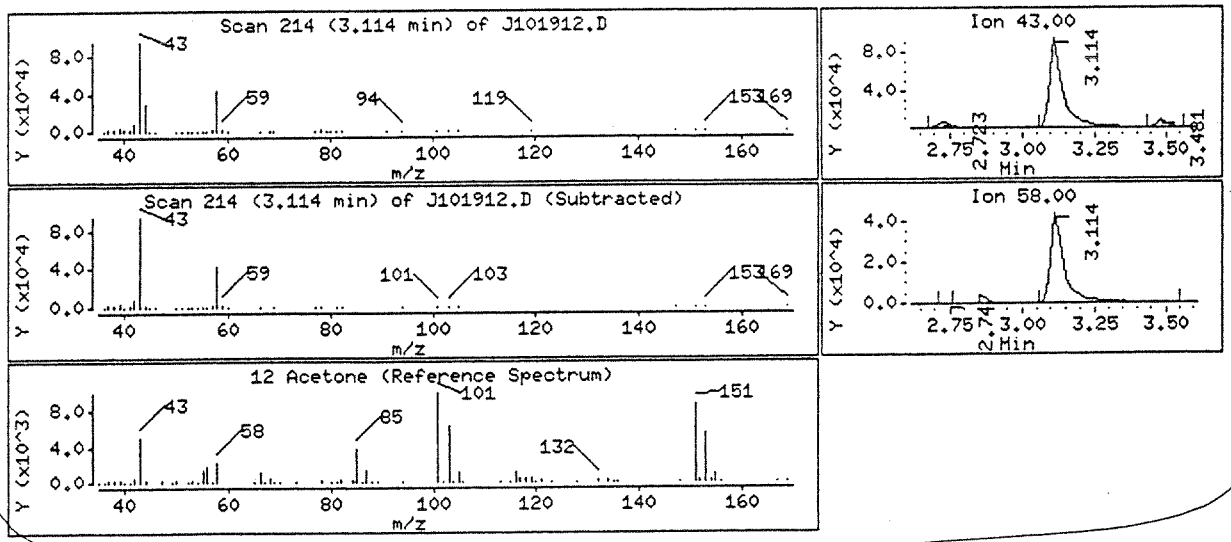
11 Trichlorotrifluoroethane

Concentration: 0.096228 ug/Kg



12 Acetone

Concentration: 129.84 ug/Kg



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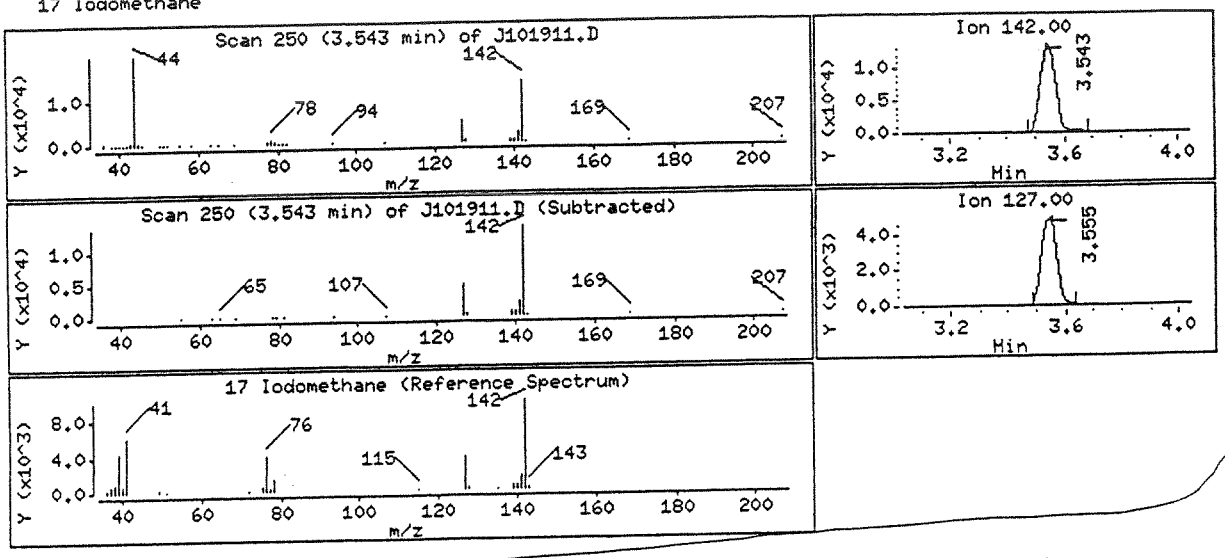
Data File: \\QAUSTX02\INS_DATA\HsJ\msj1.i\J101999.b\J101911.D

Date : 20-OCT-1999 04:51

Sample Info: D3CR8101;I9J070143-04

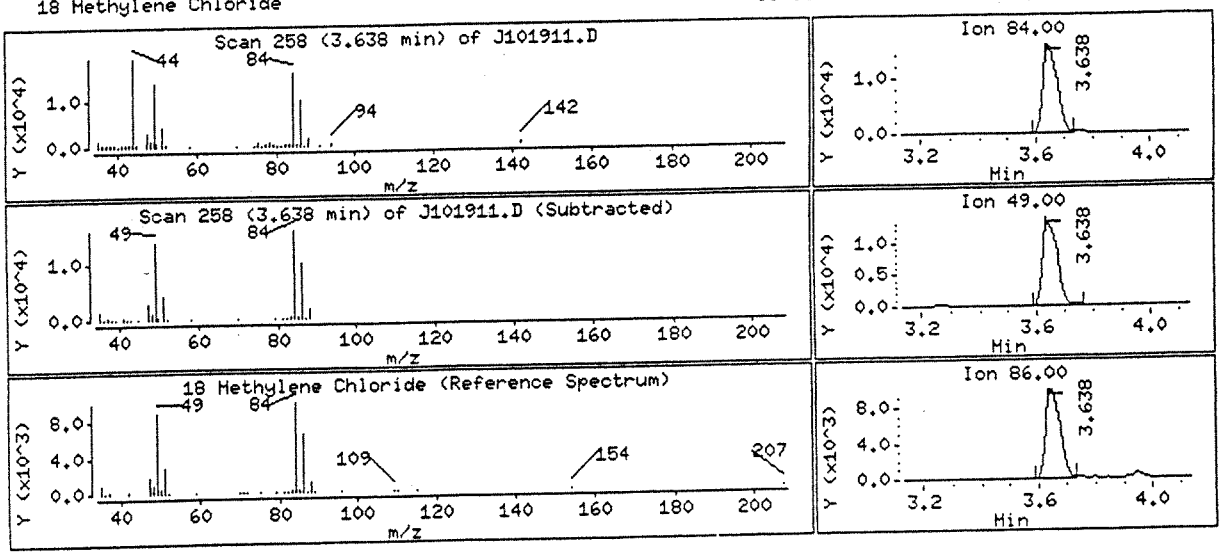
17 Iodomethane

Concentration: 5.2924 ug/Kg



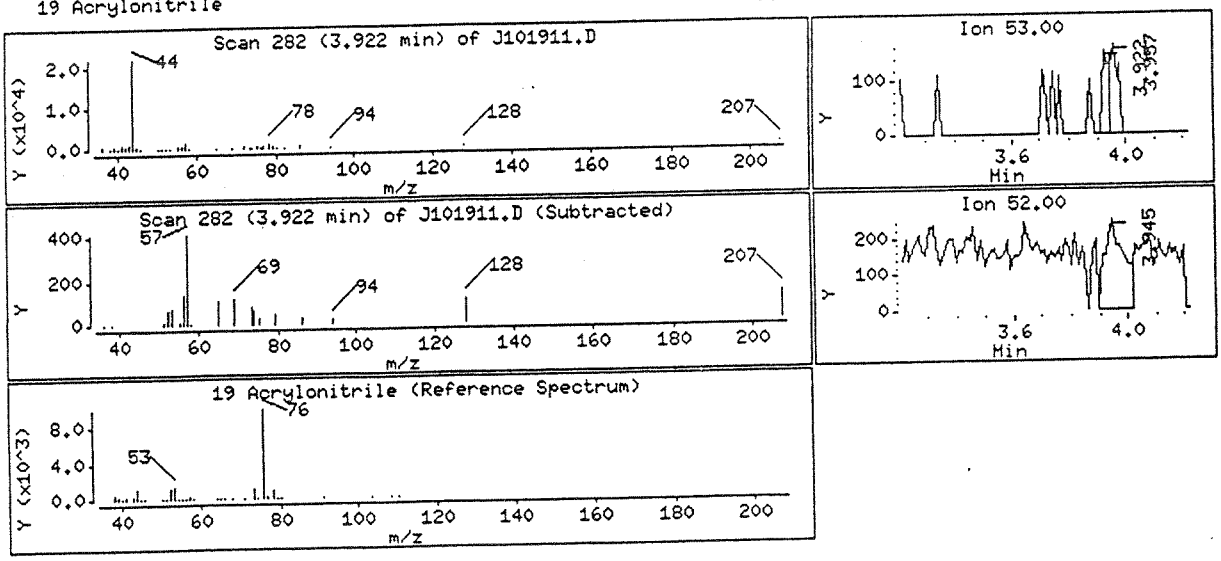
18 Methylene Chloride

Concentration: 6.3410 ug/Kg



19 Acrylonitrile

Concentration: 0.13184 ug/Kg



52-MA04-0.0-0.5

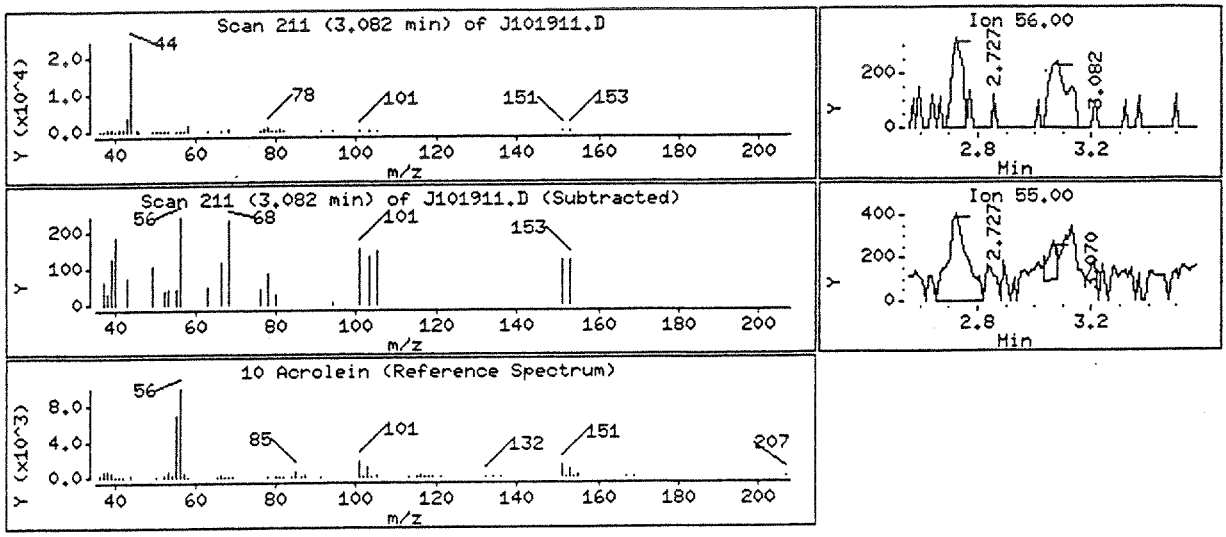
Data File: \\QAUSTX02\INS_DATA\HsJ\msj1.i\J101999.b\J101911.D

Date : 20-OCT-1999 04:51

Sample Info: D3CR8101;I9J070143-04

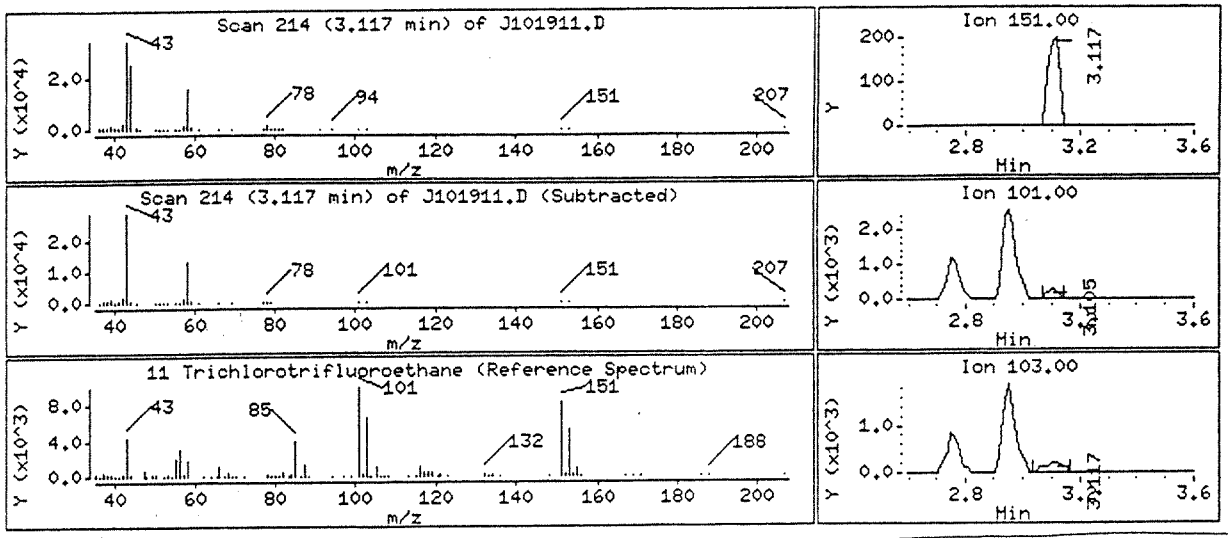
10 Acrolein

Concentration: 0.81294 ug/Kg



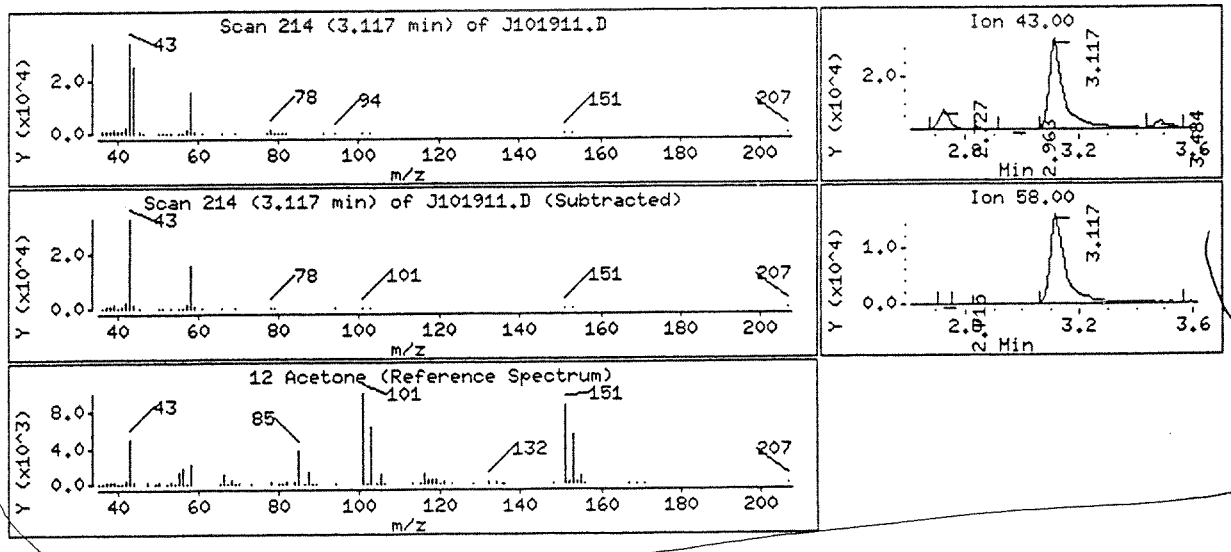
11 Trichlorotrifluoroethane

Concentration: 0.10880 ug/Kg



12 Acetone

Concentration: 51.161 ug/Kg



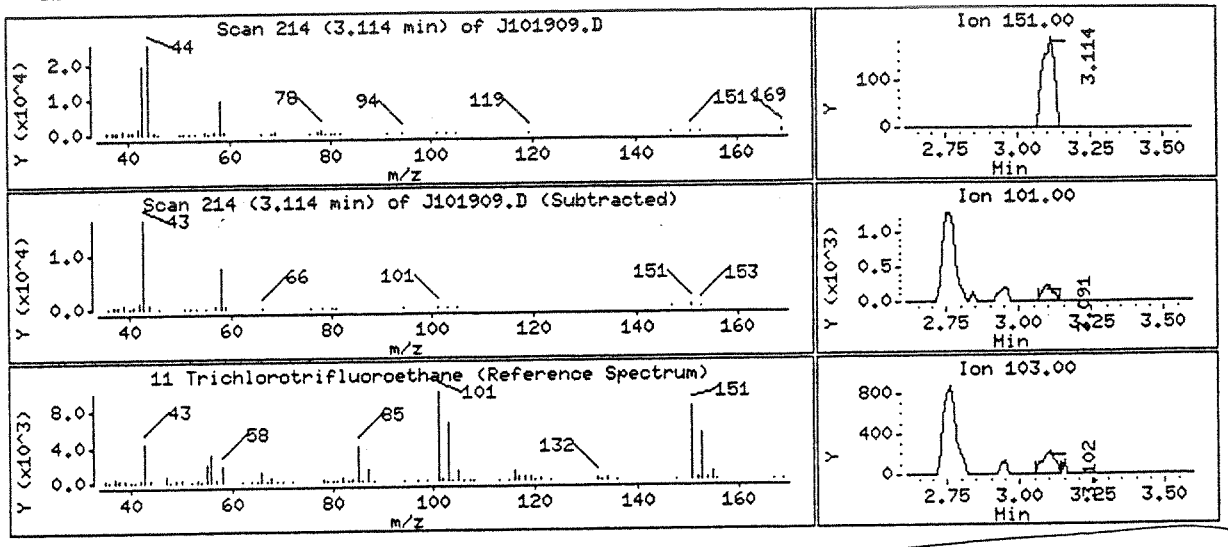
Data File: \\QAUSTX02\INS_DATA\HsJ\msj1.i\J101999.b\J101909.D

Date : 20-OCT-1999 03:57

Sample Info: D3CQW101;I9J070143-02

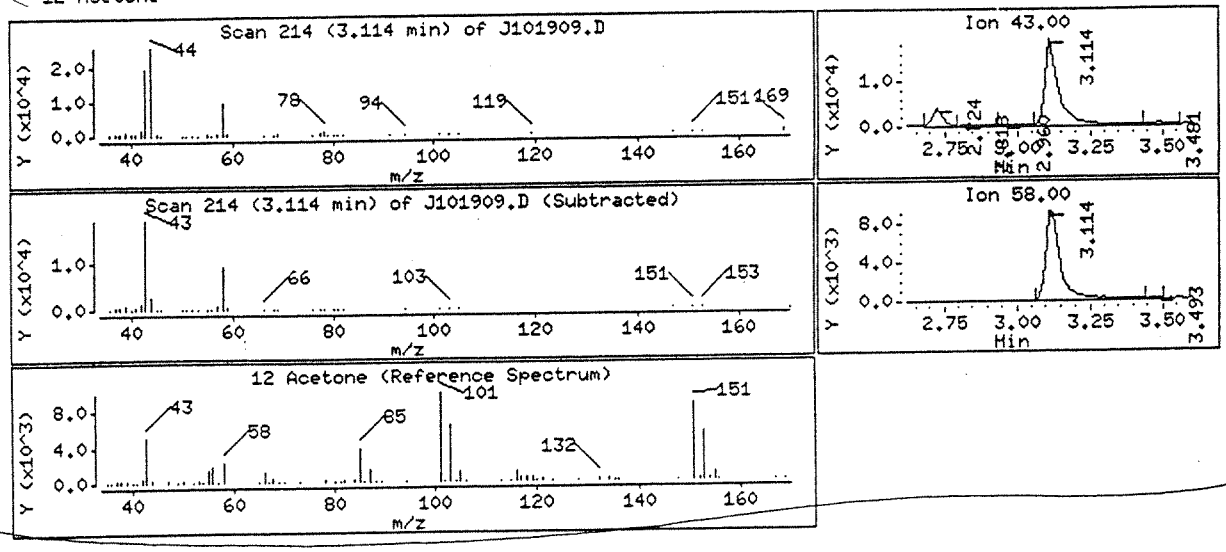
11 Trichlorotrifluoroethane

Concentration: 0.099901 ug/Kg



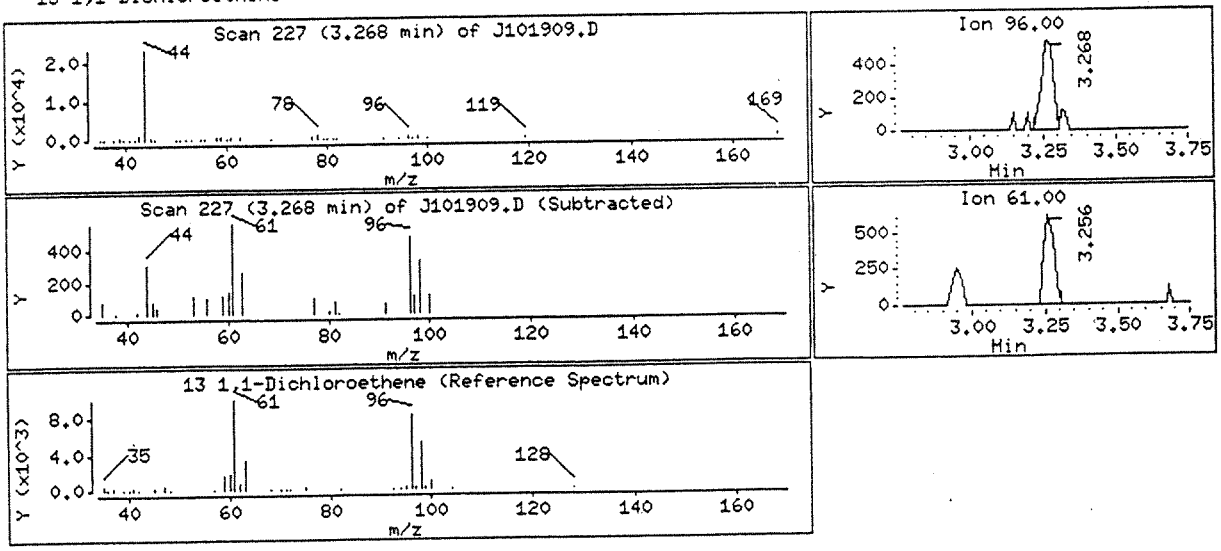
12 Acetone

Concentration: 26.981 ug/Kg



13 1,1-Dichloroethene

Concentration: 0.27726 ug/Kg



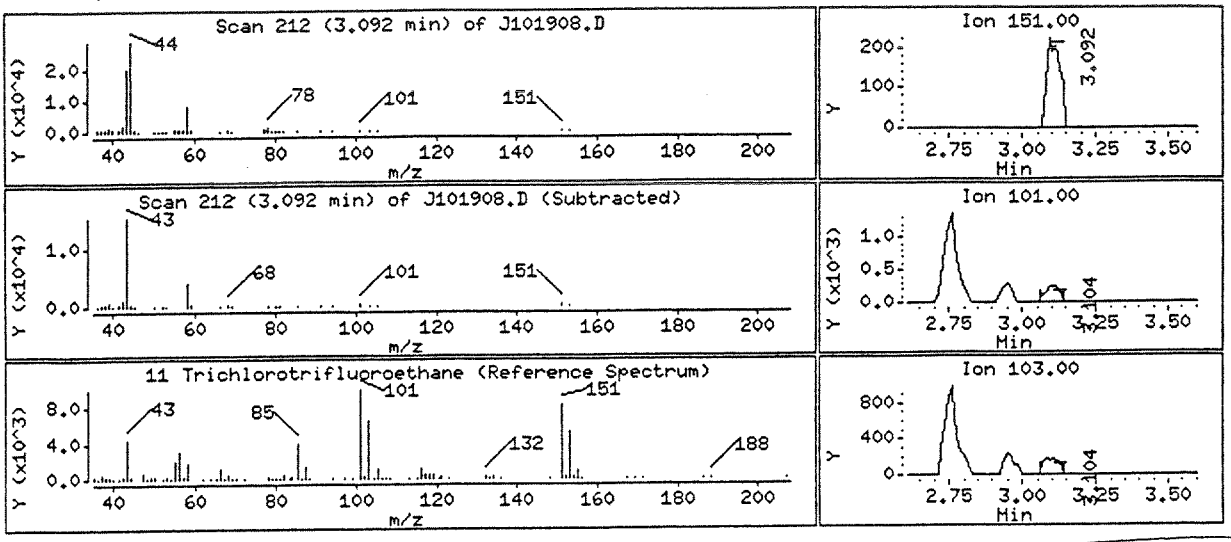
Data File: \\QAUSTX02\INS_DATA\MsJ\msj1.i\J101999.b\J101908.D

Date : 20-OCT-1999 03:31

Sample Info: D3CQE101;I9J070143-01

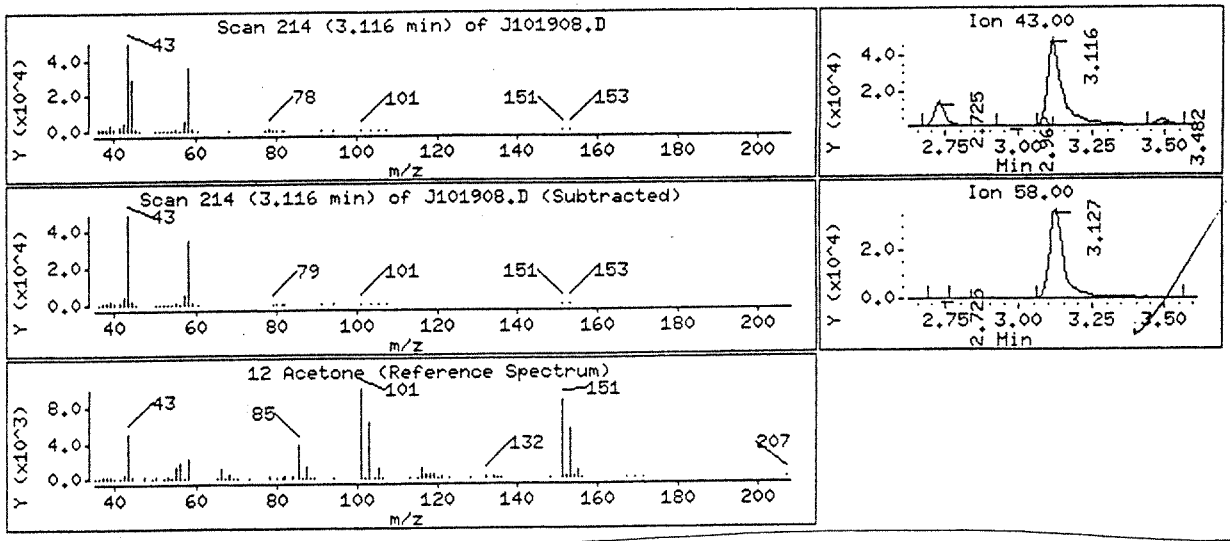
11 Trichlorotrifluoroethane

Concentration: 0.11657 ug/Kg



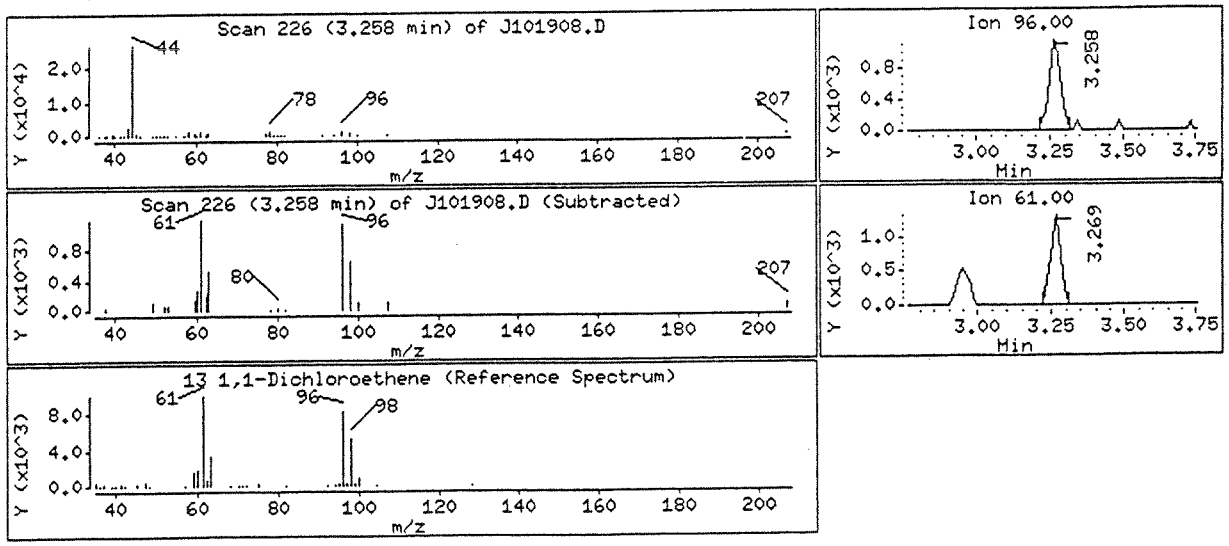
12 Acetone

Concentration: 64.295 ug/Kg



13 1,1-Dichloroethene

Concentration: 0.51110 ug/Kg



LMC-5001-6.0-0.3

00060

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: QUANTERRA Client: IT GROUP

Code: QESAUS SDG No:

atrix Spike ID: S2-HA03-0.0-0.5 Level: (low/med) LOW

ot #: I9J070143 WO #: D3HN810E
BATCH: 9287282

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Phenol	6110	ND	3420	56	40 - 103	
2-Chlorophenol	6110	ND	3210	53	44 - 99	
1,4-Dichlorobenzene	4070	ND	1480	36*	41 - 93	a MSC
N-Nitrosodi-n-propylamine	4070	ND	1850	45	44 - 106	
1,2,4-Trichlorobenzene	4070	ND	1770	44	42 - 101	
4-Chloro-3-methylphenol	6110	ND	3830	63	53 - 109	
Acenaphthene	4070	ND	2330	57	49 - 108	
4-Nitrophenol	6110	ND	3580	59	42 - 117	
2,4-Dinitrotoluene	4070	ND	3260	80	40 - 112	
Pentachlorophenol	6110	ND	3640	60	1 - 127	
Pyrene	4070	ND	4150	102	51 - 125	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 0 outside limits
pike Recovery: 1 out of 11 outside limits

NTS:

FORM III

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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: F101999

Lab File ID: F101901 DFTPP Injection Date: 10/19/99

Instrument ID: MSF1 DFTPP Injection Time: 0952

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	53.7
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	48.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	5.6
275	10.0 - 30.0% of mass 198	19.7
365	Greater than 1.0% of mass 198	2.98
441	Present, but less than mass 443	7.2
442	Greater than 40.0% of mass 198	54.9
443	17.0 - 23.0% of mass 442	9.6 (17.5)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	I9J070143-17	D3HN7101	F101924	10/19/99	2126
02	I9J070143-19	D3HN9101	F101925	10/19/99	2155
03	I9J070143-23	D3J3L101	F101926	10/19/99	2224
04	I9J070143-24	D3J3P101	F101927	10/19/99	2252
05					
06					
07					
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16					
17					
18					
19					
20					
21					
22					

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-1999 09:51
End Cal Date : 18-OCT-1999 15:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Calibration File Names:
Level 1: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101809.D
Level 2: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101810.D
Level 3: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101808.D
Level 4: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101811.D
Level 5: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101812.D
Level 6: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F101813.D

	Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
1	Pyridine	0.96686	1.03677	1.20797	1.15603	1.04425	0.98896	1.06681	8.927
2	N-Nitrosodimethylamine	0.64923	0.67350	0.69422	0.70762	0.66970	0.65074	0.67417	3.455
4	Aniline	1.20649	1.34103	1.34673	1.22404	1.18348	1.34163	1.27390	6.040
6	Phenol	1.17075	1.25521	1.35697	1.38716	1.44357	1.50441	1.35301	9.057
7	bis(2-Chloroethyl)ether	1.64655	1.74343	1.76036	1.86157	1.76850	1.82875	1.76819	4.221
9	2-Chlorophenol	1.20704	1.25743	1.45804	1.61632	1.59030	1.74347	1.47877	14.335
10	1,3-Dichlorobenzene	1.34077	1.37249	1.49935	1.64906	1.63771	1.70072	1.53335	9.951
12	1,4-Dichlorobenzene	1.43328	1.48613	1.61406	1.84230	1.80596	1.88334	1.67751	11.507
14	Benzyl Alcohol	0.63931	0.66592	0.79148	0.93939	0.89677	0.91526	0.80802	16.190
15	1,2-Dichlorobenzene	1.34515	1.32734	1.64815	2.00755	1.94656	2.02300	1.71629	18.891
16	bis(2-Chloroisopropyl)ether	0.77826	0.78235	0.77421	0.81437	0.73277	0.79756	0.77992	3.517
17	2-Methylphenol	0.90005	0.92010	1.00061	1.04437	1.03389	1.13389	1.00549	8.583
18	N-Nitroso-di-n-propylamine	0.90961	0.96586	0.99063	0.95569	0.89599	0.92779	0.94093	3.826
19	Hexachloroethane	0.96149	0.98195	1.09935	1.10528	1.04245	1.06570	1.04270	5.745
20	4-Methylphenol	0.99624	0.98984	1.13641	1.24097	1.19995	1.26516	1.13809	10.592
22	Nitrobenzene	0.48430	0.51215	0.52614	0.52964	0.51929	0.51240	0.51399	3.147
23	Isophorone	0.68796	0.73634	0.74871	0.74901	0.72669	0.71517	0.72731	3.199
24	2-Nitrophenol	0.19048	0.21917	0.23259	0.25433	0.25272	0.26392	0.23554	11.644
25	2,4-Dimethyphenol	0.41550	0.43594	0.45616	0.46571	0.46418	0.47475	0.45204	4.908
26	Bis(2-chloroethoxy)methane	0.35230	0.37961	0.39276	0.41417	0.42031	0.42285	0.39700	6.967
27	Benzoic Acid	+++++	0.25646	0.28451	0.36224	0.34475	0.33738	0.31707	14.063
28	2,4-Dichlorophenol	0.31938	0.32884	0.36174	0.38461	0.39816	0.41123	0.36733	10.177
29	1,2,4-Trichlorobenzene	0.37740	0.38473	0.42819	0.47475	0.48656	0.49084	0.44041	11.610
31	Naphthalene	0.94532	0.97826	1.06187	1.24225	1.29708	1.37761	1.15040	15.603
32	4-Chloroaniline	0.38323	0.39078	0.42581	0.42248	0.26625	0.39341	0.38032	15.398

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-1999 09:51
End Cal Date : 18-OCT-1999 15:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
33 Hexachlorobutadiene	0.37022	0.38570	0.40141	0.39919	0.38962	0.37708	0.38720	3.151
34 4-Chloro-3-Methylphenol	0.36691	0.36932	0.39717	0.42058	0.41786	0.42561	0.39958	6.566
35 2-Methylnaphthalene	0.54062	0.61237	0.68121	0.79494	0.80598	0.84508	0.71336	17.014
36 Hexachlorocyclopentadiene	0.48579	0.52905	0.61588	0.68632	0.59717	0.63743	0.59194	12.369
37 2,4,6-Trichlorophenol	0.42392	0.45823	0.52004	0.59117	0.57096	0.64049	0.53414	15.445
38 2,4,5-Trichlorphenol	0.47726	0.49756	0.55410	0.64186	0.61226	0.67796	0.57683	13.961
40 2-Chloronaphthalene	1.00864	1.05492	1.17222	1.42113	1.37012	1.58408	1.26852	17.825
41 2-Nitroaniline	0.47939	0.50239	0.51249	0.53293	0.51238	0.54140	0.51350	4.306
42 Dimethylphthalate	1.41897	1.48403	1.55992	1.91177	1.78924	2.01650	1.69674	14.392
43 2,6-Dinitrotoluene	0.29976	0.31458	0.34172	0.38874	0.37875	0.43251	0.35934	13.891
44 Acenaphthylene	1.39755	1.51787	1.72093	2.30544	2.18976	2.43372	1.92755	22.723
45 3-Nitroaniline	0.38675	0.40886	0.39123	0.43167	0.42847	0.52307	0.42834	11.660
47 Acenaphthene	0.89715	1.01226	1.11295	1.41745	1.33755	1.53660	1.21899	20.488
48 2,4-Dinitrophenol	0.13473	0.19175	0.26224	0.30493	0.29814	0.34682	0.25643	30.349
49 4-Nitrophenol	0.58707	0.62183	0.67448	0.67902	0.63002	0.65618	0.64143	5.487
50 Dibenzofuran	1.42302	1.53064	1.72730	1.99890	1.91999	2.16262	1.79375	15.870
51 2,4-Dinitrotoluene	0.43623	0.42856	0.47568	0.54621	0.51092	0.57210	0.49495	11.803
52 Diethylphthalate	1.79089	1.88565	2.01722	2.34581	2.14553	2.23965	2.07079	10.249
53 4-Chlorophenyl-phenylether	0.60635	0.66022	0.75522	0.91609	0.84661	0.88249	0.77783	16.114
54 Fluorene	1.11313	1.19965	1.36975	1.63440	1.49082	1.63750	1.40754	15.650
55 4-Nitroaniline	0.32052	0.34964	0.35453	0.39245	0.36924	0.42665	0.36884	10.004
56 4,6-Dinitro-2-methylphenol	0.13956	0.14090	0.17786	0.22184	0.22123	0.24860	0.19156	23.918
57 N-Nitrosodiphenylamine	0.41348	0.39881	0.47898	0.61362	0.61078	0.66313	0.52980	21.460
58 1,2-Diphenylhydrazine	0.97144	0.94509	1.09986	1.28330	1.25209	1.32962	1.14590	14.421
60 4-Bromophenyl-phenylether	0.24921	0.24678	0.28807	0.32403	0.30046	0.29697	0.28425	10.732
61 Hexachlorobenzene	0.38189	0.39040	0.41736	0.43978	0.41343	0.41008	0.40882	5.036
62 Pentachlorophenol	0.22426	0.24572	0.28365	0.32880	0.30874	0.31514	0.28438	14.603
64 Phenanthrene	0.91892	0.94841	1.07080	1.25871	1.23927	1.28842	1.12076	14.613
65 Anthracene	0.88495	0.93114	1.07043	1.32896	1.25708	1.36273	1.13921	18.098
66 Carbazole	0.85041	0.84224	0.96761	1.15872	1.13547	1.21659	1.02851	15.911
67 Di-n-Butylphthalate	1.52994	1.55914	1.71706	2.00918	1.95468	1.95093	1.78682	11.931
68 Fluoranthene	1.02935	1.07140	1.25459	1.47604	1.43481	1.50601	1.29537	16.158
69 Benzidine	0.24263	0.20901	0.22776	0.20824	0.19075	0.19976	0.21303	8.918

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Quanterra Austin

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Start Cal Date : 18-OCT-1999 09:51
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Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD	
70 Pyrene	0.87446	0.91531	0.99736	1.04040	1.07134	1.08211	0.99683	8.553	
72 Butylbenzylphthalate	0.55879	0.62893	0.63150	0.68090	0.65945	0.69342	0.64217	7.522	
73 bis(2-Ethylhexyl)phthalate	0.74600	0.81181	0.85543	0.98006	0.95056	0.96451	0.88473	10.748	
74 3,3'-Dichlorobenzidine	0.44019	0.47273	0.49663	0.49304	0.46115	0.43213	0.46598	5.720	
75 Benzo(a)anthracene	0.88430	0.93537	1.00135	1.07825	1.06888	1.08347	1.00860	8.290	
77 Chrysene	0.85730	0.91387	0.98903	1.06230	1.03630	1.01325	0.97868	7.987	
78 Di-n-octylphthalate	1.19044	1.32299	1.52026	1.71655	1.67148	1.69947	1.52020	14.448	
79 Benzo(b)fluoranthene	0.97030	1.06931	1.16861	1.57050	1.64299	1.47498	1.31612	21.465	
80 Benzo(k)fluoranthene	1.04973	1.10446	1.14341	1.12502	1.16408	1.09713	1.11397	3.591	
81 Benzo(a)pyrene	0.92038	0.99117	1.05801	1.14800	1.07689	1.06012	1.04243	7.482	
83 Indeno(1,2,3-cd)pyrene	1.19682	1.28275	1.20582	1.43966	1.31644	1.27966	1.28686	6.860	
84 Dibenz(a,h)anthracene	0.94129	1.04309	1.15034	1.15322	1.03787	1.03274	1.05976	7.603	
85 Benzo(g,h,i)perylene	1.04054	1.10256	1.18922	1.22024	1.12912	1.13229	1.13566	5.600	
86 3,3'-Dimethylbenzidine	0.25221	0.24433	0.25293	0.23896	0.23024	0.24521	0.24398	3.495	
87 2-Picoline	0.67342	0.80153	0.77023	0.90928	0.90652	0.89584	0.82614	11.520	
88 N-Nitrosomethylethylamine	0.16459	0.14879	0.33169	0.15608	0.33858	0.32581	0.24426	39.452	✓
89 Methyl methanesulfonate	0.12451	0.22667	0.19798	0.40553	0.42882	0.42825	0.30196	44.613	✓
90 N-Nitrosodiethylamine	0.40534	0.47052	0.44335	0.50802	0.51431	0.51992	0.47691	9.611	
91 Ethyl methanesulfonate	0.92216	1.02461	1.00960	1.19737	1.13590	1.17142	1.07684	10.013	
92 Pentachloroethane	0.62809	0.62568	0.65343	0.73337	0.71357	0.72887	0.68050	7.410	
93 Acetophenone	1.65366	1.72718	1.72406	1.93333	1.91355	1.90052	1.80872	6.671	
94 N-Nitrosopyrrolidine	0.47045	0.48201	0.49950	0.57082	0.56151	0.55162	0.52265	8.376	
95 N-Nitrosomorpholine	0.22956	0.24280	0.24403	0.29920	0.32360	0.33107	0.27838	16.132	
96 3-Methylphenol	1.00301	1.06979	1.17096	1.35520	1.40468	1.40099	1.23411	14.313	
97 2-Methylbenzeneamine	1.47119	1.53409	1.72584	1.94853	2.02806	2.03507	1.79046	13.976	
98 N-Nitrosopiperidine	0.15304	0.14375	0.15785	0.17297	0.16905	0.17168	0.16139	7.290	
99 o,o,o-Triethylphosphorothioat	0.16682	0.18011	0.19986	0.21698	0.22935	0.22903	0.20369	12.816	
100 a,a-Dimethylphenethylamine	0.52888	0.57914	0.52101	0.53978	0.55841	0.52331	0.54176	4.221	
101 Hexachloropropene	0.30879	0.34719	0.38735	0.40372	0.40741	0.40194	0.37607	10.572	
102 2,6-Dichlorophenol	0.31520	0.33530	0.36080	0.38143	0.39140	0.42434	0.36808	10.737	
103 N-Nitroso-di-n-butylamine	0.20813	0.23085	0.24841	0.26435	0.25908	0.26827	0.24651	9.376	
104 p-Phenylenediamine	0.26733	0.30376	0.25018	0.21736	0.15911	0.12880	0.22109	30.132	✓
105 Safrole	0.25053	0.24812	0.28268	0.31079	0.32190	0.33708	0.29185	12.830	

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-1999 09:51
End Cal Date : 18-OCT-1999 15:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	___ RRF	% RSD
106 1-Methylnaphthalene	0.52715	0.56499	0.61186	0.70775	0.71968	0.73650	0.64465	13.748
107 1,2,4,5-Tetrachlorobenzene	0.75306	0.73875	0.84308	0.93747	0.88733	0.91271	0.84540	9.850
108 Isosafrole	0.45626	0.45751	0.50864	0.58383	0.58019	0.59656	0.53050	12.214
109 1,4-Naphthoquinone	0.37138	0.36903	0.33751	0.31481	0.26128	0.21507	0.31151	19.998
110 1,4-Dinitrobenzene	0.19917	0.22763	0.25199	0.27405	0.27935	0.29227	0.25407	13.876
111 Pentachlorobenzene	0.69823	0.75525	0.82729	0.89844	0.83536	0.84407	0.80977	8.804
112 1,3-Dinitrobenzene	0.22890	0.24862	0.26935	0.30057	0.30433	0.31919	0.27849	12.691
113 1-Naphthylamine	0.92960	0.95846	1.04032	1.16805	1.15633	1.17903	1.07197	10.385
114 2,3,4,6-tetrachlorophenol	0.39271	0.44483	0.50819	0.55404	0.53984	0.36990	0.46825	16.544
115 2-Naphthylamine	0.90034	0.90667	1.02512	1.17514	1.14748	1.19769	1.05874	12.677
116 2,3,5,6-Tetrachlorophenol	0.42892	0.47220	0.53515	0.59928	0.57534	0.56461	0.52925	12.429
117 Thionazin	0.43547	0.43575	0.49117	0.54409	0.52766	0.53747	0.49527	10.034
118 5-Nitro-o-toluidine	0.36485	0.36810	0.42277	0.48161	0.48632	0.51646	0.44002	14.671
119 Diphenylamine	0.92590	0.96368	1.07183	1.24150	1.24942	1.33835	1.13178	14.931
120 Tetraethyldithiopyrophosphate	0.19837	0.20111	0.21183	0.21199	0.20013	0.19584	0.20321	3.430
121 Diallate #1	0.22043	0.23281	0.24353	0.25766	0.24304	0.25361	0.24185	5.649
122 1,3,5-Trinitrobenzene	0.08433	0.10011	0.11890	0.12896	0.12223	0.12236	0.11282	15.095
123 Sulfotepp	0.19837	0.20111	0.21183	0.21199	0.20013	0.19584	0.20321	3.430
124 Phorate	0.20632	0.22872	0.22580	0.23893	0.21732	0.20984	0.22116	5.566
125 Phenacetin	0.44977	0.47959	0.51098	0.49399	0.46123	0.46461	0.47670	4.777
126 Dialate #2	0.05930	0.05725	0.05858	0.06035	0.05946	0.06450	0.05991	4.135
127 Dimethoate	0.19759	0.19874	0.14846	0.12484	0.09564	0.08020	0.14091	35.535
128 4-Aminobiphenyl	0.49959	0.57259	0.63286	0.63667	0.62004	0.60714	0.59481	8.752
129 Pronamide	0.39570	0.41265	0.45374	0.46769	0.44296	0.42806	0.43347	6.157
130 Pentachloronitrobenzene	0.17105	0.17551	0.18155	0.17980	0.16225	0.15608	0.17104	5.895
131 Disulfoton	0.27939	0.26936	0.28870	0.30053	0.28335	0.29343	0.28579	3.836
132 Dinoseb	0.16177	0.19042	0.23585	0.25330	0.25470	0.25608	0.22535	17.705
133 Methyl parathion	0.25639	0.26336	0.19662	0.17316	0.13393	0.11859	0.19034	31.835
134 Parathion	0.20316	0.22021	0.21680	0.21440	0.19749	0.18892	0.20683	5.949
135 4-Nitroquinoline-1-oxide	0.05824	0.08176	0.08791	0.07933	0.06616	0.05980	0.07220	17.234
136 Methapyrilene	0.21624	0.23694	0.23962	0.24481	0.22041	0.21343	0.22858	5.882
137 Isodrin	0.15821	0.16599	0.17022	0.17084	0.16273	0.15349	0.16358	4.182
138 Aramite #1	0.05803	0.06030	0.06015	0.05722	0.05325	0.04760	0.05609	8.715

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INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-1999 09:51
End Cal Date : 18-OCT-1999 15:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD	
139 Aramite #2	0.08955	0.08587	0.09075	0.08399	0.07840	0.07152	0.08335	8.725	
140 4-Dimethylaminoazobenzene	0.30112	0.31634	0.32468	0.33796	0.33385	0.32320	0.32286	4.080	
141 Chlorobenzilate	0.33045	0.35021	0.36674	0.37967	0.37422	0.36814	0.36157	5.032	
142 2-Acetylaminofluorene	0.41798	0.44092	0.49617	0.51361	0.49537	0.50058	0.47744	8.050	
143 3-MethylCholanthrene	0.52569	0.55814	0.57342	0.62542	0.59360	0.60230	0.57976	6.082	
144 3-Dibenz(a,j)acridine	0.84969	0.93489	1.00290	1.08283	1.07842	1.06994	1.00311	9.424	
145 2-Ethoxyethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 N,N-Dimethylformamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
147 3-Chloropropionitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
148 Acrylamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 o-Toluidine	1.47119	1.53409	1.70612	1.94853	2.00697	2.02679	1.78228	13.791	
150 Methomyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
151 Tetrahydronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
152 o-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
153 m-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
154 p-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
155 Phthalic acid	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
156 Biphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
157 2,3-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
158 Methapyrilene ()	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
159 Famphur	0.21131	0.09660	0.00559	0.00568	0.00348	+++++	0.06453	141.258	<- ✓
160 Kepone	0.14205	0.10141	0.04560	0.03075	0.01904	+++++	0.06777	76.973	<- ✓
161 4,4-Methylenebis(2-chloroa	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
162 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
163 7,12-Dimethylbenz(a)anthracen	0.43602	0.46837	0.50076	0.53329	0.53841	0.53334	0.50170	8.349	
164 Tris(2,3-br-2-propyl)phosphat	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
165 Dibenz(a,e)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
166 Dibenz(a,h)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
167 Dibenz(a,i)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
168 Indene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
169 2,4-Toluene diamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
170 2,6-Toluene diamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
171 1,4-Dioxane	0.45368	0.52294	0.49361	0.57432	0.58267	0.55515	0.53040	9.453	

Ave RSD = 9.8%

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Quanterra Austin

INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-1999 09:51
End Cal Date : 18-OCT-1999 15:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.00
Integrator : HP RTE
Method file : \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101899.b\F8270.M
Cal Date : 20-Oct-1999 08:45 hsiehc
Curve Type : Average

Compound	10.000 Level 1	20.000 Level 2	50.000 Level 3	100.000 Level 4	120.000 Level 5	160.000 Level 6	RRF	% RSD
$ 3 2-Fluorophenol	0.91064	1.00068	1.05816	1.08052	1.03861	1.07435	1.02716	6.225
$ 5 Phenol-d5	1.17766	1.24242	1.29593	1.36970	1.33766	1.39470	1.30301	6.281
$ 8 2-Chlorophenol-d4	1.19156	1.24891	1.35532	1.44739	1.43609	1.58562	1.37748	10.431
$ 13 1,2-Dichlorobenzene-d4	0.76454	0.88083	0.92993	1.07715	1.06731	1.13500	0.97579	14.474
$ 21 Nitrobenzene-d5	0.48550	0.50870	0.53434	0.53338	0.52212	0.52119	0.51754	3.533
$ 39 2-Fluorobiphenyl	1.05554	1.13848	1.20720	1.48896	1.40501	1.60719	1.31706	16.419
$ 59 2,4,6-Tribromophenol	0.24408	0.26546	0.27519	0.29611	0.27588	0.25874	0.26924	6.558
$ 71 Terphenyl-d14	0.72454	0.78168	0.78100	0.80339	0.78427	0.80602	0.78015	3.769

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F101902.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101999.b\F8270.m

Injection Date: 19-OCT-1999 10:09
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$	3 2-Fluorophenol	1.02716	1.06816	0.010	4.0	50.0	
$	5 Phenol-d5	1.30301	1.30161	0.010	-0.1	50.0	
$	8 2-Chlorophenol-d4	1.37748	1.37078	0.010	-0.5	50.0	
$	59 2,4,6-Tribromophenol	0.26924	0.22191	0.010	-17.6	50.0	
$	13 1,2-Dichlorobenzene-d4	0.97579	0.96952	0.010	-0.6	50.0	
$	21 Nitrobenzene-d5	0.51754	0.47519	0.010	-8.2	50.0	
$	39 2-Fluorobiphenyl	1.31706	1.19661	0.010	-9.1	50.0	
$	71 Terphenyl-d14	0.78015	0.85024	0.010	9.0	50.0	
	1 Pyridine	1.06681	1.24343	0.010	16.6	50.0	
	2 N-Nitrosodimethylamine	0.67417	0.70541	0.010	4.6	50.0	
	4 Aniline	1.27390	1.20316	0.010	-5.6	50.0	
	6 Phenol	1.35301	1.23013	0.010	-9.1	20.0	—
	7 bis(2-Chloroethyl)ether	1.76819	1.53028	0.010	-13.5	50.0	
	9 2-Chlorophenol	1.47877	1.47792	0.010	-0.1	50.0	
	10 1,3-Dichlorobenzene	1.53335	1.55579	0.010	1.5	50.0	
	12 1,4-Dichlorobenzene	1.67751	1.63000	0.010	-2.8	20.0	—
	14 Benzyl Alcohol	0.80802	0.80932	0.010	0.2	50.0	
	15 1,2-Dichlorobenzene	1.71629	1.65424	0.010	-3.6	50.0	
	16 bis(2-Chloroisopropyl)ether	0.77992	0.72178	0.010	-7.5	50.0	
	17 2-Methylphenol	1.00549	0.99852	0.010	-0.7	50.0	
	18 N-Nitroso-di-n-propylamine	0.94093	0.89562	0.050	-4.8	50.0	
	19 Hexachloroethane	1.04270	0.98352	0.010	-5.7	50.0	
	20 4-Methylphenol	1.13809	1.17301	0.010	3.1	50.0	
	22 Nitrobenzene	0.51399	0.46081	0.010	-10.3	50.0	
	23 Isophorone	0.72731	0.68885	0.010	-5.3	50.0	
	24 2-Nitrophenol	0.23554	0.23300	0.010	-1.1	20.0	—
	25 2,4-Dimethyphenol	0.45204	0.42336	0.010	-6.3	50.0	
	26 Bis(2-chloroethoxy)methane	0.39700	0.38185	0.010	-3.8	50.0	
	27 Benzoic Acid	0.31707	0.21285	0.010	-32.9	50.0	WAIVE
	28 2,4-Dichlorophenol	0.36733	0.35905	0.010	-2.3	20.0	
	29 1,2,4-Trichlorobenzene	0.44041	0.41528	0.010	-5.7	50.0	
	31 Naphthalene	1.15040	1.06308	0.010	-7.6	50.0	←
	32 4-Chloroaniline	0.38032	0.42161	0.010	10.9	50.0	
	33 Hexachlorobutadiene	0.38720	0.33246	0.010	-14.1	20.0	
	34 4-Chloro-3-Methylphenol	0.39958	0.38121	0.010	-4.6	20.0	-
	35 2-Methylnaphthalene	0.71336	0.69128	0.010	-3.1	50.0	

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F101902.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101999.b\F8270.m

Injection Date: 19-OCT-1999 10:09
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
36 Hexachlorocyclopentadiene	0.59194	0.52684	0.050	-11.0	50.0
37 2,4,6-Trichlorophenol	0.53414	0.48480	0.010	-9.2	20.0
38 2,4,5-Trichlorphenol	0.57683	0.52911	0.010	-8.3	50.0
40 2-Chloronaphthalene	1.26852	1.17082	0.010	-7.7	50.0
41 2-Nitroaniline	0.51350	0.42540	0.010	-17.2	50.0
42 Dimethylphthalate	1.69674	1.50175	0.010	-11.5	50.0
43 2,6-Dinitrotoluene	0.35934	0.35173	0.010	-2.1	50.0
44 Acenaphthylene	1.92755	1.72877	0.010	-10.3	50.0
45 3-Nitroaniline	0.42834	0.39161	0.010	-8.6	50.0
47 Acenaphthene	1.21899	1.07458	0.010	-11.8	20.0
48 2,4-Dinitrophenol	0.25643	0.23844	0.050	-7.0	50.0
49 4-Nitrophenol	0.64143	0.46161	0.050	-28.0	50.0
50 Dibenzofuran	1.79375	1.62805	0.010	-9.2	50.0
51 2,4-Dinitrotoluene	0.49495	0.47894	0.010	-3.2	50.0
52 Diethylphthalate	2.07079	1.76734	0.010	-14.7	50.0
53 4-Chlorophenyl-phenylether	0.77783	0.68625	0.010	-11.8	50.0
54 Fluorene	1.40754	1.28505	0.010	-8.7	50.0
55 4-Nitroaniline	0.36884	0.35558	0.010	-3.6	50.0
56 4,6-Dinitro-2-methylphenol	0.19166	0.18398	0.010	-4.0	50.0
57 N-Nitrosodiphenylamine	0.52980	0.49515	0.010	-6.5	20.0
58 1,2-Diphenylhydrazine	1.14690	0.92474	0.010	-19.4	50.0
60 4-Bromophenyl-phenylether	0.28425	0.26353	0.010	-7.3	50.0
61 Hexachlorobenzene	0.40882	0.35822	0.010	-12.4	50.0
62 Pentachlorophenol	0.28438	0.24521	0.010	-13.8	20.0
64 Phenanthrene	1.12076	1.04605	0.010	-6.7	50.0
65 Anthracene	1.13921	1.04691	0.010	-8.1	50.0
66 Carbazole	1.02851	0.99189	0.010	-3.6	50.0
67 Di-n-Butylphthalate	1.78682	1.65141	0.010	-7.6	50.0
68 Fluoranthene	1.29537	1.20913	0.010	-6.7	20.0
69 Benzidine	0.21303	0.23920	0.010	12.3	50.0
70 Pyrene	0.99683	1.14656	0.010	15.0	50.0
72 Butylbenzylphthalate	0.64217	0.72070	0.010	12.2	50.0
73 bis(2-Ethylhexyl)phthalate	0.88473	0.96830	0.010	9.4	50.0
74 3,3'-Dichlorobenzidine	0.46598	0.46147	0.010	-1.0	50.0
75 Benzo(a)anthracene	1.00860	1.07530	0.010	6.6	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F101902.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101999.b\F8270.m

Injection Date: 19-OCT-1999 10:09
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
77 Chrysene	0.97868	1.03740	0.010	6.0	50.0
78 Di-n-octylphthalate	1.52020	1.75391	0.010	15.4	20.0
79 Benzo(b)fluoranthene	1.31612	1.11984	0.010	-14.9	50.0
80 Benzo(k)fluoranthene	1.11397	1.21204	0.010	8.8	50.0
81 Benzo(a)pyrene	1.04243	1.06214	0.010	1.9	20.0
83 Indeno(1,2,3-cd)pyrene	1.28686	1.28828	0.010	0.1	50.0
84 Dibenz(a,h)anthracene	1.05976	1.04721	0.010	-1.2	50.0
85 Benzo(g,h,i)perylene	1.13566	1.07240	0.010	-5.6	50.0
86 3,3'-Dimethylbenzidine	0.24398	0.27909	0.010	14.4	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F101903.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101999.b\F8270.m

Injection Date: 19-OCT-1999 11:02
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
87	2-Picoline	0.82614	0.91978	0.010	11.3	50.0	
88	N-Nitrosomethylethylamine	0.24426	0.34857	0.010	42.7	50.0	✓
89	Methyl methanesulfonate	0.30196	0.16571	0.010	-45.1	50.0	✓
90	N-Nitrosodiethylamine	0.47691	0.47756	0.010	0.1	50.0	
91	Ethyl methanesulfonate	1.07684	1.04046	0.010	-3.4	50.0	
92	Pentachloroethane	0.68050	0.69241	0.010	1.7	50.0	
93	Acetophenone	1.80872	1.84028	0.010	1.7	50.0	
94	N-Nitrosopyrrolidine	0.52265	0.55967	0.010	7.1	50.0	
95	N-Nitrosomorpholine	0.27838	0.27012	0.010	-3.0	50.0	
96	3-Methylphenol	1.23411	1.21612	0.010	-1.5	50.0	
97	2-Methylbenzeneamine	1.79046	1.76022	0.010	-1.7	50.0	
98	N-Nitrosopiperidine	0.16139	0.16272	0.010	0.8	50.0	
99	o,o,o-Triethylphosphorothio	0.20369	0.19488	0.010	-4.3	50.0	
100	a,a-Dimethylphenethylamine	0.54176	0.28704	0.010	-47.0	50.0	✓
101	Hexachloropropene	0.37607	0.35757	0.010	-4.9	50.0	
102	2,6-Dichlorophenol	0.36808	0.34501	0.010	-6.3	50.0	
103	N-Nitroso-di-n-butylamine	0.24651	0.23902	0.010	-3.0	50.0	
104	p-Phenylenediamine	0.22109	0.31375	0.010	41.9	50.0	✓
105	Safrole	0.29185	0.28717	0.010	-1.6	50.0	
106	1-Methylnaphthalene	0.64465	0.63134	0.010	-2.1	50.0	
107	1,2,4,5-Tetrachlorobenzene	0.84540	0.77944	0.010	-7.8	50.0	
108	Isosafrole	0.53050	0.51390	0.010	-3.1	50.0	
109	1,4-Naphthoquinone	0.31151	0.38138	0.010	22.4	50.0	
110	1,4-Dinitrobenzene	0.25407	0.24737	0.010	-2.6	50.0	
111	Pentachlorobenzene	0.80977	0.76418	0.010	-5.6	50.0	
112	1,3-Dinitrobenzene	0.27849	0.29113	0.010	4.5	50.0	
113	1-Naphthylamine	1.07197	1.10941	0.010	3.5	50.0	
114	2,3,4,6-tetrachlorophenol	0.46825	0.44186	0.010	-5.6	50.0	
115	2-Naphthylamine	1.05874	1.04527	0.010	-1.3	50.0	
116	2,3,5,6-Tetrachlorophenol	0.52925	0.46542	0.010	-12.1	50.0	
117	Thionazin	0.49527	0.46912	0.010	-5.3	50.0	
118	5-Nitro-o-toluidine	0.44002	0.43795	0.010	-0.5	50.0	
119	Diphenylamine	1.13178	1.07899	0.010	-4.7	50.0	
120	Tetraethyldithiopyrophospha	0.20321	0.20531	0.010	1.0	50.0	
121	Diallate #1	0.24185	0.25259	0.010	4.4	50.0	
122	1,3,5-Trinitrobenzene	0.11282	0.11664	0.010	3.4	50.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F101903.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MsF\MSF1.I\F101999.b\F8270.m

Injection Date: 19-OCT-1999 11:02
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
123 Sulfotepp	0.20321	0.20531	0.010	1.0	50.0	
124 Phorate	0.22116	0.20956	0.010	-5.2	50.0	
125 Phenacetin	0.47670	0.47005	0.010	-1.4	50.0	
126 Dialate #2	0.05991	0.05806	0.010	-3.1	50.0	
127 Dimethoate	0.14091	0.19878	0.010	41.1	50.0	✓
128 4-Aminobiphenyl	0.59481	0.66398	0.010	11.6	50.0	
129 Pronamide	0.43347	0.43946	0.010	1.4	50.0	
130 Pentachloronitrobenzene	0.17104	0.16711	0.010	-2.3	50.0	
131 Disulfoton	0.28579	0.30534	0.010	6.8	50.0	
132 Dinoseb	0.22535	0.22497	0.010	-0.2	50.0	
133 Methyl parathion	0.19034	0.27333	0.010	43.6	50.0	✓
134 Parathion	0.20683	0.22122	0.010	7.0	50.0	
135 4-Nitroquinoline-1-oxide	0.07220	0.10650	0.010	47.5	50.0	✓
136 Methapyrilene	0.22858	0.25306	0.010	10.7	50.0	
137 Isodrin	0.16358	0.17047	0.010	4.2	50.0	
138 Aramite #1	0.05609	0.07078	0.010	26.2	50.0	✓
139 Aramite #2	0.08335	0.10585	0.010	27.0	50.0	✓
140 4-Dimethylaminoazobenzene	0.32286	0.37059	0.010	14.8	50.0	
141 Chlorobenzilate	0.36157	0.39017	0.010	7.9	50.0	
142 2-Acetylaminofluorene	0.47744	0.49731	0.010	4.2	50.0	
143 3-MethylCholanthrene	0.57976	0.58800	0.010	1.4	50.0	
144 3-Dibenz(a,j)acridine	1.00311	0.93144	0.010	-7.1	50.0	
149 o-Toluidine	1.78228	1.74275	0.010	-2.2	50.0	
159 Famphur	0.06453	0.02545	0.010	-60.6	50.0	<- ✓
160 Kepone	0.06777	0.04320	0.010	-36.3	50.0	✓
162 Hexachlorophene	****	****	0.010	****	50.0	<- Screen only
163 7,12-Dimethylbenz(a)anthrac	0.50170	0.52177	0.010	4.0	50.0	
171 1,4-Dioxane	0.53040	0.53459	0.010	0.8	50.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F102002.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MSF\MSF1.I\F102099.B\F8270.m

Injection Date: 20-OCT-1999 18:03
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
$ 3 2-Fluorophenol	1.02716	1.00294	0.010	-2.4	50.0
$ 5 Phenol-d5	1.30301	1.32617	0.010	1.8	50.0
$ 8 2-Chlorophenol-d4	1.37748	1.36157	0.010	-1.2	50.0
$ 59 2,4,6-Tribromophenol	0.26924	0.22941	0.010	-14.8	50.0
$ 13 1,2-Dichlorobenzene-d4	0.97579	0.91771	0.010	-6.0	50.0
$ 21 Nitrobenzene-d5	0.51754	0.49051	0.010	-5.2	50.0
$ 39 2-Fluorobiphenyl	1.31706	1.30602	0.010	-0.8	50.0
$ 71 Terphenyl-d14	0.78015	0.83201	0.010	6.6	50.0
1 Pyridine	1.06681	0.87474	0.010	-18.0	50.0
2 N-Nitrosodimethylamine	0.67417	0.55016	0.010	-18.4	50.0
4 Aniline	1.27390	1.21729	0.010	-4.4	50.0
6 Phenol	1.35301	1.34778	0.010	-0.4	20.0
7 bis(2-Chloroethyl)ether	1.76819	1.63046	0.010	-7.8	50.0
9 2-Chlorophenol	1.47877	1.40446	0.010	-5.0	50.0
10 1,3-Dichlorobenzene	1.53335	1.49144	0.010	-2.7	50.0
12 1,4-Dichlorobenzene	1.67751	1.66581	0.010	-0.7	20.0
14 Benzyl Alcohol	0.80802	0.79018	0.010	-2.2	50.0
15 1,2-Dichlorobenzene	1.71629	1.64902	0.010	-3.9	50.0
16 bis(2-Chloroisopropyl)ether	0.77992	0.68144	0.010	-12.6	50.0
17 2-Methylphenol	1.00549	1.00447	0.010	-0.1	50.0
18 N-Nitroso-di-n-propylamine	0.94093	0.91436	0.050	-2.8	50.0
19 Hexachloroethane	1.04270	1.01755	0.010	-2.4	50.0
20 4-Methylphenol	1.13809	1.24421	0.010	9.3	50.0
22 Nitrobenzene	0.51399	0.46263	0.010	-10.0	50.0
23 Isophorone	0.72731	0.70303	0.010	-3.3	50.0
24 2-Nitrophenol	0.23554	0.23617	0.010	0.3	20.0
25 2,4-Dimethyphenol	0.45204	0.45466	0.010	0.6	50.0
26 Bis(2-chloroethoxy)methane	0.39700	0.40216	0.010	1.3	50.0
27 Benzoic Acid	0.31707	0.25484	0.010	-19.6	50.0
28 2,4-Dichlorophenol	0.36733	0.37317	0.010	1.6	20.0
29 1,2,4-Trichlorobenzene	0.44041	0.43056	0.010	-2.2	50.0
31 Naphthalene	1.15040	1.07695	0.010	-6.4	50.0
32 4-Chloroaniline	0.38032	0.42749	0.010	12.4	50.0
33 Hexachlorobutadiene	0.38720	0.36666	0.010	-5.3	20.0
34 4-Chloro-3-Methylphenol	0.39958	0.39052	0.010	-2.3	20.0
35 2-Methylnaphthalene	0.71336	0.70913	0.010	-0.6	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i
Lab File ID: F102002.D
Analysis Type:
Lab Sample ID: CCAL_3
Method: \\QAUSTX02\INS_DATA\MSF\MSF1.I\F102099.B\F8270.m

Injection Date: 20-OCT-1999 18:03
Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Init. Cal. Times: 09:51 15:04
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
36 Hexachlorocyclopentadiene	0.59194	0.47395	0.050	-19.9	50.0
37 2,4,6-Trichlorophenol	0.53414	0.52586	0.010	-1.6	20.0
38 2,4,5-Trichlorphenol	0.57683	0.55372	0.010	-4.0	50.0
40 2-Chloronaphthalene	1.26852	1.22362	0.010	-3.5	50.0
41 2-Nitroaniline	0.51350	0.45350	0.010	-11.7	50.0
42 Dimethylphthalate	1.69674	1.62578	0.010	-4.2	50.0
43 2,6-Dinitrotoluene	0.35934	0.37166	0.010	3.4	50.0
44 Acenaphthylene	1.92755	1.77593	0.010	-7.9	50.0
45 3-Nitroaniline	0.42834	0.38905	0.010	-9.2	50.0
47 Acenaphthene	1.21899	1.14433	0.010	-6.1	20.0
48 2,4-Dinitrophenol	0.25643	0.25200	0.050	-1.7	50.0
49 4-Nitrophenol	0.64143	0.57450	0.050	-10.4	50.0
50 Dibenzofuran	1.79375	1.69974	0.010	-5.2	50.0
51 2,4-Dinitrotoluene	0.49495	0.51658	0.010	4.4	50.0
52 Diethylphthalate	2.07079	1.93300	0.010	-6.7	50.0
53 4-Chlorophenyl-phenylether	0.77783	0.71495	0.010	-8.1	50.0
54 Fluorene	1.40754	1.37444	0.010	-2.4	50.0
55 4-Nitroaniline	0.36884	0.37219	0.010	0.9	50.0
56 4,6-Dinitro-2-methylphenol	0.19166	0.17928	0.010	-6.5	50.0
57 N-Nitrosodiphenylamine	0.52980	0.49093	0.010	-7.3	20.0
58 1,2-Diphenylhydrazine	1.14690	0.93558	0.010	-18.4	50.0
60 4-Bromophenyl-phenylether	0.28425	0.25486	0.010	-10.3	50.0
61 Hexachlorobenzene	0.40882	0.36481	0.010	-10.8	50.0
62 Pentachlorophenol	0.28438	0.24649	0.010	-13.3	20.0
64 Phenanthrene	1.12076	1.06136	0.010	-5.3	50.0
65 Anthracene	1.13921	1.08732	0.010	-4.6	50.0
66 Carbazole	1.02851	0.99698	0.010	-3.1	50.0
67 Di-n-Butylphthalate	1.78682	1.66309	0.010	-6.9	50.0
68 Fluoranthene	1.29537	1.20693	0.010	-6.8	20.0
69 Benzidine	0.21303	0.23239	0.010	9.1	50.0
70 Pyrene	0.99683	1.07633	0.010	8.0	50.0
72 Butylbenzylphthalate	0.64217	0.68997	0.010	7.4	50.0
73 bis(2-Ethylhexyl)phthalate	0.88473	0.95846	0.010	8.3	50.0
74 3,3'-Dichlorobenzidine	0.46598	0.48659	0.010	4.4	50.0
75 Benzo(a)anthracene	1.00860	1.07182	0.010	6.3	50.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i Injection Date: 20-OCT-1999 18:03
Lab File ID: F102002.D Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Analysis Type: Init. Cal. Times: 09:51 15:04
Lab Sample ID: CCAL_3 Quant Type: ISTD
Method: \\QAUSTX02\INS_DATA\MSF\MSF1.I\F102099.B\F8270.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
77 Chrysene	0.97868	1.00719	0.010	2.9	50.0
78 Di-n-octylphthalate	1.52020	1.66925	0.010	9.8	20.0
79 Benzo(b)fluoranthene	1.31612	1.15537	0.010	-12.2	50.0
80 Benzo(k)fluoranthene	1.11397	1.20183	0.010	7.9	50.0
81 Benzo(a)pyrene	1.04243	1.07002	0.010	2.6	20.0
83 Indeno(1,2,3-cd)pyrene	1.28686	1.31339	0.010	2.1	50.0
84 Dibenz(a,h)anthracene	1.05976	1.10016	0.010	3.8	50.0
85 Benzo(g,h,i)perylene	1.13566	1.13610	0.010	0.0	50.0
86 3,3'-Dimethylbenzidine	0.24398	0.29797	0.010	22.1	50.0

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i Injection Date: 20-OCT-1999 18:32
Lab File ID: F102003.D Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Analysis Type: Init. Cal. Times: 09:51 15:04
Lab Sample ID: CCAL_3 Quant Type: ISTD
Method: \\QAUSTX02\INS_DATA\MSF\MSF1.I\F102099.B\F8270.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
87 2-Picoline	0.82614	0.77998	0.010	-5.6	50.0	
88 N-Nitrosomethylethylamine	0.24426	0.32970	0.010	35.0	50.0	✓
89 Methyl methanesulfonate	0.30196	0.18784	0.010	-37.8	50.0	✓
90 N-Nitrosodiethylamine	0.47691	0.46368	0.010	-2.8	50.0	
91 Ethyl methanesulfonate	1.07684	0.95898	0.010	-10.9	50.0	
92 Pentachloroethane	0.68050	0.67012	0.010	-1.5	50.0	
93 Acetophenone	1.80872	1.82755	0.010	1.0	50.0	
94 N-Nitrosopyrrolidine	0.52265	0.52066	0.010	-0.4	50.0	
95 N-Nitrosomorpholine	0.27838	0.26500	0.010	-4.8	50.0	
96 3-Methylphenol	1.23411	1.13492	0.010	-8.0	50.0	
97 2-Methylbenzeneamine	1.79046	1.71759	0.010	-4.1	50.0	
98 N-Nitrosopiperidine	0.16139	0.15998	0.010	-0.9	50.0	
99 o,o,o-Triethylphosphorothio	0.20369	0.19817	0.010	-2.7	50.0	
100 a,a-Dimethylphenethylamine	0.54176	0.44265	0.010	-18.3	50.0	
101 Hexachloropropene	0.37607	0.36906	0.010	-1.9	50.0	
102 2,6-Dichlorophenol	0.36808	0.34829	0.010	-5.4	50.0	
103 N-Nitroso-di-n-butylamine	0.24651	0.23157	0.010	-6.1	50.0	
104 p-Phenylenediamine	0.22109	0.26915	0.010	21.7	50.0	
105 Safrole	0.29185	0.27800	0.010	-4.7	50.0	
106 1-Methylnaphthalene	0.64465	0.64521	0.010	0.1	50.0	
107 1,2,4,5-Tetrachlorobenzene	0.84540	0.81550	0.010	-3.5	50.0	
108 Isosafrole	0.53050	0.51972	0.010	-2.0	50.0	
109 1,4-Naphthoquinone	0.31151	0.33584	0.010	7.8	50.0	
110 1,4-Dinitrobenzene	0.25407	0.26860	0.010	5.7	50.0	
111 Pentachlorobenzene	0.80977	0.79134	0.010	-2.3	50.0	
112 1,3-Dinitrobenzene	0.27849	0.30007	0.010	7.7	50.0	
113 1-Naphthylamine	1.07197	1.11584	0.010	4.1	50.0	
114 2,3,4,6-tetrachlorophenol	0.46825	0.47615	0.010	1.7	50.0	
115 2-Naphthylamine	1.05874	0.98184	0.010	-7.3	50.0	
116 2,3,5,6-Tetrachlorophenol	0.52925	0.50022	0.010	-5.5	50.0	
117 Thionazin	0.49527	0.48844	0.010	-1.4	50.0	
118 5-Nitro-o-toluidine	0.44002	0.46162	0.010	4.9	50.0	
119 Diphenylamine	1.13178	1.16614	0.010	3.0	50.0	
120 Tetraethyldithiopyrophospha	0.20321	0.19788	0.010	-2.6	50.0	
121 Diallate #1	0.24185	0.24142	0.010	-0.2	50.0	
122 1,3,5-Trinitrobenzene	0.11282	0.10626	0.010	-5.8	50.0	

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Quanterra Austin

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: MSF1.i Injection Date: 20-OCT-1999 18:32
Lab File ID: F102003.D Init. Cal. Date(s): 18-OCT-1999 18-OCT-1999
Analysis Type: Init. Cal. Times: 09:51 15:04
Lab Sample ID: CCAL_3 Quant Type: ISTD
Method: \\QAUSTX02\INS_DATA\MSF\MSF1.I\F102099.B\F8270.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
123 Sulfotepp	0.20321	0.19788	0.010	-2.6	50.0	
124 Phorate	0.22116	0.21628	0.010	-2.2	50.0	
125 Phenacetin	0.47670	0.48736	0.010	2.2	50.0	
126 Dialate #2	0.05991	0.05448	0.010	-9.1	50.0	
127 Dimethoate	0.14091	0.16506	0.010	17.1	50.0	
128 4-Aminobiphenyl	0.59481	0.62950	0.010	5.8	50.0	
129 Pronamide	0.43347	0.44579	0.010	2.8	50.0	
130 Pentachloronitrobenzene	0.17104	0.16295	0.010	-4.7	50.0	
131 Disulfoton	0.28579	0.29486	0.010	3.2	50.0	
132 Dinoseb	0.22535	0.23497	0.010	4.3	50.0	
133 Methyl parathion	0.19034	0.23591	0.010	23.9	50.0	
134 Parathion	0.20683	0.21739	0.010	5.1	50.0	
135 4-Nitroquinoline-1-oxide	0.07220	0.09637	0.010	33.5	50.0	✓
136 Methapyrilene	0.22858	0.24921	0.010	9.0	50.0	
137 Isodrin	0.16358	0.16758	0.010	2.4	50.0	
138 Aramite #1	0.05609	0.06289	0.010	12.1	50.0	
139 Aramite #2	0.08335	0.10016	0.010	20.2	50.0	
140 4-Dimethylaminoazobenzene	0.32286	0.33694	0.010	4.4	50.0	
141 Chlorobenzilate	0.36157	0.35855	0.010	-0.8	50.0	
142 2-Acetylaminofluorene	0.47744	0.53145	0.010	11.3	50.0	
143 3-MethylCholanthrene	0.57976	0.58631	0.010	1.1	50.0	
144 3-Dibenz(a,j)acridine	1.00311	1.03251	0.010	2.9	50.0	
149 o-Toluidine	1.78228	1.71759	0.010	-3.6	50.0	
159 Famphur	0.06453	0.00479	0.010	-92.6	50.0	✓ <- bad acting compound.
160 Kepone	0.06777	0.03565	0.010	-47.4	50.0	✓
162 Hexachlorophene	++++	++++	0.010	++++	50.0	<- screening
163 7,12-Dimethylbenz(a)anthrac	0.50170	0.50495	0.010	0.6	50.0	
171 1,4-Dioxane	0.53040	0.41581	0.010	-21.6	50.0	

SW846 8082 CHECK SAMPLE RECOVERY

ab Name: QUANTERRA Client: IT GROUP

ab Code: QESAUS SDG No:

ot #: I9J210000 WO #: D3XJM102
BATCH: 9294203

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Aroclor 1016	333	172	52*	59 - 118	a
Aroclor 1260	333	311	93	65 - 130	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

Values outside of QC limits

ike Recovery: 1 out of 2 outside limits

MMENTS:

FORM III

Software Version: 4.1<1L22>
Date: 9/18/99 14:30
Sample Name : 1660-1(IS)
Data File : H:\GCD\D990914\D#AB010.RAW Date: 9/14/99 15:10
Sequence File: H:\GCD\B\C091499.SEQ Cycle: 10 Channel : A
Instrument : GCD1 Rack/Vial: 0/0 Operator:
Sample Amount : 1.0000 Dilution Factor : 1.00

AUTO-CALIBRATION REPORT

Updating method : H:\GCD\A\C091499.mth
Calibration performed at level: 1
Values will replace previous averages in the method
Retention times in the method will be updated
Reported response values are the method averages.
An internal standard calibration will be performed:
The reported amounts are the ratio of component to ISTD amount
The reported responses are the ratio of peak response to ISTD response

Calibration Status:

Component	C0	C1	C2	C3	r^2	Status
URROGATES						5
CMX	0.047653	1.818033	-0.946127		0.999698	9
016-1	0.028530	0.031808	-0.000800		0.995230	9
016-2	0.030772	0.052214	-0.001271		0.998634	9
016-3	-0.009376	0.055213	-0.001518		0.986611	9
OTAL 1016						5
016-4	0.003974	0.118938	-0.002873		0.997664	9
016-5	0.000027	0.057397	-0.001446		0.994412	9
016-6	0.003131	0.036587	-0.000886		0.992739	9
016-7	0.083713	-0.008474	0.001373		0.868492	9
016-8	0.035127	0.006420	0.000212		0.977662	9
016-9	0.029106	0.048527	-0.000997		0.990212	9
016-10	0.035123	0.027831	-0.000743		0.983404	9
260-1	0.009442	0.035541	-0.000805		0.992548	9
260-2	0.045073	0.056718	-0.001258		0.995468	9
260-3	0.005071	0.100495	-0.002235		0.998920	9
260-4	-0.007214	0.050655	-0.001061		0.998419	9
260-5	-0.019782	0.119541	-0.002539		0.998454	9
26	0.024791	0.073876	-0.001492		0.995444	9
2	0.022020	0.066555	-0.001322		0.993808	9
OT. 260						5
260-8	-0.016150	0.175847	-0.003778		0.998518	9
260-9	0.038788	0.077210	-0.001479		0.986024	9
exabromobypheyl (IS)	0.000000	1.000000				9
260-10	0.023320	0.039316	-0.000588		0.976427	9
CBP	0.017984	1.389353	-0.583273		0.998106	9

Calibration Status Explanations:
1 = Component not calibrated: Rejected based on user criteria
2 = Component not calibrated: Was not found in peak/group list
3 = Component not calibrated: No ISTD specified in method
4 = Component not calibrated: ISTD was not found in peak list
5 = Component not calibrated: Uses constant calibration factor
6 = Component not calibrated: Uses calibration reference
7 = Component not calibrated: No calibration at this level
8 = Component not calibrated: Incomplete named group
9 = Component calibrated successfully

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

ab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: J070143___

iitial Calibration Source: ULTRA_____

ontinuing Calibration Source: ULTRA_____

Concentration Units: ug/L

nalyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
rsenic				500.0	568.11	113.6			P
arium				2000.0	1728.12	86.4			P
admium				500.0	668.48	133.7			P
hromium				2000.0	2485.29	124.3			P
ead				500.0	613.97	122.8			P
ercury									NR
elenium				500.0	523.46	104.7			P

) Control Limits: Mercury 80-120; Other Metals ICV 90-110, CCV 80-120

FORM II - SW-846

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3
BLANKS

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: J070143___

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prep-aration Blank	C	M
Arsenic	1.5	U	2.2	B	1.7	B	3.7	B	0.284	B	P
Barium	1.0	B	2.2	B	2.6	B	3.0	B	0.409	B	P
Cadmium	0.3	U	0.7	B	0.8	B	0.9	B	0.030	U	P
Chromium	0.9	U	1.9	B	2.7	B	3.1	B	0.090	U	P
ad	1.8	U	1.8	U	1.8	U	1.8	U	0.194	B	P
rcury	0.2	U	0.2	U	0.2	U	0.2	U	0.017	U	AV
Selenium	1.7	U	2.2	B	1.7	U	2.4	B	0.325	B	P

FORM III - SW-846

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3
BLANKS

o Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

o Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: J070143___

eparation Blank Matrix (soil/water): _____

eparation Blank Concentration Units (ug/L or mg/kg): _____

nalyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
rsenic			3.3	B	3.5	B	3.8	B			P
arium			3.2	B	3.1	B	3.1	B			P
admium			1.1	B	1.0	B	0.7	B			P
romium			2.9	B	3.3	B	1.9	B			P
ead			1.8	U	1.8	U	1.8	U			P
ercury			0.2	U	0.2	U	0.2	U			AV
elenium			2.8	B	1.8	B	1.7	U			P

FORM III - SW-846

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3
BLANKS

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: J070143___

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic			3.6	B							P
Barium			1.1	B							P
Cadmium			0.7	B							P
Chromium			1.8	B							P
ad			1.8	U							P
rcury											NR
Selenium			1.7	U							P

FORM III - SW-846

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ICP INTERFERENCE CHECK SAMPLE

b Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

b Code: QUAUS_ Case No.: _____ SAS No: _____ SDG No.: J070143__

P ID Number: TJA61ETRACE_ ICS Source: ULTRA_____

Concentration Units: ~~mg~~ ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic	0	1000	1	994.7	99.5			
Barium	0	500	(4)	568.2	113.6			
Cadmium	0	1000	-1	974.3	97.4			
Chromium	0	500	(4)	516.5	103.3			
Lead	0	1000	-1	997.9	99.8			
Mercury								
Selenium	0	1000	(-3)	986.2	98.6			

FORM IV - SW846

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ICP SERIAL DILUTION

EPA SAMPLE NO.

D3HN8 SD

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.: J07014

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Arsenic	99.62		188.42		89.1	E	P
Barium	412.76		516.02	B	25.0	E	P
Cadmium	0.30	U	1.50	U			P
Chromium	185.09		197.99		7.0		P
Lead	96.00		120.37		25.4	E	P
Mercury							NR
Selenium	8.58		87.22		916.6		P

ok < 50 < RX

U.S. EPA - SW-846

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ANALYSIS RUN LOG

b Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

b Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.:J07014

strument ID Number: TJA61ETRACE__ Method: P_

art Date: 10/18/99 End Date: 10/18/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AS	BA	CD	CR	PB	HG	SE																	
FD0	1.00	1102		X	X	X	X	X		X																	
FD1	1.00	1107		X	X	X	X	X		X																	
CV	1.00	1112																									
FD1	1.00	1129																									
CV	1.00	1132		X	X	X	X	X		X																	
CB	1.00	1137		X	X	X	X	X		X																	
CSA	1.00	1142		X	X	X	X	X		X																	
CSAB	1.00	1147		X	X	X	X	X		X																	
CV	1.00	1154		X	X	X	X	X		X																	
CB	1.00	1159		X	X	X	X	X		X																	
ZZZZZ	1.00	1204																									
ZZZZZ	1.00	1209																									
ZZZZZ	1.00	1214																									
ZZZZZ	1.00	1219																									
ZZZZZ	1.00	1224																									
ZZZZZ	1.00	1229																									
ZZZZZ	1.00	1234																									
ZZZZZ	1.00	1238																									
ZZZZZ	1.00	1243																									
ZZZZZ	1.00	1248																									
CV	1.00	1253		X	X	X	X	X		X																	
CB	1.00	1258		X	X	X	X	X		X																	
ZZZZZ	1.00	1303																									
ZZZZZ	1.00	1308																									
BS	1.00	1313		X	X	X	X	X		X																	
CS	1.00	1318		X	X	X	X	X		X																	
BHMN	1.00	1323		X	X	X	X	X		X																	
BHN5	1.00	1328		X	X	X	X	X		X																	
BHN6	1.00	1333		X	X	X	X	X		X																	
BHN7	1.00	1338		X	X	X	X	X		X																	
BHN8	1.00	1343		X	X	X	X	X		X																	
BHN8 SD	1.00	1348		X	X	X	X	X		X																	

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ANALYSIS RUN LOG

Lab Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

Lab Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.:J07014

Instrument ID Number: TJA61ETRACE__ Method: P_

Start Date: 10/18/99 End Date: 10/18/99

EPA Sample No.	D/F	Time	% R	Analytes																										
				AS	BA	CD	CR	PB	HG	SE																				
CCV	1.00	1353		X	X	X	X	X		X																				
CCB	1.00	1358		X	X	X	X	X		X																				
D3HN8 MS	1.00	1403		X	X	X	X	X		X																				
D3HN8 MSD	1.00	1408		X	X	X	X	X		X																				
D3HN9	1.00	1413		X	X	X	X	X		X																				
D3HNC	1.00	1418		X	X	X	X	X		X																				
D3HNG	1.00	1423		X	X	X	X	X		X																				
D3HNH	1.00	1428		X	X	X	X	X		X																				
D3J3L	1.00	1433		X	X	X	X	X		X																				
D3J3P	1.00	1438		X	X	X	X	X		X																				
ZZZZZ	1.00	1443																												
ZZZZ	1.00	1448																												
CCV	1.00	1453		X	X	X	X	X		X																				
CCB	1.00	1458		X	X	X	X	X		X																				
ZZZZZZ	1.00	1503																												
ZZZZZZ	1.00	1508																												
ZZZZZZ	1.00	1513																												
ZZZZZZ	1.00	1518																												
ZZZZZZ	1.00	1523																												
ZZZZZZ	1.00	1528																												
ZZZZZZ	1.00	1533																												
CCV	1.00	1538		X	X	X	X	X		X																				
CCB	1.00	1543		X	X	X	X	X		X																				
ZZZZZZ	1.00	1551																												
ZZZZZZ	1.00	1556																												
ZZZZZZ	1.00	1601																												
ZZZZZZ	1.00	1606																												
ZZZZZZ	1.00	1611																												
CCV	1.00	1616		X	X	X	X	X		X																				
CCB	1.00	1621		X	X	X	X	X		X																				
ZZZZZZ	1.00	1626																												
ZZZZZZ	1.00	1631																												

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14
ANALYSIS RUN LOG

o Name: QUANTERRA_AUSTIN_____ Contract: 32077_____

o Code: QUAUS_ Case No.: _____ SAS No.: _____ SDG No.:J07014

strument ID Number: TJA61ETRACE__ Method: P_

art Date: 10/18/99 End Date: 10/18/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AS	BA	CD	CR	PB	HG	SE																	
ZZZZZ	1.00	1636																									
ZZZZZ	1.00	1641																									
ZZZZZ	1.00	1646																									
ZZZZZ	1.00	1651																									
ZZZZZ	1.00	1656																									
ZZZZZ	1.00	1701																									
ZZZZZ	1.00	1706																									
V	1.00	1711																									
B	1.00	1716																									
V	1.00	1724		X	X	X	X	X		X																	
B	1.00	1729		X	X	X	X	X		X																	

FORM XIV - SW-846

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M F G
consulting scientists and engineers

800 Vinial Street, Building A
Pittsburgh, PA 15212-1528
412/321- 2278
Fax: 412/321- 2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 4 December 2000

SUBJECT: Data Validation of: Total and Dissolved Metals, Total and Free Cyanide, Fluoride, and Total Suspended Solids (TSS)

Re: Severn Trent Laboratories, Inc.
Package No.: C0I090124

Aqueous Samples:

MW-7-2520	MW-7-2520D	MW-25-2520
MW-16-2520	MW-6-2520	

Equipment Rinsate Blanks:

MW-6-2520-EB
MW-29-2530-EB

Field Duplicates:

Sample MW-7-2520D is a field duplicate of sample MW-7-2520.

Overview

This set of samples collected on September 7 and 8, 2000 for the Alcoa Badin Site contains five (5) groundwater samples, including one (1) field duplicate pair, and two (2) equipment rinsate blanks. The samples were analyzed for total and dissolved metals and total cyanide by USEPA SW-846 Methods 6010B and 9012A, respectively. The samples were also analyzed for weak acid dissociable (WAD) cyanide by SM18-4500-CN-I and for free cyanide by ASTM D4282-83. Additional parameters included fluoride and total suspended solids which were analyzed by MCAWW 340.2 and 160.2, respectively. Note that not all samples were analyzed for all parameters.

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Summary

All compounds were successfully analyzed in all samples. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

No significant problems were encountered.

Notes

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

A notation was placed in the comments column of the chain-of custody for sample MW-6-2520 stating that a 1 liter bottle was used preserved to pH 4. However, no discrepancies were noted by the laboratory on the cooler receipt form with the recorded pH for both total and dissolved metals being less than 2. As a result, no action on the data was deemed necessary.

Note that the free cyanide by microdiffusion (ASTM D4282-83) and fluoride analyses were not supplied with this data package but instead submitted under separate cover by STL Savannah in data package S0-06162. These results have been consolidated for the purpose of this validation letter and are presented on the validated data summary.

Note that as stated in the case narrative, STL Pittsburgh reports weak acid dissociable cyanide (by Standard Method SM18-4500-CN-I) as free cyanide. This has been changed on the validated data summary to dissociable cyanide for clarity.

Note that sample MW6-2520 was rerun on September 22, 2000 for total antimony due to poor % RSD between injections for this parameter during the original analysis performed on September 21, 2000. The % RSD between injections for the reanalysis were acceptable and these results were presented by the laboratory. As a result, no action was warranted.

The laboratory presented reporting limits instead of instrument detection limits (IDLs) on the Form 10 associated with the metals analyses. Per a conversation with the laboratory these limits are calculated annually and were reported in lieu of the IDLs as sample results were only reported down to these levels. Pursuant to this conversation the laboratory submitted via a PDF file the quarterly IDL summary for the ICP used in the metals analyses performed during August 2000. As all reporting limits were greater than the IDLs, no action was necessary.

Note that a CRA standard was not provided for the total, WAD, or free cyanide analyses. However, a review of the raw data showed that the laboratory did rerun high and low initial calibration standards (with the low standard being within 1 to 5 times the reporting limit) after the initial calibration was

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performed to assess the goodness of the curve. All of these percent recoveries were acceptable and no action was taken.

Note that per the laboratory distilled midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total or WAD cyanide samples prepared on September 11, 2000 or the free cyanide samples prepared on September 18, 2000. However, a laboratory control sample is prepared with each batch and the results of the LCSs were acceptable.

Note that the MS/MSD results for free (microdiffusion) cyanide and fluoride were not reported with the data package. A review of the raw data showed these analyses to be run and all percent recoveries were acceptable for the free cyanide but outside control limits for the fluoride analyses. However, the unspiked sample result for fluoride was greater than 4 times the spike added and therefore no action was taken. Note that the MS/MSD for the free cyanide analysis was performed on an equipment rinsate blank and may not be representative of other site samples.

Note that equipment rinsate blank EB-29-2530EB was also analyzed for polynuclear aromatic hydrocarbons (PAHs) with this SDG. However, this fraction was not validated and is not provided on the validated data summary. In addition, this blank was analyzed for parameters not applicable to other site samples in this SDG (i.e., total, WAD, and free cyanide and fluoride) and is more applicable to samples contained in SDG C0I080233. As no target analytes were detected in this blank, this will not impact any of the site samples from either data package.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

D. ımary
Alcoa Badin
SDG - C0l090124

	ANALYTICAL METHOD Sampled	UNITS	MW-16-2520 9/7/00		MW-25-2520 9/7/00		MW-29-2530-EB 9/8/00		MW-6-2520 9/7/00		MW-6-2520-EB 9/8/00		MW-7-2520 9/7/00		MW-7-2520D 9/7/00	
Wet Chemistry Parameters																
Total Suspended Solids	160.2	mg/L	22.4		4.0	U	NA		24.8		4.0	U	8.8		8.0	
Cyanide, Dissociable	SM18-4500-CN-I	mg/L	NA		NA		0.010	U	NA		NA		NA		NA	
Cyanide, Total	SW9012A	mg/L	NA		NA		0.010	U	NA		NA		NA		NA	
Cyanide, Free by Microdiffusion	D4282-83	mg/L	NA		NA		0.010	U	NA		NA		NA		NA	
Fluoride	340.2	mg/L	NA		NA		0.20	U	NA		NA		NA		NA	
Total Metals																
Antimony	SW6010B	mg/L	0.006	U	0.006	U	0.006		0.006	U	0.006	U	0.006	U	0.006	U
Thallium	SW6010B	mg/L	0.010	U	0.010	U	NA		0.010	U	0.010	U	0.010	U	0.010	U
Dissolved Metals																
Antimony-DISS	SW6010B	mg/L	0.010	U	0.010	U	NA		0.010	U	0.010	U	0.010	U	0.010	U
Thallium-DISS	SW6010B	mg/L	0.010	U	0.010	U	NA		0.010	U	0.010	U	0.010	U	0.010	U

NA - Not Analyzed

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Results as Reported by the Laboratory

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK50N **Client ID:** MW-7-2520

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/21/00	11:47
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/21/00	11:47

Comments: Lot #: C0I090124 Sample #: 1

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK50NF **Client ID:** MW-7-2520F

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	11:37
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	11:37

Comments: Lot #: C0I090124 Sample #: 1 DISSOLVED METALS ANALYSIS

U Result is less than the MDL

B Result is between MDL and RL

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51C **Client ID:** MW-7-2520D

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/21/00	12:04
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/21/00	12:04

Comments: Lot #: C0I090124 Sample #: 2

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51CF **Client ID:** MW-7-2520DF

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	11:54
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	11:54

Comments: Lot #: C0I090124 Sample #: 2 DISSOLVED METALS ANALYSIS

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51D **Client ID:** MW-25-2520

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/21/00	12:08
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/21/00	12:08

Comments: Lot #: C0I090124 Sample #: 3

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form I Equivalent

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51DF **Client ID:** MW-25-2520F

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	11:58
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	11:58

Comments: Lot #: C0I090124 Sample #: 3 DISSOLVED METALS ANALYSIS

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51E **Client ID:** MW-16-2520

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/21/00	12:12
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/21/00	12:12

Comments: Lot #: C0I090124 Sample #: 4

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51EF **Client ID:** MW-16-2520F

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	12:02
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	12:02

Comments: Lot #: C0I090124 Sample #: 4 DISSOLVED METALS ANALYSIS

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51F **Client ID:** MW-6-2520

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	11:21
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/21/00	12:16

Comments: Lot #: C0I090124 Sample #: 5

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51FF **Client ID:** MW-6-2520F

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	12:06
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	12:06

Comments: Lot #: C0I090124 Sample #: 5 DISSOLVED METALS ANALYSIS

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51G **Client ID:** MW-6-2520EB

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	11:25
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	11:25

Comments: Lot #: C0I090124 Sample #: 6

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DK51GF **Client ID:** MW-6-2520EBF

Matrix: Water **Units:** ug/L **Prep Date:** 9/13/00 **Prep Batch:** 0257150

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	220.35	6.0	6.0	6.0	U	1	ICPST	9/22/00	12:11
Thallium	190.86	10.0	10.0	10.0	U	1	ICPST	9/22/00	12:11

Comments: Lot #: C0I090124 Sample #: 6 DISSOLVED METALS ANALYSIS

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-7-2520

General Chemistry

Lot-Sample #...: C0I090124-001 Work Order #...: DK50N Matrix.....: WG
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	8.8	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-7-2520D

General Chemistry

Lot-Sample #...: C0I090124-002 Work Order #...: DK51C Matrix.....: WG
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	8.0	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-25-2520

General Chemistry

Lot-Sample #...: C0I090124-003 Work Order #...: DK51D Matrix.....: WG
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-16-2520

General Chemistry

Lot-Sample #...: C0I090124-004 Work Order #...: DK51E Matrix.....: WG
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	22.4	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-6-2520

General Chemistry

Lot-Sample #...: C0I090124-005 Work Order #...: DK51F Matrix.....: WG
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	24.8	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-6-2520EB

General Chemistry

Lot-Sample #...: C0I090124-006 Work Order #...: DK51G Matrix.....: WQ
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Suspended Solids	ND	4.0	mg/L	MCAWW 160.2	09/11-09/12/00	0255100

Dilution Factor: 1 MS Run #.....: 0255004

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-29-2530EB

General Chemistry

Lot-Sample #...: C0I090124-007 Work Order #...: DK51H Matrix.....: WQ
Date Sampled...: 09/07/00 Date Received..: 09/09/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/11-09/12/00	0255159
		Dilution Factor: 1		MS Run #.....: 0255049		
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	09/11-09/12/00	0255158
		Dilution Factor: 1		MS Run #.....: 0255048		

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Savannah Laboratories
A Division of Severn Trent Laboratories, Inc.
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: S0-06204
Received: 12 SEP 00
Reported: 02 OCT 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 17020102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
06204-1	MW-29-2530EB*WG	09-07-00/12:30	ALCO2

PARAMETER	06204-1
Fluoride (340.2), mg/l	0.20U
Dilution Factor	1
Prep Date	09.14.00
Analysis Date	09.14.00
Analysis Time	16:15
Batch ID	0914A
Free Cyanide by Microdiffusion (D4282), mg/l	0.010U
Dilution Factor	0.43
Prep Date	09.18.00
Analysis Date	09.18.00
Analysis Time	15:32
Batch ID	0918F

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Support Documentation

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

CASE NARRATIVE
MFG Environmental
Alcoa Badin, NC Works

STL Lot # C0I090124

Sample Receiving:
STL Pittsburgh received samples for analysis September 9, 2000. The cooler temperatures were within the proper temperature range.

GC/MS Semivolatiles:
There were no problems associated with the analysis.

Metals:
There were no problems associated with the analysis.

General Chemistry:
As a general comment, please note that in the STL Pittsburgh lab reports the method description for *SM4500-CN-I* will read Free Cyanide and not Weak Acid Dissociable Cyanide.

STL Savannah performed the fluoride and microdifussion cyanide analysis. The data will be submitted at a later date.

There were no problems associated with the analysis.

STL Pittsburgh

Chain of Custody Record

Air Bill #'s
Large Cooler 218255 5431
Smaller Cooler 218255 5535

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client	Project Manager	Date	Chain of Custody Number
MFG	Mr Mark Portman	9-8-00	001704
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page ____ of ____**
800 Vinial St. Bldg #	(412) 321-2278 Ext 124		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Pittsburgh / PA / 15212			
Project Name and Location (State)	**Carrier/Waybill Number**		
Mcoz Bldm	SEE ABOVE		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: Total Cyanide CN	Weak/Diff CN	Fluoride	Appendix IX TAL Metals (TJS)	Total Metals (TJS)	Diss. Metals (TJS)	TSS	Special Instructions/ Conditions of Receipt
MW-7-2520	9-7-00	1250		X			X		X								1	1	1	
MW-7-2520D	9-7-00	1250		X			X		X								1	1	1	Duplicate Next on Chain
MW-25-2520	9-7-00	1600		X			X		X								1	1	1	
MW-16-2520	9-7-00	1845		X			X		X								1	1	1	
MW-6-2520	9-7-00	2130		X			X		X								1	1	1	used 1 liter bottles preserved to pH 4
MW-6-2520 EB	9-8-00	0900		X			X		X								1	1	1	Equipment Blank
MW-29-2530 EB	9-8-00	1230		X			X				X		1	1	1	2				Equipment Blank

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Susan M Brown	9-8-00	1445	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By	9-9-00	12:30

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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Cooler Receipt Form

STL Pittsburgh

Client: COI070124 Project: _____ Quote: 38060

Cooler Rec'd & Opened for Temp. Check on: 9-9-07

Coolers Opened and Unpacked on: 9-9-07 By: _____ (Signature)

STL Pittsburgh Lot Number: COI070124

	Yes	No
1. Were custody seals on the outside of the cooler?	✓	
If YES, how many and where? Quantity 1 Location Front		
Were signatures and date correct?	✓	
2. Were custody papers included inside the cooler?	✓	
3. Were custody papers properly filled out (ink, signed, match labels)?	✓	
4. Did you sign the custody papers in the appropriate place?	✓	
5. Was shippers packing slip attached to this form?	✓	
6. Were packing materials used?	✓	
If YES, what type? Plastic Bags		
7. Were the samples chilled? (Record temperatures on reverse side.)	✓	
8. Were the samples appropriately preserved?	✓	
9. Were all bottles sealed in separate plastic bags?	✓	
10. Did all bottles arrive in good condition (unbroken)?	✓	
11. Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12. Did all bottle labels and/or tags agree with custody papers?	✓	
13. Were correct bottles used for tests indicated?	✓	
14. Were all VOA vials checked for the presence of air bubbles?	n/a	
15. Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: FEDEX UPS CLIENT DROP-OFF OTHER (AIRBORNE)

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

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P: Preserved
UP: Unpreserved

Sample ID	TMET PH<2	DMET PH<2	HG PH<2	NUT(1) PH<2	CN PH ≥12	OG TPHC PH<2	PHEN PH<2	SULF PH ≥12	TOC PH<2	TOX PH<2	VOA P/UP	hrdnss PH<2			
-7-2520	1	1													
-7.2520 (1)	1	1													
-25-2520	1	1													
-16-2520	1	1													
-6-2520	1	1													
-6-2520 (DUP)	1	1													
-29-4500	X AL	X AL			1										

(1) "NUT" could include sample bottles for ammonia, chemical oxygen demand, nitrate/nitrite, TKN, or total phosphorus

Comments: _____

Cooler Number	Temperature
1	3
1	3

Bottle Type	Lot Number*

* Please use an aster bottle lot number was covered by the label.

218 255 5535

Analysis Report RE09210 09/21/00 12:21:00 PM

Method: METTRA Sample Name: DK51F Operator: RJG
Run Time: 09/21/00 12:16:55
Comment: STL PITTSBURGH ICP METALS ANALYSIS-INSTRUMENT TRACEICP
Mode: CONC Corr. Factor: 1

Elem	AG	AL	AS	BA	BE	CA	CD
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00180	1.2681	.11997	.39533	-.00128	.43353	.00004
SDev	.00176	.0102	.00119	.00269	.00006	.00433	.00000
%RSD	97.762	.80092	.99017	.68157	4.5252	.99786	8.0061
#1	.00304	1.2753	.12081	.39724	-.00132	.43659	.00004
#2	.00056	1.2609	.11913	.39343	-.00124	.43047	.00004
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.0000	600.00	10.000	10.000	10.000	600.00	5.0000
Low	-.01000	-.20000	-.01000	-.20000	-.00500	-5.0000	-.00500

Elem	CO	CR	CU	FE	MG	MN	MO
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.18283	.00742	.17850	8.3980	.19313	.01773	.05431
SDev	.00085	.00132	.00248	.0062	.00841	.00032	.00542
%RSD	.46743	17.759	1.3900	.07404	4.3527	1.8225	9.9820
#1	.18344	.00836	.18025	8.3936	.19907	.01796	.05814
#2	.18223	.00649	.17675	8.4024	.18718	.01750	.05048
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	100.00	20.000	10.000	500.00	600.00	10.000	20.000
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-.01500	-.04000

Elem	NI	PB/1	PB/2	PB	SB/1	SB/2	SB
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01735	-.00387	-.00035	-.00152	.02816	.02523	.02620
SDev	.00030	.00533	.00163	.00286	.00384	.01742	.01034
%RSD	1.6986	137.75	462.26	187.75	13.641	69.060	39.462
#1	.01714	-.00763	-.00150	L-.00354	.02545	.03754	.03352
#2	.01755	-.00010	.00080	.00050	.03088	.01291	.01889
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	NOCHECK	NOCHECK	LC Pass
High	100.00			5.0000			10.000
Low	-.04000			-.00300			-.06000

Elem	SE/1	SE/2	SE	TL	V	ZN
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02060	.00595	.01083	.00331	.11249	.00527
SDev	.01029	.00288	.00535	.00162	.00278	.00009
%RSD	49.925	48.430	49.377	49.057	2.4715	1.7207
#1	.02787	.00799	.01461	.00216	.11446	.00534
#2	.01333	.00392	.00705	.00446	.11053	.00521
Errors	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High			10.000	10.000	50.000	5.0000
Low			-.00500	-.01000	-.05000	-.02000

Analysis Report 09/22/00 11:25:21 AM

Method: METTRA Sample Name: DK51F Sb Rerun Operator: RJG
Run Time: 09/22/00 11:21:15
Comment: STL PITTSBURGH ICP METALS ANALYSIS-INSTRUMENT TRACEICP
Mode: CONC Corr. Factor: 1

Elem	AG	AL	AS	BA	BE	CA	CD
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00106	1.2676	.11799	.39673	-.00023	.49631	-.00023
SDev	.00004	.0031	.00133	.00069	.00021	.01022	.00022
%RSD	3.6689	.24845	1.1296	.17486	90.431	2.0593	96.045
#1	.00109	1.2654	.11704	.39624	-.00008	.50354	-.00038
#2	.00104	1.2698	.11893	.39722	-.00038	.48909	-.00007
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.0000	600.00	10.000	10.000	10.000	600.00	5.0000
Low	-.01000	-.20000	-.01000	-.20000	-.00500	-5.0000	-.00500

Elem	CO	CR	CU	FE	MG	MN	MO
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.19187	.00705	.17654	8.8683	.28286	.01891	.05285
SDev	.00158	.00018	.00101	.0788	.01907	.00005	.00210
%RSD	.82548	2.5743	.57343	.88837	6.7410	.27742	3.9674
#1	.19075	.00692	.17582	8.8126	.29635	.01894	.05434
#2	.19299	.00718	.17725	8.9240	.26938	.01887	.05137
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	100.00	20.000	10.000	500.00	600.00	10.000	20.000
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-.01500	-.04000

Elem	NI	PB/1	PB/2	PB	SB/1	SB/2	SB
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01809	.00404	-.00042	.00107	.00416	.00479	.00458
SDev	.00215	.00677	.00603	.00177	.00554	.00233	.00029
%RSD	11.880	167.57	1449.7	165.28	133.34	48.735	6.3316
#1	.01961	.00883	-.00468	-.00018	.00024	.00644	.00437
#2	.01657	-.00075	.00385	.00232	.00808	.00314	.00478
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	NOCHECK	NOCHECK	LC Pass
High	100.00			5.0000			10.000
Low	-.04000			-.00300			-.06000

Elem	SE/1	SE/2	SE	TL	V	ZN
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01728	-.00032	.00554	.00987	.11160	.00664
SDev	.00294	.00348	.00134	.00253	.00006	.00009
%RSD	17.041	1083.5	24.158	25.670	.04884	1.2856
#1	.01936	-.00278	.00459	.00808	.11163	.00670
#2	.01520	.00214	.00649	.01167	.11156	.00658
Errors	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High			10.000	10.000	50.000	5.0000
Low			-.00500	-.01000	-.05000	-.02000

pw 6-25-20 Tdl Realyn

STL-SAVANNAH
TRAACS 800
MANUAL DISTILLATION CYANIDE REPORT FORM
METHOD 9010/9012A/335.2/335.4/CLP 570nm

DATE: 09-19-00 CCV ID GEC00168-10 TV:200 ppb CI:18-22 ppb
REVIEW APPROVAL: LH
CC: 1.0000

	CUP	TYPE	SAMPLE DESCRIPTION	SAMPLE DILUTION	CYANIDE PPB
Date of Run	9/18/00				
Time of Run	15:32				
Operator	LH				
Comment	1CNSEP18				
AN1 ChemName	CYANIDE				
AN1 Units	UG/L				
Peak1	Cup:1 ->	PRIM	500 GEC00168-1	1.00	501.6654
Peak2	Cup:2 ->	CALB	500 GEC00168-1	1.00	499.2493
Peak3	Cup:3 ->	CALB	300 GEC00168-2	1.00	301.0948
Peak4	Cup:4 ->	CALB	100 GEC00168-3	1.00	100.6083
Peak5	Cup:5 ->	CALB	070 GEC00168-4	1.00	70.6526
Peak6	Cup:6 ->	CALB	040 GEC00168-5	1.00	38.3842
Peak7	Cup:7 ->	CALB	010 GEC00168-6	1.00	9.9840
Peak8	Cup:8 ->	HIGH	500 GEC00168-1	1.00	492.4073
Peak9	Cup:9 ->	LOW	010 GEC00168-6	1.00	9.6027
Peak10	Cup:10 ->	LOW	010 GEC00168-6	1.00	9.5205
Peak11	Cup:11 ->	SAMP	ICV GEC00168-10 -1	1.00 TV 200	187.8378 94%
Peak12	Cup:12 ->	SAMP	ICB -1	1.00	0.4343
Peak13	Cup:13 ->	SAMP	0918F MB PBW-1	0.43	1.4699
Peak14	Cup:14 ->	SAMP	LCS W-1	0.43 TV 100	100.1602 100% 7.7% RPD
Peak15	Cup:15 ->	SAMP	LCSD	0.43	108.0344 108%
Peak16	Cup:16 ->	SAMP	06075	0.43	2.0264
Peak17	Cup:17 ->	SAMP	06162-1	0.43	1.5987
Peak18	Cup:18 ->	SAMP	06162-2	0.43	89.6365
Peak19	Cup:19 ->	SAMP	06162-3	0.43	99.3458
Peak20	Cup:20 ->	SAMP	06162-4	0.43	1.4979
Peak21	Cup:21 ->	SAMP	06204-1	0.43 TV	1.7456
Peak22	Cup:22 ->	SAMP	MS	0.43 100	109.4035 109%
Peak23	Cup:23 ->	SAMP	CCV -1	1.00 TV 200	189.7163 95%
Peak24	Cup:24 ->	SAMP	CCB -1	1.00	0.2792
Peak25	Cup:25 ->	SAMP	MSD	0.43 TV 100	108.9195 109% 0.6 RPD
Peak26	Cup:26 ->	SAMP	CCV -2	1.00 TV 200	186.6577 93%
Peak27	Cup:27 ->	SAMP	CCB -2	1.00	-0.1913
Peak28	Cup:28 ->	SAMP	CCB	1.00	0.1074
Peak29	Cup:2 ->	GAIN	500 GEC00168-1	1.00	499.2493
					0.0000

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FLUORIDE
METHOD 340.2

Date:	09.14.00	Analyst:	KB	ICAL Date:	10.12.99
LCS Source:	GEC03-34-3	Start time	1615	MS Source	GEB01-11-1
LCS TV =	0.905 ppm	End time	1705	MS TV =	1.00 ppm
CAS #	16984-48-8	Type	T	Sample Volume =	50mL

SL LOG #	SAMPLE ID	Batch ID	D.F.	mV	mg F/l	BLK P/F	% RPD	P/F	% REC	P/F	MS/ MSD	P/F
CCV-1		0914A	1	15	0.990				99	P		
CCB-1	PBW1		1	85	<0.20							
S005964-14			1	56	<0.20							
S006162-1			1	87	<0.20							
DUP			1	89	<0.20		0.0	P				
S006162-2			1	-53	18.402							
MS			12	-39	10.082	20.164					~~832~~	F
MSD			12	-39	10.082	20.164					~~832~~	F
S006162-3			1	-55	20.054							
S006204-1			1	101	<0.20							
LCSW1			1	18	0.870				96	P		
CCV-2			1	16	0.948				95	P		
CCB-2			1	88	<0.20							

KB 09.14.00

176% 176%

Analyst Signature: K. Blackshear

Review Approval: KB

Date: 091500

Run Results Report
Results: C:\FLOW_4\091200A.RST
Results completed: 08:04 September 12, 2000.
Operator: P JOHNSON P. Johnson 9.12.00

CYANIDE

ime	Cup	Name	Height	Calc.	Flags
----------	User request: Start Data Collect	----------			
05:23	0	CARRYOVER	558	0.000889	
05:24	0	CARRYOVER	78	-0.000251	LO
		Mean & RSD:	318	0.000319	NoRSD
05:26	0	READ BASELIN	0	-0.000436	BL
05:27	301	0.500 PPM ST	212330	0.504063	HI
05:28	301	0.500 PPM ST	207942	0.493638	
05:29	301	0.500 PPM ST	208111	0.494039	
		Mean & RSD:	209461	0.497247	1.19%
05:30	302	0.400 PPM ST	167960	0.398639	
05:31	302	0.400 PPM ST	168660	0.400303	
05:33	302	0.400 PPM ST	168702	0.400403	
		Mean & RSD:	168440	0.399781	.248%
05:34	303	0.300 ppm ST	126422	0.299944	
05:35	303	0.300 ppm ST	126391	0.299871	
05:36	303	0.300 ppm ST	126189	0.299391	
		Mean & RSD:	126334	0.299735	.1%
05:37	304	0.200 PPM ST	84649	0.200690	
05:38	304	0.200 PPM ST	83733	0.198516	
05:40	304	0.200 PPM ST	83933	0.198991	
		Mean & RSD:	84105	0.199399	.572%
05:41	305	0.100 PPM ST	42342	0.100170	
05:42	305	0.100 PPM ST	42155	0.099724	
05:43	305	0.100 PPM ST	42647	0.100893	
		Mean & RSD:	42381	0.100262	.586%
:44	306	0.050 PPM ST	21035	0.049544	
05:45	306	0.050 PPM ST	21243	0.050039	
05:47	306	0.050 PPM ST	21276	0.050116	
		Mean & RSD:	21185	0.049899	.617%
05:48	307	0.010 PPM ST	4487	0.010224	
05:49	307	0.010 PPM ST	4527	0.010320	
05:50	307	0.010 PPM ST	4498	0.010251	
		Mean & RSD:	4504	0.010265	.464%
05:51	0	0.000 PPM ST	6	-0.000422	LO OL
05:52	0	0.000 PPM ST	-47	-0.000548	LO
05:54	0	0.000 PPM ST	-41	-0.000534	LO
		Mean & RSD:	-44	-0.000541	66.2%
05:55	0	BLANK	-49	-0.000552	LO
05:56	2	CCV 7211805	45030	0.106556	107.
05:57	0	CCB	-30	-0.000509	LO
05:58	0	BASELINE	0	-0.000436	BL
05:59	101	.05 7211801	22585	0.053227	107. ok
06:01	102	.40 7211802	166474	0.395110	99% ok
06:02	0	BLANK	-7	-0.000454	LO

STL-Pittsburgh

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength /Mass	Reporting Limit	MDL	Date of MDL
Antimony	220.35	10	10.0	4/1/00
Thallium	190.86	10	10.0	4/1/00

Reporting limits to Level

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IDL Summary Report

Instrument: ICPST Units: ppb

Element	WL/ Mass	Average Standard Deviation	Average Rounded IDL	
AG	328.068	0.19	0.56	
AS	189.042	0.61	1.8	
BA	493.409	0.086	0.26	
BE	313.042	0.15	0.46	
CA	317.933	10.3	30.8	
CD	226.502	0.084	0.25	
CO	228.616	0.17	0.50	
CR	267.716	0.25	0.74	
CU	324.753	0.30	0.90	
FE	271.441	5.8	17.3	
MG	279.078	8.6	25.7	
MN	257.61	0.079	0.24	
MO	202.03	0.45	1.4	
NI	231.604	0.43	1.3	
PB	220.353	0.55	1.7	
SB	220.353	0.75	2.3	ok
SE	220.353	0.80	2.4	
TL	190.864	1.8	5.4	ok
V_	292.402	0.30	0.90	
ZN	213.856	0.36	1.1	

REVIEWED BY: MTW
DATE: 9-15-00

IDL Runs 6/00 (6/22/00 → 6/24/00)

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M F G
consulting scientists and engineers

800 Vinial Street, Building A
Pittsburgh, PA 15212-1528
412/321- 2278
Fax: 412/321- 2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 4 December 2000

SUBJECT: Data Validation of: Chloroform and Trichloroethene, Polynuclear Aromatic Hydrocarbons (PAHs), Total and Free Cyanide, and Fluoride

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Re: Severn Trent Laboratories, Inc.
Package No.: C0I080233

Aqueous Samples:

OBL-MW-6-2510	MW-28-2510	MW-29-2510
MW-29-2510D	MW-10-2520	MW-10-2520D
NE-SW-2520	NE-SW-2520D	

Equipment Blanks:

MW-10-2520-EB
NE-SW-2520-EB

Trip Blank:

TB-2520

Field Duplicates:

Sample MW-10-2520D is a field duplicate of sample MW-10-2520.
Sample NE-SW-2520D is a field duplicate of sample NE-SW-2520.

Overview

This set of samples collected on September 6 and 7, 2000 for the Alcoa Badin Site contains eight (8) groundwater samples, including two (2) field duplicate pairs, two (2) equipment rinsate blanks, and one

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(1) trip blank. The samples were analyzed for the volatile organic compounds chloroform and trichloroethene (TCE), polynuclear aromatic hydrocarbons (PAHs), and total cyanide by USEPA SW-846 Methods 8260B, 8270C, and 9012A, respectively. The samples were also analyzed for weak acid dissociable (WAD) cyanide by SM18-4500-CN-I, for free cyanide by ASTM D4282-83, and for fluoride by MCAWW 340.2. Note that not all samples were analyzed for all parameters.

Summary

All compounds were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

VOCs

Note that low levels of chloroform below the reporting limit but above the method detection limit were detected in equipment rinsate blanks MW-10-2520-EB and NE-SW-2520-EB. As this compound was either not detected or was greater than five times the level found in the blank in the associated site samples, no action was necessary.

Note that the laboratory reported results for 1,1-dichloroethene, benzene, chlorobenzene, toluene, and trichloroethene for sample MW-10-2520 even though only chloroform was requested on the chain-of-custody. As a result, only the result for chloroform was retained on the validated data summary for this sample.

PAHs

The MS/MSD percent recoveries for acenaphthene were less than 10 percent. However, as the unspiked sample result over seven times greater the spike added and organic data are not qualified based on MS/MSD criteria alone, no action was taken.

Total Cyanide

No problems encountered.

WAD Cyanide

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No problems encountered.

Free Cyanide by ASTM D4282-83

No problems encountered.

Fluoride

No problems encountered.

Notes

Note that several non-target compound initial and continuing calibration criteria were outside quality control limits. In addition, several initial and continuing calibration criteria associated only with QC samples were outside of control limits. As this did not impact the site sample results, no action was necessary.

Note that the free cyanide by microdiffusion (ASTM D4282-83) and fluoride analyses were not supplied with this data package but instead submitted under separate cover by STL Savannah in data package S0-06162. These results have been consolidated for the purpose of this validation letter and are presented on the validated data summary.

Note that as stated in the case narrative, STL Pittsburgh reports weak acid dissociable cyanide (by Standard Method SM18-4500-CN-I) as free cyanide. This has been changed on the validated data summary to dissociable cyanide for clarity.

In addition, note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Note that one VOC vial for sample MW-10-2520-EB was received broken at the laboratory. As there was sufficient sample volume to perform the analysis from the second VOC vial, no action was necessary.

Note that the information regarding the MS/MSD samples associated with the PAH analyses were not present on the DFTPP tuning form Vs or on the internal standard form VIIIs. As all criteria for the site samples were provided on the appropriate forms and were within control limits, no action was deemed necessary.

Note that samples MW-29-2520 and MW-29-2520D were run at a 25X dilution for the total cyanide analysis due to high target compound levels.

Note that a CRA standard was not provided for the total, WAD, or free cyanide analyses. However, a review of the raw data showed that the laboratory did rerun high and low initial calibration standards (with the low standard being within 1 to 5 times the reporting limit) after the initial calibration was performed to assess the goodness of the curve. All of these percent recoveries were acceptable and no action was taken.

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Note that per the laboratory distilled midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total or WAD cyanide samples prepared on September 11, 2000 or the free cyanide samples prepared on September 18, 2000. However, a laboratory control sample is prepared with each batch and the results of the LCSs were acceptable.

Note that the MS/MSD results for free (microdiffusion) cyanide and fluoride were not reported with the data package. A review of the raw data showed these analyses to be run and all percent recoveries were acceptable for the free cyanide but outside control limits for the fluoride analyses. However, the unspiked sample result for fluoride was greater than 4 times the spike added and therefore no action was taken. Note that the MS/MSD for the free cyanide analysis was performed on an equipment rinsate blank and may not be representative of other site samples.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of two times the reporting limit was utilized to assess the absolute difference between the sample results when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The organic data were reviewed according to the U.S. EPA's National Functional Guidelines for Organic Data Review (February, 1994) while the inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Alcoa Badin
SDG - C01080233

	ANALYTICAL METHOD Sampled	UNITS	MW-10-2520 9/7/00	MW-10-2520D 9/7/00	MW-10-2520-EB 9/7/00	MW-28-2510 9/6/00	MW-29-2510 9/6/00	MW-29-2510D 9/6/00	NE-SW-2520 9/7/00	NE-SW-2520D 9/7/00	NE-SW-2520-EB 9/7/00	OBL-MW-6-2510 9/6/00	TB-2520 9/7/00
Wet Chemistry Parameters													
Cyanide, Total	SW9012A	mg/L	NA	NA	NA	0.010 U	8.5	8.4	NA	NA	NA	NA	0.010 U
Cyanide, Dissociable	SM18-4500-CN-I	mg/L	NA	NA	NA	0.010 U	0.25	0.30	NA	NA	NA	0.010 U	NA
Cyanide, Free by Microdiffusion	D4282-83	mg/L	NA	NA	NA	0.010 U	0.090	0.099	NA	NA	NA	0.010 U	NA
Fluoride	340.2	mg/L	NA	NA	NA	0.20 U	18	20	NA	NA	NA	NA	NA
Volatiles													
Chloroform	SW8260B	mg/L	0.003	0.003	0.001 U	NA	NA	NA	NA	NA	NA	NA	0.001 U
Trichloroethene	SW8260B	mg/L	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	0.001 U	NA	0.001 U
Appendix IX PAHs													
Acenaphthene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Acenaphthylene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Anthracene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Benzo(a)anthracene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Benzo(a)pyrene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Benzo(ghi)perylene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Chrysene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Fluoranthene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Fluorene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Naphthalene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Phenanthrene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA
Pyrene	SW8270C	mg/L	NA	NA	NA	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA	NA

NA - Not Analyzed

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Results as Reported by the Laboratory

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0I080233 005
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3QX101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: TB-2520

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-66-3	Chloroform	1.0	U
79-01-6	Trichloroethene	1.0	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WG Lab Sample ID:C0I080233 006
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3R2101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: MW-10-2520

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-35-4	1,1-Dichloroethene	1.0	U
71-43-2	Benzene	1.0	U
108-90-7	Chlorobenzene	1.0	U
108-88-3	Toluene	1.0	U
67-66-3	Chloroform	3.0	
79-01-6	Trichloroethene	1.0	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name: Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WG Lab Sample ID: C0I080233 007
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3R5101 Date Extracted: 09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: MW-10-2520D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-66-3	Chloroform	3.0	

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0I080233 008
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3R7101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: MW-10-2520EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-66-3	Chloroform	1.0	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WG Lab Sample ID:C0I080233 009
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3RC101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: NE-SW-2520

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	1.0	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name: Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WG Lab Sample ID: C0I080233 010
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3RD101 Date Extracted: 09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: NE-SW-2520D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	1.0	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0I080233 011
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 09/08/00
Work Order: DK3RE101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: NE-SW-2520EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	1.0	U

FORM I

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Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0I080233 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 09/08/00
Work Order: DK3QP101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/16/00
Moisture %:NA

QC Batch: 0256313

Client Sample Id: MW-28-2510

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
91-20-3	Naphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0I080233 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 09/08/00
Work Order: DK3QR101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/16/00
Moisture %:NA

QC Batch: 0256313

Client Sample Id: MW-29-2510

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
91-20-3	Naphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U

FORM I

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Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0I080233 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 09/08/00
Work Order: DK3QV101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/16/00
Moisture %:NA

QC Batch: 0256313

Client Sample Id: MW-29-2510D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
91-20-3	Naphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: OBL-MW-6-2510

General Chemistry

Lot-Sample #...: C0I080233-001 Work Order #...: DK3QJ Matrix.....: WG
Date Sampled...: 09/06/00 Date Received..: 09/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/11-09/12/00	0255159
	Dilution Factor: 1			MS Run #.....: 0255049		
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	09/11-09/12/00	0255158
	Dilution Factor: 1			MS Run #.....: 0255048		

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-28-2510

General Chemistry

Lot-Sample #...: C0I080233-002 Work Order #...: DK3QP Matrix.....: WG
Date Sampled...: 09/06/00 Date Received..: 09/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/11-09/12/00	0255159
		Dilution Factor: 1		MS Run #.....: 0255049		
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	09/11-09/12/00	0255158
		Dilution Factor: 1		MS Run #.....: 0255048		

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-29-2510

General Chemistry

Lot-Sample #...: C0I080233-003 Work Order #...: DK3QR Matrix.....: WG
Date Sampled...: 09/06/00 Date Received..: 09/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.25	0.010	mg/L	SM18 4500-CN-I	09/11-09/12/00	0255159
	Dilution Factor: 1			MS Run #.....: 0255049		
Cyanide, Total	8.5	0.25	mg/L	SW846 9012A	09/11-09/12/00	0255158
	Dilution Factor: 25			MS Run #.....: 0255048		

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: MW-29-2510D

General Chemistry

Lot-Sample #...: C0I080233-004 Work Order #...: DK3QV Matrix.....: WG
Date Sampled...: 09/06/00 Date Received..: 09/08/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	0.30	0.010	mg/L	SM18 4500-CN-I	09/11-09/12/00	0255159
		Dilution Factor: 1		MS Run #.....: 0255049		
Cyanide, Total	8.4	0.25	mg/L	SW846 9012A	09/11-09/12/00	0255158
		Dilution Factor: 25		MS Run #.....: 0255048		

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Savannah Laboratories
a division of Severn Trent Laboratories, Inc
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: S0-06162
Received: 09 SEP 00
Reported: 02 OCT 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 17040102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
06162-1	MW-28-2510*WG	09-06-00/15:30	ALCO2
06162-2	MW-29-2510*WG	09-06-00/19:25	ALCO2
06162-3	MW-29-2510D*WG	09-06-00/19:25	ALCO2

PARAMETER	06162-1	06162-2	06162-3
Free Cyanide by Microdiffusion (D4282), mg/l	0.010U	0.090	0.099
Dilution Factor	0.43	0.43	0.43
Prep Date	09.18.00	09.18.00	09.18.00
Analysis Date	09.18.00	09.18.00	09.18.00
Analysis Time	15:32	15:32	15:32
Batch ID	0918F	0918F	0918F
Fluoride (340.2)			
Fluoride, mg/l	0.20U	18	20
Dilution Factor	1	1	1
Prep Date	09.14.00	09.14.00	09.14.00
Analysis Date	09.14.00	09.14.00	09.14.00
Analysis Time	16:15	16:15	16:15
Batch ID	0914A	0914A	0914A

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Savannah Laboratories
a division of Severn Trent Laboratories, Inc.
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: S0-06162
Received: 09 SEP 00
Reported: 02 OCT 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 17040102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
06162-4	OBL-MW-6-2510*WG	09-06-00/11:15	ALCO2

PARAMETER	06162-4
Free Cyanide by Microdiffusion (D4282), mg/l	0.010U
Dilution Factor	0.43
Prep Date	09.18.00
Analysis Date	09.18.00
Analysis Time	15:32
Batch ID	0918F

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Support Documentation

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CASE NARRATIVE
MFG Environmental
Alcoa Badin, NC Works

STL Lot # C0I080233

Sample Receiving:
STL Pittsburgh received samples for analysis September 8, 2000. The cooler temperatures were within the proper temperature range.

One of the sample bottles for sample MW-10-2520 EB was received broken.

GC/MS Volatiles:
STL Denver performed the GC/MS Volatile analysis. All data is included in the package.

There were no problems associated with the analysis.

GC/MS Semivolatiles:
There were no problems associated with the analysis.

General Chemistry:
As a general comment, please note that in the STL Pittsburgh lab reports the method description for *SM4500-CN-I* will read Free Cyanide and not Weak Acid Dissociable Cyanide.

Samples MW-29-2510 and MW-29-251D were analyzed at 25X dilutions for total cyanide.

STL Savannah performed the fluoride and microdifussion cyanide analysis. The data will be submitted at a later date.

FL Pittsburgh

Chain of Custody Record

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client	Project Manager	Date	Chain of Custody Number
MFG. Inc	Mr Mark Pattman	9-7-00	001702
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
800 Vinial Street, Bldg A	(412) 321-2278 Ext 124		
City / **State** / **Zip Code**	**Site Contact** / **Lab Contact**		
Pittsburgh / PA / 15212			
Project Name and Location (State)	**Carrier/Waybill Number**		
Alcoa Dadin	Red cooler Airborne 2182555233 Blue cooler Airborne 2182555336		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: Total Lead GW	Microbiology GW	Fluoride	Aquifix 1x PAH	Chloroform	Trichloroethene	Red Cooler	Blue Cooler	Special Instructions/ Conditions of Receipt
OBL-MW-6-2510	9-6-00	1115		X							X		1	1					X		
MW-28-2510	9-6-00	1530		X			X				X		1	1	1	2			X		
MW-29-2510	9-6-00	1925		X			X				X		1	1	1	2				X	
MW-29-2510D	9-6-00	1925		X			X				X		1	1	1	2				X	Duplicate
TB-2520	9-7-00	0430		X						X							2→		X		Trip Blank
MW-10-2520	9-7-00	0630		X						X							(2)		X		
MW-10-2520D	9-7-00	0630		X						X							2		X		Duplicate
MW-10-2520 EB	9-7-00	0830		X						X							2		X		Equipment Blank
NE-SW-2520	9-7-00	0705		X						X								2	X		
NE-SW-2520D	9-7-00	0705		X						X								2	X		Duplicate
NE-SW-2520 EB	9-7-00	0715		X						X								1	X		Equipment Blank

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Susan M. Seaman	9-7-00	1030	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By: Anthony J	9-8-00	1100

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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STL Pittsburgh

Client: MFG Inc Project: _____ Quote: _____

Cooler Rec'd & Opened for Temp. Check on: 8-8-00

Coolers Opened and Unpacked on: 8-8-00 By: A L (Signature)

STL Pittsburgh Lot Number: 10F080233

	Yes	No
1. Were custody seals on the outside of the cooler?	✓	
If YES, how many and where? Quantity 1 Location Front		
Were signatures and date correct?	✓	
2. Were custody papers included inside the cooler?	✓	
3. Were custody papers properly filled out (ink, signed, match labels)?	✓	
4. Did you sign the custody papers in the appropriate place?	✓	
5. Was shippers packing slip attached to this form?	✓	
6. Were packing materials used?	✓	
If YES, what type? Bubble Bags		
7. Were the samples chilled? (Record temperatures on reverse side.)	✓	
8. Were the samples appropriately preserved?	✓	
9. Were all bottles sealed in separate plastic bags?	✓	
10. Did all bottles arrive in good condition (unbroken)?	✓	
11. Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12. Did all bottle labels and/or tags agree with custody papers?	✓	
13. Were correct bottles used for tests indicated?	✓	
14. Were all VOA vials checked for the presence of air bubbles?	✓	
15. Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: FEDEX UPS CLIENT DROP-OFF OTHER AIRBORNE

Explain any discrepancies: Sample MW-10-252068 one was Broken in the cooler

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: LAB MS/MSD

Lot #: C0I050175 WO #: DJWC5105
BATCH: 0256313

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	MS CONCENT. (ug/L)	MS % REC	LIMITS REC	QUAL
Phenol	75.0	ND	40.5	54	10- 131	
2-Chlorophenol	75.0	ND	45.0	60	19- 124	
1,4-Dichlorobenzene	50.0	ND	29.7	59	18- 110	
N-Nitrosodi-n-propylamine	50.0	ND	20.5	41	18- 115	
1,2,4-Trichlorobenzene	50.0	ND	31.4	63	22- 110	
4-Chloro-3-methylphenol	75.0	ND	46.5	62	21- 124	
Acenaphthene	50.0	360	359	0 *	26- 118	a
4-Nitrophenol	75.0	ND	49.0	65	10- 145	
2,4-Dinitrotoluene	50.0	ND	40.9	82	31- 131	
Pentachlorophenol	75.0	ND	63.2	84	10- 140	
Pyrene	50.0	12	41.0	57	27- 138	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: LAB MS/MSD

Lot #: C0I050175 WO #: DJWC5106
BATCH: 0256313

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENT. (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Phenol	75.0	34.7	46	15	43	10- 131	
2-Chlorophenol	75.0	38.3	51	16	43	19- 124	
1,4-Dichlorobenzene	50.0	25.4	51	16	36	18- 110	
N-Nitrosodi-n-propylamine	50.0	17.1	34	18	36	18- 115	
1,2,4-Trichlorobenzene	50.0	26.8	54	16	37	22- 110	
4-Chloro-3-methylphenol	75.0	40.4	54	14	55	21- 124	
Acenaphthene	50.0	322	0*	0.0	35	26- 118	a
4-Nitrophenol	75.0	42.9	57	13	34	10- 145	
2,4-Dinitrotoluene	50.0	36.0	72	13	32	31- 131	
Pentachlorophenol	75.0	54.6	73	15	56	10- 140	
Pyrene	50.0	35.4	46	15	31	27- 138	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 1 out of 11 outside limits

COMMENTS:

FORM III

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: COJ08023

Lab File ID (Standard): F09150C2 Date Analyzed: 09/15/00

Instrument ID: 722 Time Analyzed: 2016

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	349099		12.74		396532		19.38		405532		22.74	
	UPPER LIMIT	698198		13.24		793064		19.88		811064		23.24	
	LOWER LIMIT	174550		12.24		198266		18.88		202766		22.24	
	CLIENT SAMPLE NO.												
01	INTRA-LAB BL	341531		12.74		333181		19.37		333071		22.74	
02	INTRA-LAB CH	330076		12.74		350378		19.37		347589		22.73	
03	MW-28-2510	377583		12.73		394528		19.35		397480		22.72	
04	MW-29-2510	351306		12.73		392930		19.36		397278		22.73	
05	MW-29-2510D	372560		12.74		422582		19.37		433404		22.73	
06													
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
13 Acrolein	56.00	Compound Not Detected.					
14 1,1-Dichloroethene	96.00	Compound Not Detected.					
15 Acetone	43	3.828	3.826	(0.548)	8404	2.50364	2.50364
17 Iodomethane	142.00	Compound Not Detected.					
19 Acetonitrile	41.00	Compound Not Detected.					
21 Methylene Chloride	84.00	Compound Not Detected.					
22 tert-Butyl alcohol	59.00	Compound Not Detected.					
23 Acrylonitrile	53.00	Compound Not Detected.					
24 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
27 1,1-Dichloroethane	63.00	Compound Not Detected.					
29 Vinyl acetate	43.00	Compound Not Detected.					
28 Chloroprene	53.00	Compound Not Detected.					
30 Isopropyl ether	87.00	Compound Not Detected.					
32 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
31 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 2-Butanone	43.00	Compound Not Detected.					
34 Propionitrile	54.00	Compound Not Detected.					
36 Methacrylonitrile	41.00	Compound Not Detected.					
37 Bromochloromethane	128.00	Compound Not Detected.					
38 Chloroform	83	6.037	6.017	(0.864)	42045	0.41270	0.412700
41 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
42 1,1-Dichloropropene	75.00	Compound Not Detected.					
43 Carbon Tetrachloride	117.00	Compound Not Detected.					
45 Isobutanol	41.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
47 1,2-Dichloroethane	62.00	Compound Not Detected.					
49 n-Butanol	56.00	Compound Not Detected.					
50 Trichloroethene	130.00	Compound Not Detected.					
52 1,2-Dichloropropane	63.00	Compound Not Detected.					
53 Dibromomethane	93.00	Compound Not Detected.					
55 1,4-Dioxane	88.00	Compound Not Detected.					
56 Bromodichloromethane	83.00	Compound Not Detected.					
59 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
60 4-Methyl-2-pentanone	43.00	Compound Not Detected.					
62 Toluene	91	8.929	8.909	(0.838)	138014	0.69074	0.690737
63 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
65 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
67 1,3-Dichloropropane	76.00	Compound Not Detected.					
66 Tetrachloroethene	164.00	Compound Not Detected.					
68 2-Hexanone	43.00	Compound Not Detected.					
69 Dibromochloromethane	129.00	Compound Not Detected.					
70 1,2-Dibromoethane	107.00	Compound Not Detected.					
71 1-Chlorohexane	91.00	Compound Not Detected.					
73 Chlorobenzene	112.00	Compound Not Detected.					
74 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
75 Ethylbenzene	106.00	Compound Not Detected.					
76 m and p-Xylene	106.00	Compound Not Detected.					

pw - 10-25-2013

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Data File: /chem/H.i/091200.b/h1633.d
Report Date: 12-Sep-2000 14:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
13 Acrolein	56.00	Compound Not Detected.					
14 1,1-Dichloroethene	96.00	Compound Not Detected.					
15 Acetone	43	3.843	3.826	(0.549)	10198	3.06216	3.06216
17 Iodomethane	142.00	Compound Not Detected.					
19 Acetonitrile	41.00	Compound Not Detected.					
21 Methylene Chloride	84	4.292	4.275	(0.613)	8902	0.20058	0.200584
22 tert-Butyl alcohol	59.00	Compound Not Detected.					
23 Acrylonitrile	53.00	Compound Not Detected.					
24 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
27 1,1-Dichloroethane	63.00	Compound Not Detected.					
29 Vinyl acetate	43.00	Compound Not Detected.					
28 Chloroprene	53.00	Compound Not Detected.					
30 Isopropyl ether	87.00	Compound Not Detected.					
32 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
31 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 2-Butanone	43.00	Compound Not Detected.					
34 Propionitrile	54.00	Compound Not Detected.					
36 Methacrylonitrile	41.00	Compound Not Detected.					
37 Bromochloromethane	128.00	Compound Not Detected.					
38 Chloroform	83	6.052	6.017	(0.864)	41489	0.41047	0.410468
41 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
42 1,1-Dichloropropene	75.00	Compound Not Detected.					
43 Carbon Tetrachloride	117.00	Compound Not Detected.					
45 Isobutanol	41.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
47 1,2-Dichloroethane	62.00	Compound Not Detected.					
49 n-Butanol	56.00	Compound Not Detected.					
50 Trichloroethene	130.00	Compound Not Detected.					
52 1,2-Dichloropropane	63.00	Compound Not Detected.					
53 Dibromomethane	93.00	Compound Not Detected.					
55 1,4-Dioxane	88.00	Compound Not Detected.					
56 Bromodichloromethane	83.00	Compound Not Detected.					
59 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
60 4-Methyl-2-pentanone	43.00	Compound Not Detected.					
62 Toluene	91	8.944	8.909	(0.840)	102983	0.49859	0.498588
63 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
65 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
67 1,3-Dichloropropane	76.00	Compound Not Detected.					
66 Tetrachloroethene	164.00	Compound Not Detected.					
68 2-Hexanone	43.00	Compound Not Detected.					
69 Dibromochloromethane	129.00	Compound Not Detected.					
70 1,2-Dibromoethane	107.00	Compound Not Detected.					
71 1-Chlorohexane	91.00	Compound Not Detected.					
73 Chlorobenzene	112.00	Compound Not Detected.					
74 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
75 Ethylbenzene	106.00	Compound Not Detected.					
76 m and p-Xylene	106.00	Compound Not Detected.					

NB-5W - 2520 12 B

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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: COI080233

Lab File ID: F0915DF2 DFTPP Injection Date: 09/15/00

Instrument ID: 722 DFTPP Injection Time: 1959

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.4
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	54.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	25.7
365	Greater than 1.0% of mass 198	3.09
441	Present, but less than mass 443	13.2
442	40.0 - 100.0% of mass 198	86.0
443	17.0 - 23.0% of mass 442	16.4 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	F09150C2	09/15/00	2016
02	INTRA-LAB BL	DK7G6101	F0915055	09/15/00	2339
03	INTRA-LAB CH	DK7G6102	F0915056	09/16/00	0013
04	MW-28-2510	DK3QP101	F0915057	09/16/00	0047
05	MW-29-2510	DK3QR101	F0915058	09/16/00	0121
06	MW-29-2510D	DK3QV101	F0915059	09/16/00	0155
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: C6F080233

Lab File ID (Standard): F09150C2 Date Analyzed: 09/15/00

Instrument ID: 722 Time Analyzed: 2016

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	113860	4.95	412386	6.47	213077	9.46
	UPPER LIMIT	227720	5.45	824772	6.97	426154	9.96
	LOWER LIMIT	56930	4.45	206193	5.97	106539	8.96
	CLIENT SAMPLE NO.						
01	INTRA-LAB BL	113282	4.95	416476	6.46	211501	9.45
02	INTRA-LAB CH	98561	4.94	369815	6.46	196605	9.45
03	mw-28-2510	126813	4.94	459685	6.45	230982	9.44
04	MW-29-2510	118548	4.94	423492	6.46	210961	9.45
05	MW-29-2510D	119105	4.94	436716	6.46	221802	9.45
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

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STL-SAVANNAH
TRAACS 800
MANUAL DISTILLATION CYANIDE REPORT FORM
METHOD 9010/9012A/335.2/335.4/CLP 570nm

DATE: 09.19.00 CCV ID GEC00168-10 TV:200 ppb CI:18-22 ppb
REVIEW APPROVAL: LH
CC: 1.0000

	CUP TYPE	SAMPLE DESCRIPTION	SAMPLE DILUTION	CYANIDE PPB
Date of Run	9/18/00			
Time of Run	15:32			
Operator	LH			
Comment	1CNSEP18			
AN1 ChemName	CYANIDE			
AN1 Units	UG/L			
Peak1	Cup:1 -> PRIM	500 GEC00168-1	1.00	501.6654
Peak2	Cup:2 -> CALB	500 GEC00168-1	1.00	499.2493
Peak3	Cup:3 -> CALB	300 GEC00168-2	1.00	301.0948
Peak4	Cup:4 -> CALB	100 GEC00168-3	1.00	100.6083
Peak5	Cup:5 -> CALB	070 GEC00168-4	1.00	70.6526
Peak6	Cup:6 -> CALB	040 GEC00168-5	1.00	38.3842
Peak7	Cup:7 -> CALB	010 GEC00168-6	1.00	9.9840
Peak8	Cup:8 -> HIGH	500 GEC00168-1	1.00	492.4073
Peak9	Cup:9 -> LOW	010 GEC00168-6	1.00	9.6027
Peak10	Cup:10 -> LOW	010 GEC00168-6	1.00 TV	9.5205
Peak11	Cup:11 -> SAMP	ICV GEC00168-10 -1	1.00 200	187.8378 94%
Peak12	Cup:12 -> SAMP	ICB -1	1.00	0.4343
Peak13	Cup:13 -> SAMP	0918F MB PBW-1	0.43 TV	1.4699
Peak14	Cup:14 -> SAMP	LCS W-1	0.43 100	100.1602 100% 7.7% RPD
Peak15	Cup:15 -> SAMP	LCSD	0.43	108.0344 108%
Peak16	Cup:16 -> SAMP	06075	0.43	2.0264
Peak17	Cup:17 -> SAMP	06162-1	0.43	1.5987
Peak18	Cup:18 -> SAMP	06162-2	0.43	89.6365
Peak19	Cup:19 -> SAMP	06162-3	0.43	99.3458
Peak20	Cup:20 -> SAMP	06162-4	0.43	1.4979
Peak21	Cup:21 -> SAMP	06204-1	0.43 TV	1.7456
Peak22	Cup:22 -> SAMP	MS	0.43 100	109.4035 109%
Peak23	Cup:23 -> SAMP	CCV -1	1.00 TV 200	189.7163 95%
Peak24	Cup:24 -> SAMP	CCB -1	1.00	0.2792
Peak25	Cup:25 -> SAMP	MSD	0.43 TV 100	108.9195 109% 0.6 RPD
Peak26	Cup:26 -> SAMP	CCV -2	1.00 TV 200	186.6577 93%
Peak27	Cup:27 -> SAMP	CCB -2	1.00	-0.1913
Peak28	Cup:28 -> SAMP	CCB	1.00	0.1074
Peak29	Cup:2 -> GAIN	500 GEC00168-1	1.00	499.2493
				0.0000

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FLUORIDE
METHOD 340.2

Date:	09.14.00		Analyst:	KB	ICAL Date: 10.12.99
LCS Source:	GEC03-34-3		Start time	1615	MS Source GEB01-11-1
LCS TV =	0.905	ppm	End time	1705	MS TV = 1.00 ppm
CAS #	16984-48-8		Type	T	Sample Volume = 50mL

SL LOG #	SAMPLE ID	Batch ID	D.F.	mV	mg F/l	BLK P/F	% RPD	P/F	% REC	P/F	MS/ MSD	P/F
CCV-1		0914A	1	15	0.990				99	P		
CCB-1	PBW1		1	85	<0.20							
S005964-14			1	56	<0.20							
S006162-1			1	87	<0.20							
DUP			1	89	<0.20		0.0	P				
S006162-2			1	-53	18.402							
MS			12	-39	10.082	20.164					~~832~~	F
MSD			12	-39	10.082	20.164					~~832~~	F
S006162-3			1	-55	20.054							
S006204-1			1	101	<0.20							
LCSW1			1	18	0.870				96	P		
CCV-2			1	16	0.948				95	P		
CCB-2			1	88	<0.20							

KB 09.14.00

176% 76% sl 7 14 ft

Analyst Signature: K. Blackshear

Review Approval: [illegible]

Date: 091500

Run Results Report
Results: C:\FLOW_4\091200A.RST
Results completed: 08:04 September 12, 2000.
Operator: P JOHNSON P. Johnson 9.12.00

CYANIDE

ime	Cup	Name	Height	Calc.	Flags
----------	User request: Start Data Collect	----------			
05:23	0	CARRYOVER	558	0.000889	
05:24	0	CARRYOVER	78	-0.000251	LO
		Mean & RSD:	318	0.000319	NoRSD
05:26	0	READ BASELIN	0	-0.000436	BL
05:27	301	0.500 PPM ST	212330	0.504063	HI
05:28	301	0.500 PPM ST	207942	0.493638	
05:29	301	0.500 PPM ST	208111	0.494039	
		Mean & RSD:	209461	0.497247	1.19%
05:30	302	0.400 PPM ST	167960	0.398639	
05:31	302	0.400 PPM ST	168660	0.400303	
05:33	302	0.400 PPM ST	168702	0.400403	
		Mean & RSD:	168440	0.399781	.248%
05:34	303	0.300 ppm ST	126422	0.299944	
05:35	303	0.300 ppm ST	126391	0.299871	
05:36	303	0.300 ppm ST	126189	0.299391	
		Mean & RSD:	126334	0.299735	.1%
05:37	304	0.200 PPM ST	84649	0.200690	
05:38	304	0.200 PPM ST	83733	0.198516	
05:40	304	0.200 PPM ST	83933	0.198991	
		Mean & RSD:	84105	0.199399	.572%
05:41	305	0.100 PPM ST	42342	0.100170	
05:42	305	0.100 PPM ST	42155	0.099724	
05:43	305	0.100 PPM ST	42647	0.100893	
		Mean & RSD:	42381	0.100262	.586%
:44	306	0.050 PPM ST	21035	0.049544	
05:45	306	0.050 PPM ST	21243	0.050039	
05:47	306	0.050 PPM ST	21276	0.050116	
		Mean & RSD:	21185	0.049899	.617%
05:48	307	0.010 PPM ST	4487	0.010224	
05:49	307	0.010 PPM ST	4527	0.010320	
05:50	307	0.010 PPM ST	4498	0.010251	
		Mean & RSD:	4504	0.010265	.464%
05:51	0	0.000 PPM ST	6	-0.000422	LO OL
05:52	0	0.000 PPM ST	-47	-0.000548	LO
05:54	0	0.000 PPM ST	-41	-0.000534	LO
		Mean & RSD:	-44	-0.000541	66.2%
05:55	0	BLANK	-49	-0.000552	LO
05:56	2	CCV 7211805	45030	0.106556	107%.
05:57	0	CCB	-30	-0.000509	LO
05:58	0	BASELINE	0	-0.000436	BL
05:59	101	.05 7211801	22585	0.053227	106%. ok
06:01	102	.40 7211802	166474	0.395110	99%. ok
06:02	0	BLANK	-7	-0.000454	LO

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MFG
consulting
scientists and
engineers

800 Vinial Street, Building A
Pittsburgh, PA 15212-1528
412/321- 2278
Fax: 412/321- 2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: October 17, 2000

**SUBJECT: Data Validation of: PCBs,
Total and Weak Acid Dissociable Cyanide, Fluoride, and Percent Moisture**

Re: Severn Trent Laboratories, Inc.
Package No.: C0H300198

Soil/Sediment Samples:

S35-TB04-0002
S35-TB10-0002
S35-TB11-0002D
S46-SS03-0.0-0.5
S46-TP14-0708
S35-TB06-0002
S35-TB10-0406
S46-SS01-0.0-0.5
S46-TP12-0708
S35-TB07-0002
S35-TB11-0002
S46-SS02-0.0-0.5
S46-TP13-0910

Equipment Rinsate Blanks:

S35-TB10-0002-EB

Field Duplicates:

Sample S35-TB11-0002D is a field duplicate of sample S35-TB11-0002.

Overview

This set of samples collected on August 26 through 29, 2000 for the Alcoa Badin Site contains thirteen (13) soil samples, including one (1) field duplicate pair, and one (1) equipment rinsate blank. The samples were analyzed for PCBs and total cyanide by USEPA SW-846 Methods 8082 and 9012A, respectively. The samples were also analyzed for weak acid dissociable (WAD) cyanide by Standard Method SM18-4500-CN-I, fluoride by MCAWW 340.2, and percent solids by MCAWW 160.3. Note that not all samples were analyzed for all parameters.

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Summary

All compounds were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

PCBs

Note that samples S35-TB06-0002 (50X), S35-TB10-0002 (100X), and S35-TB10-0406 (20X) were analyzed with dilution in the PCB analyses due to high target compound values. As a result, the detection limits for these samples are elevated.

Total Cyanide

No problems encountered.

WAD Cyanide

No problems encountered.

Fluoride

Samples S46-SS03-0.0-0.5 (2X) and S35-TB10-0406 (10X) were run with dilution in the fluoride analysis. As a result, the detection limits for these samples are elevated.

Percent Solids

Note that two sets of percent solids analyses were performed due to the fact that samples were sent to STL Savannah for fluoride analysis and an independent percent analysis was performed at this location. Only the original percent solids analysis supplied with the original data package prepared by STL Pittsburgh were retained on the validated data summary.

Notes

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

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Note that as discussed in the case narrative, a bottle for fluoride analysis of the equipment rinsate blank S35-TB10-0002-EB was listed on the chain-of custody but was not received. However, two bottles for cyanide were received. As a result, an aliquot from the unpreserved PAH bottle was used for the fluoride analysis.

Note that the surrogates diluted out in samples S35-TB06-0002 (50X), S35-TB10-0002 (100X), S35-TB10-0406 (20X), and the MS/MSD (20X) analyses performed on S35-TB10-0406. In addition, the MS/MSD spikes added to sample S35-TB10-0406 were not recovered due to the high dilution factor (20X) necessary to quantitate the sample results. As a result, these criteria in these samples could not be evaluated.

The surrogate percent recovery for decachlorobiphenyl in the matrix spike duplicate of sample S35-TB04-0002 was greater than the control limit. As all site samples were within QC limits, except as noted above, and this was itself a QC sample, no action was taken.

In addition, due to low sample volume available for the equipment rinsate blank, S35-TB10-0002-EB, only 850 ml of sample were extracted instead of the typical one liter for the PCB analyses. As a result, the detection limits for this sample were elevated to approximately 1.2 times the normal values.

Note that many of the calibration standards run with the PCB analyses did not have retention time information for the surrogates tetrachloro-m-xylene (TCX) or decachlorobiphenyl (DCB) reported on the associated Form VIIIs. It appears that these surrogates were added to the standard solutions but just not reported. However, this information was provided for all five point calibration standards, all 1016 CCVs, and all site and associated QC samples. As all of the retention time criteria were met, no action was deemed necessary.

Note that one peak for aroclor 1260 in samples S35-TB04-0002, S35-TB07-0002, S35-TB10-0002, and S35-TB10-0406 was missing. However, as the other peaks representing this aroclor were present no action was deemed necessary.

Note that per the cooler receipt form no custody seals were present on the sample coolers upon receipt by the laboratory. As a result the integrity of the samples could not be evaluated.

Note that as stated in the case narrative, STL Pittsburgh reports weak acid dissociable cyanide (by Standard Method SM18-4500-CN-I) as free cyanide. This has been changed on the validated data summary to dissociable cyanide for clarity.

Note that a CRA standard was not provided for the total or WAD cyanide analyses. However, a review of the raw data showed that the laboratory did rerun high and low initial calibration standards (with the low standard being within 5 times the reporting limit) after the initial calibration was performed to assess the goodness of the curve. All of these percent recoveries were acceptable and no action was taken.

Note that per the laboratory distilled midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total or WAD cyanide samples prepared on September 1, 2000 (soil) or September 5, 2000 (aqueous). However, a laboratory control sample is prepared with each batch and the results of the LCSs were acceptable.

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Note that all samples were also analyzed for polynuclear aromatic hydrocarbons (PAHs) with this SDG. However, this fraction was not validated and is not provided on the validated data summary

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of four times the reporting limit was utilized to assess the absolute difference between the sample results (soils) when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The organic data were reviewed according to the U.S. EPA's National Functional Guidelines for Organic Data Review (February, 1994) while the inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Alcoa Badin
SDG - C0H300198

	ANALYTICAL METHOD Units[(1)] Sampled	S35-TB04-0002 mg/kg 8/26/00		S35-TB06-0002 mg/kg 8/26/00		S35-TB07-0002 mg/kg 8/26/00		S35-TB10-0002 mg/kg 8/27/00		S35-TB10-0002EB mg/L 8/27/00		S35-TB10-0406 mg/kg 8/27/00		S35-TB11-0002 mg/kg 8/27/00		S35-TB11-0002D mg/kg 8/27/00	
Wet Chemistry Parameters																	
Percent Solids	E160.3	73.0		77.8		88.1		84.8		NA		76.7		91.4		89.7	
Cyanide, Dissociable	SM4500-CN-I	0.69	U	0.64	U	0.57	U	0.59	U	0.010	U	2.1		0.55	U	0.56	U
Cyanide, Total	SW9012A	0.89		2.4		3.0		0.59	U	0.010	U	10.6		0.55	U	0.56	U
Fluoride	340.2-EXT	60		170		320		110		0.20	U	4500		91		89	
PCBs																	
Aroclor 1016	SW8082	0.045	U	2.1	U	0.037	U	3.9	U	0.0012	U	0.86	U	0.036	U	0.037	U
Aroclor 1221	SW8082	0.045	U	2.1	U	0.037	U	3.9	U	0.0012	U	0.86	U	0.036	U	0.037	U
Aroclor 1232	SW8082	0.045	U	2.1	U	0.037	U	3.9	U	0.0012	U	0.86	U	0.036	U	0.037	U
Aroclor 1242	SW8082	0.045	U	2.1	U	0.037	U	3.9	U	0.0012	U	0.86	U	0.036	U	0.037	U
Aroclor 1248	SW8082	0.045	U	17		0.037	U	44		0.0012	U	13		0.036	U	0.037	U
Aroclor 1254	SW8082	0.045	U	6.9		0.037	U	16		0.0012	U	4.6		0.036	U	0.037	U
Aroclor 1260	SW8082	0.12		2.4		0.052		4.1		0.0012	U	1.2		0.036	U	0.037	U
Appendix IX PAHs																	
Acenaphthene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	0.72	U	0.74	U
Acenaphthylene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	0.72	U	0.74	U
Anthracene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	0.72	U	0.74	U
Benzo(a)anthracene	SW8270C	4.1		0.86		2.1		0.58		0.012	U	0.43	U	4.3		5.9	
Benzo(a)pyrene	SW8270C	5.1		1.1		2.6		0.67		0.012	U	0.43	U	5.1		7.2	
Benzo(b)fluoranthene	SW8270C	5.9		1.7		4.4		1		0.012	U	0.43	U	6.8		9.6	
Benzo(ghi)perylene	SW8270C	4.5		0.75		1.5		0.44		0.012	U	0.43	U	2.7		3.2	
Benzo(k)fluoranthene	SW8270C	3.2		0.85		1.7		0.69		0.012	U	0.43	U	2.4		3.5	
Chrysene	SW8270C	5.6		1.3		3		0.94		0.012	U	0.43	U	5.9		8.2	
Dibenz(a,h)anthracene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	1.1		1.4	
Fluoranthene	SW8270C	6.5		1.5		3.5		1.1		0.012	U	0.6		7.3		10	
Fluorene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	0.72	U	0.74	U
Indeno(1,2,3-cd)pyrene	SW8270C	4.3		0.76		1.6		0.43		0.012	U	0.43	U	3.1		3.9	
Naphthalene	SW8270C	2.3	U	0.42	U	0.75	U	0.39	U	0.012	U	0.43	U	0.72	U	0.74	U
Phenanthrene	SW8270C	2.6		0.7		1.8		0.51		0.012	U	0.43	U	3		3.9	
Pyrene	SW8270C	5.2		0.96		2.4		0.79		0.012	U	0.43	U	5.8		7.8	

NA - Not Analyzed
(1) - except percent solids

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Da. .nmary
Alcoa Badin
SDG - C0H300198

	ANALYTICAL METHOD Units[1] Sampled	S46-SS01-0.0-0.5 mg/kg 8/29/00		S46-SS02-0.0-0.5 mg/kg 8/29/00		S46-SS03-0.0-0.5 mg/kg 8/29/00		S46-TP12-0708 mg/kg 8/28/00		S46-TP13-0910 mg/kg 8/28/00		S46-TP14-0708 mg/kg 8/28/00	
Percent Solids	E160.3	93.0		86.6		92.7		85.4		80.6		82.8	
Cyanide, Dissociable	SM4500-CN-I	0.54	U	0.58	U	0.54	U	0.59	U	0.62	U	0.60	U
Cyanide, Total	SW9012A	0.73		0.58	U	3.6		4.4		1.4		0.60	U
Fluoride	340.2-EXT	150		77		650		88		7.1		4.9	U
Aroclor 1016	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1221	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1232	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1242	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1248	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1254	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1260	SW8082	NA		NA		NA		NA		NA		NA	
Acenaphthene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Acenaphthylene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Anthracene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Benzo(a)anthracene	SW8270C	1.6		0.61		0.49		0.39	U	0.41	U	0.4	U
Benzo(a)pyrene	SW8270C	1.3		0.62		0.59		0.39	U	0.41	U	0.4	U
Benzo(b)fluoranthene	SW8270C	2.9		1.2		1		0.39	U	0.41	U	0.4	U
Benzo(ghi)perylene	SW8270C	1.1		0.43		0.39		0.62		0.41	U	0.4	U
Benzo(k)fluoranthene	SW8270C	1		0.56		0.46		0.39	U	0.41	U	0.4	U
Chrysene	SW8270C	3.1		0.93		0.69		0.52		0.41	U	0.4	U
Dibenz(a,h)anthracene	SW8270C	0.39		0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Fluoranthene	SW8270C	1.9		1.1		0.63		0.39	U	0.41	U	0.4	U
Fluorene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Indeno(1,2,3-cd)pyrene	SW8270C	1.1		0.47		0.42		0.4		0.41	U	0.4	U
Naphthalene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Phenanthrene	SW8270C	0.36		0.39		0.36	U	0.39	U	0.41	U	0.4	U
Pyrene	SW8270C	1.9		0.79		0.64		0.39	U	0.41	U	0.4	U

NA - Not Analyzed
(1) - except percent solids

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Results as Reported by the Laboratory

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 001

Sample WT/Vol: 30 / g
Work Order: DJLX2109
Dilution factor: 50
Moisture %:22

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/11/00

QC Batch: 0251478

Client Sample Id: S35-TB06-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	2100	U
11104-28-2	Aroclor 1221	2100	U
11141-16-5	Aroclor 1232	2100	U
53469-21-9	Aroclor 1242	2100	U
12672-29-6	Aroclor 1248	17000	
11097-69-1	Aroclor 1254	6900	
11096-82-5	Aroclor 1260	2400	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H300198 002
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30 / g Date Received: 08/30/00
Work Order: DJLX9103 Date Extracted:09/07/00
Dilution factor: 1 Date Analyzed: 09/08/00
Moisture %:27

QC Batch: 0251478

Client Sample Id: S35-TB04-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	45	U
11104-28-2	Aroclor 1221	45	U
11141-16-5	Aroclor 1232	45	U
53469-21-9	Aroclor 1242	45	U
12672-29-6	Aroclor 1248	45	U
11097-69-1	Aroclor 1254	45	U
11096-82-5	**Aroclor 1260**	120	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 004

Sample WT/Vol: 30 / g
Work Order: DJLXH103
Dilution factor: 1
Moisture %:8.6

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/08/00

QC Batch: 0251478

Client Sample Id: S35-TB11-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	36	U
11096-82-5	Aroclor 1260	36	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 005

Sample WT/Vol: 30 / g
Work Order: DJM00103
Dilution factor: 1
Moisture %:10

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/08/00

QC Batch: 0251478

Client Sample Id: S35-TB11-0002D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	37	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 006

Sample WT/Vol: 30 / g
Work Order: DJM05103
Dilution factor: 100
Moisture %:15

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/11/00

QC Batch: 0251478

Client Sample Id: S35-TB10-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	3900	U
11104-28-2	Aroclor 1221	3900	U
11141-16-5	Aroclor 1232	3900	U
53469-21-9	Aroclor 1242	3900	U
12672-29-6	Aroclor 1248	44000	
11097-69-1	Aroclor 1254	16000	
11096-82-5	Aroclor 1260	4100	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 007

Sample WT/Vol: 850 / mL
Work Order: DJM0E101
Dilution factor: 1
Moisture %:NA

Date Received: 08/30/00
Date Extracted:08/31/00
Date Analyzed: 09/02/00

QC Batch: 0244412

Client Sample Id: S35-TB10-0002EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
12674-11-2	Aroclor 1016	1.2	U
11104-28-2	Aroclor 1221	1.2	U
11141-16-5	Aroclor 1232	1.2	U
53469-21-9	Aroclor 1242	1.2	U
12672-29-6	Aroclor 1248	1.2	U
11097-69-1	Aroclor 1254	1.2	U
11096-82-5	Aroclor 1260	1.2	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H300198 008
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30 / g Date Received: 08/30/00
Work Order: DJM21103 Date Extracted:09/08/00
Dilution factor: 20 Date Analyzed: 09/12/00
Moisture %:23

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	860	U
11104-28-2	Aroclor 1221	860	U
11141-16-5	Aroclor 1232	860	U
53469-21-9	Aroclor 1242	860	U
12672-29-6	Aroclor 1248	13000	
11097-69-1	Aroclor 1254	4600	
11096-82-5	Aroclor 1260	1200	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 003

Sample WT/Vol: 30 / g
Work Order: DJLXE103
Dilution factor: 1
Moisture %:12

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/08/00

QC Batch: 0251478

Client Sample Id: S35-TB07-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	52	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB06-0002

General Chemistry

Lot-Sample #...: C0H300198-001 Work Order #...: DJLX2 Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.64	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
	Dilution Factor: 1			MS Run #.....: 0245043		
Cyanide, Total	2.4	0.64	mg/kg	SW846 9012A	09/01-09/07/00	0245150
	Dilution Factor: 1			MS Run #.....: 0245041		
Percent Solids	77.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
	Dilution Factor: 1			MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB04-0002

General Chemistry

Lot-Sample #...: C0H300198-002 Work Order #...: DJLX9 Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 27

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.69	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	0.89	0.69	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	73.0		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB07-0002

General Chemistry

Lot-Sample #...: C0H300198-003 Work Order #...: DJLXE Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.57	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	3.0	0.57	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	88.1		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MPG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB11-0002

General Chemistry

Lot-Sample #...: C0H300198-004 Work Order #...: DJLXH Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 8.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.55	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.55	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	91.4		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB11-0002D

General Chemistry

Lot-Sample #...: C0H300198-005 Work Order #...: DJM00 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.56	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.56	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	89.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0002

General Chemistry

Lot-Sample #...: C0H300198-006 Work Order #...: DJM05 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.59	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.59	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	84.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0002EB

General Chemistry

Lot-Sample #...: C0H300198-007 Work Order #...: DJM0E Matrix.....: WATER
Date Sampled...: 08/27/00 Date Received..: 08/30/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/05-09/07/00	0249188
		Dilution Factor: 1		MS Run #.....: 0249084		
Cyanide, Total	ND	10.0	ug/L	SW846 9012A	09/05-09/07/00	0249180
		Dilution Factor: 1		MS Run #.....:		

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0406

General Chemistry

Lot-Sample #...: C0H300198-008 Work Order #...: DJM21 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	2.1	0.65	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	10.6	0.65	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	76.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP12-0708

General Chemistry

Lot-Sample #...: C0H300198-009 Work Order #...: DJM49 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.59	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	4.4	0.59	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	85.4		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP13-0910

General Chemistry

Lot-Sample #...: C0H300198-010 Work Order #...: DJM58 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.62	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	1.4	0.62	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	80.6		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP14-0708

General Chemistry

Lot-Sample #...: C0H300198-011 Work Order #...: DJM59 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.60	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.60	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	82.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS01-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-012 Work Order #...: DJM5C Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 7.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.54	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	0.73	0.54	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	93.0		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS02-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-013 Work Order #...: DJM5E Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.58	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.58	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	86.6		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS03-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-014 Work Order #...: DJM5G Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 7.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.54	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	3.6	0.54	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	92.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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a division of Severn Trent Laboratories, Inc.
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LOG NO: S0-05964
Received: 31 AUG 00
Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-6	S35-TB10-0002*SO	08-27-00/15:00	ALCO01
05964-7	S35-TB10-0406*SO	08-27-00/15:20	ALCO01
05964-8	S46-TB12-0708*SO	08-28-00/09:50	ALCO01
05964-9	S46-TP13-0910*SO	08-28-00/12:20	ALCO01
05964-10	S46-TP14-0708*SO	08-28-00/14:02	ALCO01

PARAMETER	05964-6	05964-7	05964-8	05964-9	05964-10
Fluoride (340.2-EXT), mg/kg dw	110	4500	88	7.1	4.9U
Dilution Factor	1	10	1	1	1
Prep Date	09.12.00	09.12.00	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A	0912A	0912A
Percent Solids	75	81	84	80	82

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Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-1	S35-TB06-0002*SO	08-26-00/14:50	ALCO01
05964-2	S35-TB04-0002*SO	08-26-00/16:24	ALCO01
05964-3	S35-TB07-0002*SO	08-26-00/16:50	ALCO01
05964-4	S35-TB11-0002*SO	08-27-00/14:35	ALCO01
05964-5	S35-TB11-0002D*SO	08-27-00/14:35	ALCO01

PARAMETER	05964-1	05964-2	05964-3	05964-4	05964-5
Fluoride (340.2-EXT), mg/kg dw	170	60	320	91	89
Dilution Factor	1	1	1	1	1
Prep Date	09.12.00	09.12.00	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A	0912A	0912A
Percent Solids	72	78	91	89	88

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Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-11	S46-SS01-0.0-0.5*SO	08-29-00/08:35	ALCO01
05964-12	S46-SS02-0.0-0.5*SO	08-29-00/08:43	ALCO01
05964-13	S46-SS03-0.0-0.5*SO	08-29-00/08:48	ALCO01

PARAMETER	05964-11	05964-12	05964-13
Fluoride (340.2-EXT), mg/kg dw	150	77	650
Dilution Factor	1	1	2
Prep Date	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A
Percent Solids	92	86	91

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LOG NO: S0-05964
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Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-14	S35-TB10-0002EB*WH	08-17-00/15:05	ALCO01

PARAMETER	05964-14
Fluoride (340.2), mg/l	0.20U
Dilution Factor	1
Prep Date	09.14.00
Analysis Date	09.14.00
Analysis Time	16:15
Batch ID	0914A

Code of Federal Regulations, Title 40, Part 136; Washington DC, July 1, 1997.

Angie Stewart, Project Manager

Final Page Of Report

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Support Documentation

CASE NARRATIVE

MFG Environmental
Alcoa Badin, NC Works

STL Lot # C0H300198

Sample Receiving:
STL Pittsburgh received samples for analysis August 30, 2000. The cooler temperatures were within the proper temperature range.

The chain of custody has listed a fluoride bottle for sample S35-TB10-0002 EB. The laboratory did not receive a sample bottle for fluoride. Two sample bottles for cyanide were received. An unpreserved portion from the organic bottles was taken for the fluoride analysis.

GC/MS Semivolatiles:
Due to the concentration of target compounds detected, several samples were analyzed at dilutions.

Sample S35-TB11-0002 was analyzed at a 2X and a 4X dilution. On both of these analyses the surrogate recovery for nitrobenzene-d5 was outside of the control limits.

Due to low sample volume, sample S35-TB10-0002EB was extracted using 830 ml's instead of 1 liter. This elevated the detection limit by a factor of 1.2X.

PCB's:
Due to the concentration of target compounds detected, samples S35-TB06-0002, S35-TB10-0002, and S35-TB10-0406 were analyzed at dilutions. These samples had the surrogates diluted out.

The matrix spike and matrix spike duplicate for sample S35-TB10-0406 were analyzed at 20X dilutions. The surrogates and spikes were diluted out.

The matrix spike duplicate for sample S35-TB04-0002 had decachlorobiphenyl surrogate recovery outside of the control limits.

Due to low sample volume, sample S35-TB10-0002EB was extracted using 850ml's instead of 1 liter. This elevated the detection limit by a factor of 1.2X.

General Chemistry:
As a general comment, please note that in the STL Pittsburgh lab reports the method description for *SM4500-CN-I* will read Free Cyanide and not Weak Acid Dissociable Cyanide.

There were no problems associated with the analyses.

STL Savannah performed the fluoride analysis. The data will be submitted at a later date.

STL Pittsburgh

Client: MG Project: _____ Quote: _____

Cooler Rec'd & Opened for Temp. Check on: 8/30/08

Coolers Opened and Unpacked on: 8/30/08 By _____ (Signature)

STL Pittsburgh Lot Number: COH300198

		Yes	No
1.	Were custody seals on the outside of the cooler?		
	If YES, how many and where? Quantity __ Location front	1	
	Were signatures and date correct?	8/30/08	
2.	Were custody papers included inside the cooler?		
3.	Were custody papers properly filled out (ink, signed, match labels)?	✓	
4.	Did you sign the custody papers in the appropriate place?	✓	
5.	Was shippers packing slip attached to this form?	✓	
6.	Were packing materials used?	✓	
	If YES, what type? Bubble		
7.	Were the samples chilled? (Record temperatures on reverse side.)	✓	
8.	Were the samples appropriately preserved?	✓	
9.	Were all bottles sealed in separate plastic bags?	✓	
10.	Did all bottles arrive in good condition (unbroken)?	✓	
11.	Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12.	Did all bottle labels and/or tags agree with custody papers?	✓ Unmarked	8/30/08
13.	Were correct bottles used for tests indicated?	Unmarked	
14.	Were all VOA vials checked for the presence of air bubbles?	NC	
15.	Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: FEDEX UPS CLIENT DROP-OFF OTHER AIRBORNE

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 08/10/00 08/22/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.81

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	08/10/00	1021	1.73	10.81
02		M1232	08/10/00	1041		
03		M1242	08/10/00	1100		
04		M1248	08/10/00	1120		
05		L1660	08/10/00	1139	1.73	10.81
06		ML1660	08/10/00	1159	1.73	10.81
07		M1660	08/10/00	1218	1.73	10.81
08		MH1660	08/10/00	1238	1.73	10.81
09		H1660	08/10/00	1257	1.73	10.81
10		2ND2154	08/10/00	1317	1.73	
11		2ND1232	08/10/00	1336		
12		2ND1242	08/10/00	1355		
13		2ND1248	08/10/00	1415		
14		2ND1660	08/10/00	1434	1.69	
15		M2154	08/30/00	1126	1.73	10.81
16		M1232	08/30/00	1146		
17		M1242	08/30/00	1205		
18		M1248	08/30/00	1225		
19		M1660	08/30/00	1244	1.73	10.82
20		M1660	09/01/00	2349	1.73	10.82
21	S35-TB10-000	DJM0E101	09/02/00	0107	1.74	10.82
22	PBLK	DJPP5101	09/02/00	0127	1.73	10.82
23	LCS	DJPP5102	09/02/00	0146	1.74	10.82
24	LCSD	DJPP5103	09/02/00	0206	1.74	10.82
25		M1660	09/02/00	0225	1.74	10.82
26						
27						
28						
29						
30						
31						
32						

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/06/00 09/06/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	09/06/00	1502	1.73	10.81
02		M1232	09/06/00	1522		
03		M1242	09/06/00	1542		
04		M1248	09/06/00	1601		
05		L1660	09/06/00	1621	1.73	10.81
06		ML1660	09/06/00	1641	1.73	10.81
07		M1660	09/06/00	1700	1.73	10.82
08		MH1660	09/06/00	1720	1.73	10.81
09		H1660	09/06/00	1740	1.73	10.81
10		2ND2154	09/06/00	1800	1.73	
11		2ND1232	09/06/00	1819		
12		2ND1242	09/06/00	1839		
13		2ND1248	09/06/00	1859		
14		2ND1660	09/06/00	1918		
15		M1660	09/08/00	1105	1.70 1.73	10.80
16	PBLK	DK270101	09/08/00	1439	1.73	10.81
17	LCS	DK270102	09/08/00	1458	1.73	10.82
18	S35-TB04-000	DJLX9103	09/08/00	1537	1.73	10.81
19	S35-TB04-000	DJLX9107	09/08/00	1557	1.73	10.81
20	S35-TB04-000	DJLX9108	09/08/00	1616	1.73	10.81
21	S35-TB07-000	DJLXE103	09/08/00	1636	1.73	10.81
22	S35-TB11-000	DJLXH103	09/08/00	1655	1.73	10.81
23	S35-TB11-000	DJM00103	09/08/00	1715	1.73	10.81
24		M1660	09/08/00	1754	1.73	10.82
25		M2154	09/11/00	1046	1.73	10.80
26		M1232	09/11/00	1106		
27		M1242	09/11/00	1125		
28		M1248	09/11/00	1145		
29		M1660	09/11/00	1204	1.73	10.81
30	S35-TB06-000	DJLX2109	09/11/00	1224	1.73	10.82
31	S35-TB10-000	DJM05103	09/11/00	1243	1.73	10.82
32	PBLK2439	DK4DK101	09/11/00	1716	1.73	10.82

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

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8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/06/00 09/06/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	LCS2439	DK4DK102	09/11/00	1735	1.73	10.82
02		M1660	09/11/00	1853	1.73	10.82
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

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8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/12/00 09/12/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	09/12/00	1231	1.73	10.82
02		M1232	09/12/00	1251		
03		M1242	09/12/00	1310		
04		M1248	09/12/00	1330		
05		L1660	09/12/00	1349	1.73	10.82
06		ML1660	09/12/00	1409	1.73	10.82
07		M1660	09/12/00	1428	1.73	10.82
08		MH1660	09/12/00	1447	1.73	10.82
09		H1660	09/12/00	1507	1.73	10.82
10		2ND2154	09/12/00	1526	1.73	
11		2ND1232	09/12/00	1546		
12		2ND1242	09/12/00	1605		
13		2ND1248	09/12/00	1625		
14		2ND1660	09/12/00	1644	1.70	
15	S35-TB10-040	DJM21103	09/12/00	1920	1.73	10.82
16	S35-TB10-040	DJM21107	09/12/00	1940	1.73	10.82
17	S35-TB10-040	DJM21108	09/12/00	1959	1.73	10.82
18		M1660	09/12/00	2334	1.73	10.82
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 008

Sample WT/Vol: 30 / g
Work Order: DJM21107
Dilution factor: 20
Moisture %:23

Date Received: 08/30/00
Date Extracted:09/08/00
Date Analyzed: 09/12/00

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg		Q
12674-11-2	Aroclor 1016			NC DIL
11096-82-5	Aroclor 1260			NC DIL

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE DUPLICATE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 008

Sample WT/Vol: 30 / g
Work Order: DJM21108
Dilution factor: 20
Moisture %:23

Date Received: 08/30/00
Date Extracted:09/08/00
Date Analyzed: 09/12/00

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg		Q
12674-11-2	Aroclor 1016			NC DIL
11096-82-5	Aroclor 1260			NC DIL

FORM I

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

ab Code: QESPIT SDG No:

latrix Spike ID: S35-TB10-0406 Level: (low/med) LOW

ot #: C0H300198 WO #: DJM21107
BATCH: 0252439

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Aroclor 1016	435	ND		0*	26 - 144	NC DIL
Aroclor 1260	435	1200		0*	37 - 138	NC DIL

NOTES(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 0 outside limits
pike Recovery: 2 out of 2 outside limits

OMMENTS:

FORM III

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: S35-TB10-0406 Level: (low/med) LOW

Lot #: C0H300198 WO #: DJM21108
BATCH: 0252439

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Aroclor 1016	435		0*		39	26 - 144	NC DIL
Aroclor 1260	435		0*		33	37 - 138	NC DIL

NOTES(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 2 out of 2 outside limits

COMMENTS:

FORM III

SW846 8082 CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Lot #: C0H310000 WO #: DJPP5103
BATCH: 0244412

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	% REC	QC LIMITS REC	QUAL	RPD
Aroclor 1016	10.0	9.30	93	89 61- 118		4.4%
Aroclor 1260	10.0	10.1	101	97 61- 124		4.0%

RPD 4.2 OK
12.6 OK

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III

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SW846 8082 SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEE

Job Code: QESPIT QESSDG:

Lot #: C0H300198

	CLIENT ID.	SRG01	SRG02	TOT OUT	
01	S35-TB07-0002	80	108	00	
02	S35-TB11-0002	72	92	00	
03	S35-TB06-0002	0 D	0 D	02	ok
04	S35-TB04-0002	59	136	00	
05	S35-TB11-0002D	67	105	00	
06	S35-TB10-0002	0 D	0 D	02	ok
07	S35-TB10-0406	0 D	0 D	02	ok
08	METHOD BLK. DK270101	86	88	00	
09	METHOD BLK. DK4DK101	80	84	00	
10	LCS DK270102	91	92	00	
11	LCS DK4DK102	87	85	00	
12	S35-TB04-0002 D	71	150*	01	ok
13	S35-TB10-0406 D	0 D	0 D	02	ok
14	S35-TB04-0002 S	71	138	00	
15	S35-TB10-0406 S	0 D	0 D	02	ok

SURROGATES		QC LIMITS
SRG01	= Tetrachloro-m-xylene	(31-127)
SRG02	= Decachlorobiphenyl	(23-141)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

Run Results Report
Results: C:\FLOW_4\090700A.RST
Results completed: 13:04 September 07, 2000.
Operator: ERIC WESOLOSKI

E. T. Wesoloski 9/7/00

CYANIDE

Time	Cup	Name	Height	Calc.	Flags
----------	User request:	Start Data Collect	----------		
09:31	0	CARRYOVER	486	0.001285	
09:32	0	CARRYOVER	46	0.000039	
		Mean & RSD:	266	0.000662	NoRSD
09:33	0	READ BASELIN	0	-0.000090	BL
09:34	301	0.500 PPM ST	163732	0.463259	
09:36	301	0.500 PPM ST	167832	0.474862	
09:37	301	0.500 PPM ST	167803	0.474780	
		Mean & RSD:	166455	0.470967	1.42%
09:38	302	0.400 PPM ST	135738	0.384040	
09:39	302	0.400 PPM ST	137187	0.388139	
09:40	302	0.400 PPM ST	137619	0.389362	
		Mean & RSD:	136848	0.387180	.72%
09:41	303	0.300 ppm ST	104777	0.296422	
09:43	303	0.300 ppm ST	105433	0.298277	
09:44	303	0.300 ppm ST	104759	0.296369	
		Mean & RSD:	104990	0.297023	.366%
09:45	304	0.200 PPM ST	69847	0.197571	
09:46	304	0.200 PPM ST	70465	0.199320	
09:47	304	0.200 PPM ST	70732	0.200077	
		Mean & RSD:	70348	0.198989	.646%
09:48	305	0.100 PPM ST	35693	0.100918	
09:50	305	0.100 PPM ST	35553	0.100523	
09:51	305	0.100 PPM ST	35671	0.100858	
		Mean & RSD:	35639	0.100766	.211%
09:52	306	0.050 PPM ST	17818	0.050334	
09:53	306	0.050 PPM ST	17708	0.050022	
09:54	306	0.050 PPM ST	17662	0.049893	
		Mean & RSD:	17729	0.050083	.451%
09:55	307	0.010 PPM ST	4221	0.011855	OL
09:57	307	0.010 PPM ST	3987	0.011191	
09:58	307	0.010 PPM ST	3969	0.011142	
		Mean & RSD:	3978	0.011167	3.54%
09:59	0	0.000 PPM ST	-59	-0.000257	LO
10:00	0	0.000 PPM ST	-47	-0.000224	LO
10:01	0	0.000 PPM ST	3	-0.000083	LO OL
		Mean & RSD:	-53	-0.000240	61.7%
10:02	0	BLANK	-31	-0.000179	LO
10:04	2	CCV 7211705	37066	0.104805	104.8%
10:05	0	CCB	7	-0.000070	LO
10:06	0	BASELINE	0	-0.000090	~~BL~~
10:07	101	.05 7211702	15897	0.044898	90%
10:08	102	.40 7211703	128792	0.364382	91%
10:09	0	BLANK	-4	-0.000102	~~LO~~

Page #1
Run Results Report

E. T. Wesoloski
9/7/00

TL Pittsburgh 3036

Results: C:\FLOW_4\090700B.RST
Results completed: 15:21 September 07, 2000.
Operator: ERIC WESOLOSKI

E. T. Wesoloski 9/7/00

CYANIDE

ime	Cup	Name	Height	Calc.	Flags
----------	User request:	Start Data Collect	----------		
13:19	0	CARRYOVER	454	0.001066	
13:20	0	CARRYOVER	-34	-0.000227	LO
	Mean & RSD:		210	0.000419	NoRSD
13:21	0	READ BASELIN	0	-0.000137	BL
13:22	301	0.500 PPM ST	184257	0.487913	
13:23	301	0.500 PPM ST	184081	0.487448	
13:24	301	0.500 PPM ST	186387	0.493556	
	Mean & RSD:		184908	0.489639	.694%
13:26	302	0.400 PPM ST	150571	0.398688	
13:27	302	0.400 PPM ST	151416	0.400927	
13:28	302	0.400 PPM ST	150694	0.399012	
	Mean & RSD:		150894	0.399542	.303%
13:29	303	0.300 ppm ST	113675	0.300959	
13:30	303	0.300 ppm ST	113464	0.300400	
13:31	303	0.300 ppm ST	115122	0.304793	
	Mean & RSD:		114087	0.302050	.791%
13:33	304	0.200 PPM ST	76646	0.202878	
13:34	304	0.200 PPM ST	75327	0.199385	
13:35	304	0.200 PPM ST	75448	0.199707	
	Mean & RSD:		75807	0.200656	.961%
13:36	305	0.100 PPM ST	38047	0.100640	
13:37	305	0.100 PPM ST	37703	0.099730	
13:38	305	0.100 PPM ST	37880	0.100196	
	Mean & RSD:		37877	0.100189	.454%
:40	306	0.050 PPM ST	19142	0.050566	
13:41	306	0.050 PPM ST	19117	0.050499	
13:42	306	0.050 PPM ST	18936	0.050018	
	Mean & RSD:		19065	0.050361	.591%
13:43	307	0.010 PPM ST	4247	0.011112	
13:44	307	0.010 PPM ST	4332	0.011337	
13:45	307	0.010 PPM ST	4121	0.010779	OL
	Mean & RSD:		4289	0.011225	2.47%
13:47	0	0.000 PPM ST	-77	-0.000342	LO OL
13:48	0	0.000 PPM ST	-31	-0.000220	LO
13:49	0	0.000 PPM ST	7	-0.000118	LO
	Mean & RSD:		-12	-0.000169	353%
13:50	0	BLANK	-41	-0.000245	LO
13:51	2	CCV 7211705	39851	0.105418	105.4%
13:52	0	CCB	2	-0.000131	LO
13:54	0	BASELINE	0	-0.000137	BL
13:55	101	.05 7211702	17390	0.045924	91.8%
13:56	102	.40 7211703	144256	0.381960	95.5%
13:57	0	BLANK	34	-0.000046	LO

Page #1
Run Results Report

E. T. Wesoloski
9/7/00

Cyanide Distillation Worksheet

COH300198
COH310243 Total 0245150

STL Committed To Your Success

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: J. Johnson Starting Date: 9.1.00 Reagent /Std Book ID: 342.162.5/342.163.7/341.152 Balance 676383

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1. MOCHI01	1.000g	Some			NA
2. MOCHI02	0.10g				NA
3. MLX210	1.00				9.9.00
4. MLXC10	1.00				9.9.00
5. MLXE10	1.00				9.10.00
6. MLXH10	1.00				9.10.00
7. MM0010	1.00				9.10.00
8. MM0210	1.00				9.11.00
9. MM2110	1.00				9.11.00
10. MM2C10	1.00				9.11.00
11. MM2E10	1.00				9.11.00
12. MM2G10	1.00				9.12.00
13. MM2I10	1.00				9.12.00
14. MM2K10	1.00				9.12.00
15. MM2M10	1.00				9.12.00
16. MM2O10	1.00				9.12.00
17. MM2Q10	1.00				9.12.00
18. MLX10A	1.00				9.12.00
19. MLZ10A	1.00				9.12.00
20. MLZ10AA	1.00				9.12.00
21. MLZ10AB	1.00				9.12.00
22. MLZ10AC	1.00				9.12.00
23. MLZ10AD	1.00				9.12.00
24.		Some			9.12.00
25.					
26.		J. Johnson 9.1.00			

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-23	9-1-00	1030	J. Johnson	WC	9-1-00	1100	J. Johnson	Disposal
	9-7-00	0600		WC	9-7-00	1600		

Comments: MLC: 1.00g MSM: 1.00g 12.11.01 To 1.00g of Samples 9-6-00

Reviewed by: Date:

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Cyanide Distillation Worksheet

COH300198
COH310243 Free 0245151

STL Committed To Your Success

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: L. Johnson Start 1215 | Date: 9.1.00 | Reagent /Std Book ID: 9232.08 | 9354.08 | 9373.00 | Balance 6763B3

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1.	1.000	50ml			NA
2.	1.000				NA
3.	1.000				9.9.00
4.	1.000				9.9.00
5.	1.000				9.10.00
6.	1.000				
7.	1.000				9.10.00
8.	1.000				9.11.00
9.	1.000				
10.	1.000				9.11.00
11.	1.000				9.12.00
12.	1.000				
13.	1.000				
14.	1.000				
15.	1.000				9.12.00
16.	1.000				
17.	1.000				
18.	1.000				
19.	1.000				
20.	1.000				
21.	1.000				
22.	1.000				
23.	1.000				
24.	1.000	50ml			9.12.00
25.					
26.					

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-23	9-1-00	1330	L. Johnson	WC	9-1-00	1600	L. Johnson	Disposal
	9-7-00	0600	L. Smith	WC	9-7-00	1600	L. Smith	Disposal

Comments: 1.0 mg/kg 12.11.04
0.5 mg/kg 0.5 ml of 12.11.01 To 1.00g of Sample

Reviewed by: Date: 9-1-00

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STL Pittsburgh

Cyanide Distillation Worksheet

COH300198 Total 0249180
COH300236
COH310279 Total 0249183

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: I. Johnson (Start 1000) | Date: 9.5.00 | Reagent /Std Book ID: 342-162-5 | 342-162-7 | 342-152-6

	Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1.	TWTA101L	50ml	50ml			NA
2.	TWTA102L					NA
3.	TWTA103L					9.10.00
4.	TMBE103					NA
5.	TWTX101L					NA
6.	TWTX102L					9.12.00
7.	TM3101DV					
8.	TM3601DV					
9.	TM3B1DV					
10.	TM3X1DV					
11.	TM3A1DV					
12.	TM3E1DV					
13.	TM3H1DV					
14.	TM3N1DV					
15.	TPWA1DV					9.12.00
16.	TPWE1DV					9.13.00
17.	TPW61DV					
18.	TPWK1DV					
19.	TPWM1DV					
20.	TPWO1DV					
21.	TPWT1DV					
22.	TPWV11L					
23.	TPWV12MS					
24.	TPWV12MSD					
25.	TPWV12NP	50ml	50ml			9.13.00
26.				I. Johnson 9:50		

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-24	9-7-00	1115 / 0600	[signature]	WC	9-5-00 / 9-7-00	1145 / 1600	[signature]	Disposal

Comments: LLL(LLL): 1.1ppm 72.111.07, 72.111.08, LLL: 1.1ppm 72.111.09
MS/MSD: 0.1ppm to 5mls of 72.111.07 To 50 mls Sample

Reviewed by: [signature] Date: 9-5-00

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STL Pittsburgh

Cyanide Distillation Worksheet

COH30198
COH30236
COH31279
Free 0249188

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: P. Johnson start 1330 Date: 9.5.00 Reagent /Std Book ID: 242.1b7.5 / 9354.08 / 9223.09

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1. TVL6101	50ml	50ml			NA
2. TVL6102					NA
3. MOE102 1330 9.5.00					9.12.00
4. LA102 1447 9.5.00					
5. MB01 01					
6. MB02 01					
7. MB04 01					
8. MB05 01					
9. MB06 01					9.12.00
10. MB07 01					
11. MB08 01					
12. MB09 01					
13. MB10 01					
14. MB11 01					
15. MB12 01					
16. MB13 01					
17. MB14 01					
18. MB15 01					
19. MB16 01					
20. MB17 01					
21. MB18 01					
22. MB19 01	50ml	50ml			9.12.00
23.					
24.					
25.					
26.			P.J. Johnson 9.5.00		

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-21	9-5-00	1700	[signature]	WC	9-5-00	1444 1600	[signature]	Rispos Ag

Comments: MB-01: 0.1 ppm 72.116.10
MB-19: 0.1 ppm 0.5 mg of 72.116.10 To 50 ml of Sample

Reviewed by: [signature] Date: 9-5-00

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Data File: \\qpitpa02\d\chem\gc8.i\6060.b\H-A60126.D
Report Date: 11-Sep-2000 08:35

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Peaks not detected for Quant. or Qual. signal(s).							
20 Aroclor-1016					CAS #: 12674-11-2		
Peaks not detected for Quant. or Qual. signal(s).							
21 Aroclor-1248					CAS #: 12672-29-6		
Operator disabled compound identification.							
33 Aroclor-1254					CAS #: 11097-69-1		
Peaks not detected for Quant. or Qual. signal(s).							
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.812	10.817	(-0.005)	71634	0.02728	9.0934		
36 Aroclor-1260					CAS #: 11096-82-5		
5.638	5.634	(0.004)	25497	0.09443	31.477	0.00- 0.00	0.00(M)
5.755	5.755	(0.000)	37340	0.13411	44.704	95.86- 135.86	0.00
6.474	6.481	(-0.007)	90119	0.31498	104.99	116.91- 156.91	0.00
7.351	7.354	(-0.003)	206649	0.47633	158.78	120.00- 160.00	0.00
8.151	8.151	(0.000)	0			108.33- 148.33	0.00
Average of Peak Concentrations =					84.988		

QC Flag Legend

M - Compound response manually integrated.

535--TB04-0002

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RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	CONCENTRATIONS FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Operator disabled compound identification.							
20 Aroclor-1016					CAS #: 12674-11-2		
Operator disabled compound identification.							
21 Aroclor-1248					CAS #: 12672-29-6		
3.468	3.469	(-0.001)	12910	0.07272	24.238	0.00- 0.00	0.00(a)
3.914	3.917	(-0.003)	12817	0.07588	25.295	114.57- 154.57	0.00
4.266	4.265	(0.001)	18664	0.09289	30.962	63.67- 103.67	0.00
4.365	4.365	(0.000)	17027	0.09124	30.413	43.86- 83.86	0.00
4.783	4.786	(-0.003)	17786	0.08934	29.779	128.08- 168.08	0.00
Average of Peak Concentrations =					28.137		
33 Aroclor-1254					CAS #: 11097-69-1		
Operator disabled compound identification.							
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.814	10.817	(-0.003)	56828	0.02164	7.2139		
36 Aroclor-1260					CAS #: 11096-82-5		
5.633	5.634	(-0.001)	34405	0.12742	42.474	0.00- 0.00	0.00
5.755	5.755	(0.000)	41338	0.14847	49.491	95.86- 135.86	0.00
6.481	6.481	(0.000)	0			116.91- 156.91	0.00
7.349	7.354	(-0.005)	49985	0.11522	38.406	120.00- 160.00	0.00
8.153	8.151	(0.002)	34188	0.15825	52.752	108.33- 148.33	0.00
Average of Peak Concentrations =					45.781		

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\qpitpa02\d\chem\gc8.i\6060.b\H-A60141.D
Report Date: 11-Sep-2000 13:04

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		

Operator disabled compound identification.

20 Aroclor-1016					CAS #: 12674-11-2		

Peaks not detected for Quant. or Qual. signal(s).

21 Aroclor-1248					CAS #: 12672-29-6		
3.469	3.469	(0.000)	183878	1.03569	34523	0.00- 0.00	0.00
3.917	3.917	(0.000)	198178	1.17333	39111	114.57- 154.57	0.00
4.265	4.265	(0.000)	225955	1.12453	37484	63.67- 103.67	0.00
4.366	4.365	(0.001)	234455	1.25632	41877	43.86- 83.86	0.00
4.784	4.786	(-0.002)	208498	1.04726	34908	128.08- 168.08	0.00
		Average of Peak Concentrations =			37581		
33 Aroclor-1254					CAS #: 11097-69-1		
4.480	4.477	(0.003)	82676	0.43871	14624	0.00- 0.00	0.00
4.556	4.553	(0.003)	85712	0.37930	12643	92.23- 132.23	0.00
5.192	5.191	(0.001)	77373	0.45308	15103	77.40- 117.40	0.00
5.363	5.360	(0.003)	140899	0.41540	13846	51.09- 91.09	0.00
5.539	5.535	(0.004)	82903	0.38584	12861	65.01- 105.01	0.00
		Average of Peak Concentrations =			13815		
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.816	10.817	(-0.001)	818	<0.0	10.384		(R)
36 Aroclor-1260					CAS #: 11096-82-5		
5.632	5.634	(-0.002)	35033	0.12975	4325.0	0.00- 0.00	0.00
5.755	5.755	(0.000)	0			95.86- 135.86	0.00
6.479	6.481	(-0.002)	37829	0.13222	4407.3	116.91- 156.91	0.00
7.353	7.354	(-0.001)	34389	0.07927	2642.2	120.00- 160.00	0.00
8.152	8.151	(0.001)	16275	0.07534	2511.2	108.33- 148.33	0.00
		Average of Peak Concentrations =			3471.4		

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

535-TB10-0002

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RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		

Operator disabled compound identification.

20 Aroclor-1016					CAS #: 12674-11-2		

Operator disabled compound identification.

21 Aroclor-1248					CAS #: 12672-29-6		
3.469	3.471	(-0.002)	265779	1.27627	8508.5	0.00- 0.00	0.00(M)
3.919	3.918	(0.001)	289624	1.46492	9766.2	114.57- 154.57	0.00
4.268	4.269	(-0.001)	353450	1.51052	10070	63.67- 103.67	0.00
4.368	4.367	(0.001)	361717	1.65085	11006	43.86- 83.86	0.00
4.789	4.788	(0.001)	329783	1.41194	9412.9	128.08- 168.08	0.00
		Average of Peak Concentrations =			9752.7		
33 Aroclor-1254					CAS #: 11097-69-1		
4.484	4.483	(0.001)	120124	0.51784	3452.2	0.00- 0.00	0.00(M)
4.559	4.558	(0.001)	126565	0.47046	3136.4	92.23- 132.23	0.00
5.196	5.195	(0.001)	121149	0.59363	3957.6	77.40- 117.40	0.00
5.365	5.365	(0.000)	224114	0.53688	3579.2	51.09- 91.09	0.00
5.539	5.540	(-0.001)	133516	0.50742	3382.8	65.01- 105.01	0.00
		Average of Peak Concentrations =			3501.6		
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.819	10.821	(-0.002)	3440	0.00109	7.2826		
36 Aroclor-1260					CAS #: 11096-82-5		
5.637	5.636	(0.001)	51607	0.15917	1061.1	0.00- 0.00	0.00(M)
5.758	5.758	(0.000)	0			95.86- 135.86	0.00
6.481	6.483	(-0.002)	59401	0.17314	1154.3	116.91- 156.91	0.00
7.357	7.357	(0.000)	53867	0.10393	692.88	120.00- 160.00	0.00
8.157	8.156	(0.001)	26130	0.10075	671.68	108.33- 148.33	0.00
		Average of Peak Concentrations =			894.99		

QC Flag Legend

M - Compound response manually integrated.

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M F G
consulting scientists and engineers

800 Vinial Street, Building A
Pittsburgh, PA 15212-1528
412/321- 2278
Fax: 412/321- 2283

MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: October 17, 2000

SUBJECT: Data Validation of: PCBs, Total and Weak Acid Dissociable Cyanide, Fluoride, and Percent Moisture

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Re: Severn Trent Laboratories, Inc.
Package No.: C0H300198

Soil/Sediment Samples:

S35-TB04-0002
S35-TB10-0002
S35-TB11-0002D
S46-SS03-0.0-0.5
S46-TP14-0708
S35-TB06-0002
S35-TB10-0406
S46-SS01-0.0-0.5
S46-TP12-0708
S35-TB07-0002
S35-TB11-0002
S46-SS02-0.0-0.5
S46-TP13-0910

Equipment Rinsate Blanks:

S35-TB10-0002-EB

Field Duplicates:

Sample S35-TB11-0002D is a field duplicate of sample S35-TB11-0002.

Overview

This set of samples collected on August 26 through 29, 2000 for the Alcoa Badin Site contains thirteen (13) soil samples, including one (1) field duplicate pair, and one (1) equipment rinsate blank. The samples were analyzed for PCBs and total cyanide by USEPA SW-846 Methods 8082 and 9012A, respectively. The samples were also analyzed for weak acid dissociable (WAD) cyanide by Standard Method SM18-4500-CN-I, fluoride by MCAWW 340.2, and percent solids by MCAWW 160.3. Note that not all samples were analyzed for all parameters.

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Summary

All compounds were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Minor Issues

PCBs

Note that samples S35-TB06-0002 (50X), S35-TB10-0002 (100X), and S35-TB10-0406 (20X) were analyzed with dilution in the PCB analyses due to high target compound values. As a result, the detection limits for these samples are elevated.

Total Cyanide

No problems encountered.

WAD Cyanide

No problems encountered.

Fluoride

Samples S46-SS03-0.0-0.5 (2X) and S35-TB10-0406 (10X) were run with dilution in the fluoride analysis. As a result, the detection limits for these samples are elevated.

Percent Solids

Note that two sets of percent solids analyses were performed due to the fact that samples were sent to STL Savannah for fluoride analysis and an independent percent analysis was performed at this location. Only the original percent solids analysis supplied with the original data package prepared by STL Pittsburgh were retained on the validated data summary.

Notes

Note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

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Note that as discussed in the case narrative, a bottle for fluoride analysis of the equipment rinsate blank S35-TB10-0002-EB was listed on the chain-of custody but was not received. However, two bottles for cyanide were received. As a result, an aliquot from the unpreserved PAH bottle was used for the fluoride analysis.

Note that the surrogates diluted out in samples S35-TB06-0002 (50X), S35-TB10-0002 (100X), S35-TB10-0406 (20X), and the MS/MSD (20X) analyses performed on S35-TB10-0406. In addition, the MS/MSD spikes added to sample S35-TB10-0406 were not recovered due to the high dilution factor (20X) necessary to quantitate the sample results. As a result, these criteria in these samples could not be evaluated.

The surrogate percent recovery for decachlorobiphenyl in the matrix spike duplicate of sample S35-TB04-0002 was greater than the control limit. As all site samples were within QC limits, except as noted above, and this was itself a QC sample, no action was taken.

In addition, due to low sample volume available for the equipment rinsate blank, S35-TB10-0002-EB, only 850 ml of sample were extracted instead of the typical one liter for the PCB analyses. As a result, the detection limits for this sample were elevated to approximately 1.2 times the normal values.

Note that many of the calibration standards run with the PCB analyses did not have retention time information for the surrogates tetrachloro-m-xylene (TCX) or decachlorobiphenyl (DCB) reported on the associated Form VIIIs. It appears that these surrogates were added to the standard solutions but just not reported. However, this information was provided for all five point calibration standards, all 1016 CCVs, and all site and associated QC samples. As all of the retention time criteria were met, no action was deemed necessary.

Note that one peak for aroclor 1260 in samples S35-TB04-0002, S35-TB07-0002, S35-TB10-0002, and S35-TB10-0406 was missing. However, as the other peaks representing this aroclor were present no action was deemed necessary.

Note that per the cooler receipt form no custody seals were present on the sample coolers upon receipt by the laboratory. As a result the integrity of the samples could not be evaluated.

Note that as stated in the case narrative, STL Pittsburgh reports weak acid dissociable cyanide (by Standard Method SM18-4500-CN-I) as free cyanide. This has been changed on the validated data summary to dissociable cyanide for clarity.

Note that a CRA standard was not provided for the total or WAD cyanide analyses. However, a review of the raw data showed that the laboratory did rerun high and low initial calibration standards (with the low standard being within 5 times the reporting limit) after the initial calibration was performed to assess the goodness of the curve. All of these percent recoveries were acceptable and no action was taken.

Note that per the laboratory distilled midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total or WAD cyanide samples prepared on September 1, 2000 (soil) or September 5, 2000 (aqueous). However, a laboratory control sample is prepared with each batch and the results of the LCSs were acceptable.

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Note that all samples were also analyzed for polynuclear aromatic hydrocarbons (PAHs) with this SDG. However, this fraction was not validated and is not provided on the validated data summary

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of four times the reporting limit was utilized to assess the absolute difference between the sample results (soils) when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

The organic data were reviewed according to the U.S. EPA's National Functional Guidelines for Organic Data Review (February, 1994) while the inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Alcoa Badin
SDG - C0H300198

	ANALYTICAL METHOD	S35-TB04-0002	S35-TB06-0002	S35-TB07-0002	S35-TB10-0002	S35-TB10-0002EB	S35-TB10-0406	S35-TB11-0002	S35-TB11-0002D
	Units[1]	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg
	Sampled	8/26/00	8/26/00	8/26/00	8/27/00	8/27/00	8/27/00	8/27/00	8/27/00
Wet Chemistry Parameters									
Percent Solids	E160.3	73.0	77.8	88.1	84.8	NA	76.7	91.4	89.7
Cyanide, Dissociable	SM4500-CN-I	0.69 U	0.64 U	0.57 U	0.59 U	0.010 U	2.1	0.55 U	0.56 U
Cyanide, Total	SW9012A	0.89	2.4	3.0	0.59 U	0.010 U	10.6	0.55 U	0.56 U
Fluoride	340.2-EXT	60	170	320	110	0.20 U	4500	91	89
PCBs									
Aroclor 1016	SW8082	0.045 U	2.1 U	0.037 U	3.9 U	0.0012 U	0.86 U	0.036 U	0.037 U
Aroclor 1221	SW8082	0.045 U	2.1 U	0.037 U	3.9 U	0.0012 U	0.86 U	0.036 U	0.037 U
Aroclor 1232	SW8082	0.045 U	2.1 U	0.037 U	3.9 U	0.0012 U	0.86 U	0.036 U	0.037 U
Aroclor 1242	SW8082	0.045 U	2.1 U	0.037 U	3.9 U	0.0012 U	0.86 U	0.036 U	0.037 U
Aroclor 1248	SW8082	0.045 U	17	0.037 U	44	0.0012 U	13	0.036 U	0.037 U
Aroclor 1254	SW8082	0.045 U	6.9	0.037 U	16	0.0012 U	4.6	0.036 U	0.037 U
Aroclor 1260	SW8082	0.12	2.4	0.052	4.1	0.0012 U	1.2	0.036 U	0.037 U
Appendix IX PAHs									
Acenaphthene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	0.72 U	0.74 U
Acenaphthylene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	0.72 U	0.74 U
Anthracene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	0.72 U	0.74 U
Benzo(a)anthracene	SW8270C	4.1	0.86	2.1	0.58	0.012 U	0.43 U	4.3	5.9
Benzo(a)pyrene	SW8270C	5.1	1.1	2.6	0.67	0.012 U	0.43 U	5.1	7.2
Benzo(b)fluoranthene	SW8270C	5.9	1.7	4.4	1	0.012 U	0.43 U	6.8	9.6
Benzo(ghi)perylene	SW8270C	4.5	0.75	1.5	0.44	0.012 U	0.43 U	2.7	3.2
Benzo(k)fluoranthene	SW8270C	3.2	0.85	1.7	0.69	0.012 U	0.43 U	2.4	3.5
Chrysene	SW8270C	5.6	1.3	3	0.94	0.012 U	0.43 U	5.9	8.2
Dibenz(a,h)anthracene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	1.1	1.4
Fluoranthene	SW8270C	6.6	1.5	3.5	1.1	0.012 U	0.6	7.3	10
Fluorene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	0.72 U	0.74 U
Indeno(1,2,3-cd)pyrene	SW8270C	4.3	0.76	1.6	0.43	0.012 U	0.43 U	3.1	3.9
Naphthalene	SW8270C	2.3 U	0.42 U	0.75 U	0.39 U	0.012 U	0.43 U	0.72 U	0.74 U
Phenanthrene	SW8270C	2.6	0.7	1.8	0.51	0.012 U	0.43 U	3	3.9
Pyrene	SW8270C	5.2	0.96	2.4	0.79	0.012 U	0.43 U	5.8	7.8

NA - Not Analyzed
(1) - except percent solids

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Dat ımary
Alcoa Badin
SDG - C0H300198

	ANALYTICAL METHOD Units[1] Sampled	S46-SS01-0.0-0.5 mg/kg 8/29/00		S46-SS02-0.0-0.5 mg/kg 8/29/00		S46-SS03-0.0-0.5 mg/kg 8/29/00		S46-TP12-0708 mg/kg 8/28/00		S46-TP13-0910 mg/kg 8/28/00		S46-TP14-0708 mg/kg 8/28/00	
Percent Solids	E160.3	93.0		86.6		92.7		85.4		80.6		82.8	
Cyanide, Dissociable	SM4500-CN-I	0.54	U	0.58	U	0.54	U	0.59	U	0.62	U	0.60	U
Cyanide, Total	SW9012A	0.73		0.58	U	3.6		4.4		1.4		0.60	U
Fluoride	340.2-EXT	150		77		650		88		7.1		4.9	U
Aroclor 1016	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1221	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1232	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1242	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1248	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1254	SW8082	NA		NA		NA		NA		NA		NA	
Aroclor 1260	SW8082	NA		NA		NA		NA		NA		NA	
Acenaphthene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Acenaphthylene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Anthracene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Benzo(a)anthracene	SW8270C	1.6		0.61		0.49		0.39	U	0.41	U	0.4	U
Benzo(a)pyrene	SW8270C	1.3		0.62		0.59		0.39	U	0.41	U	0.4	U
Benzo(b)fluoranthene	SW8270C	2.9		1.2		1		0.39	U	0.41	U	0.4	U
Benzo(ghi)perylene	SW8270C	1.1		0.43		0.39		0.62		0.41	U	0.4	U
Benzo(k)fluoranthene	SW8270C	1		0.56		0.46		0.39	U	0.41	U	0.4	U
Chrysene	SW8270C	3.1		0.93		0.69		0.52		0.41	U	0.4	U
Dibenz(a,h)anthracene	SW8270C	0.39		0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Fluoranthene	SW8270C	1.9		1.1		0.63		0.39	U	0.41	U	0.4	U
Fluorene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Indeno(1,2,3-cd)pyrene	SW8270C	1.1		0.47		0.42		0.4		0.41	U	0.4	U
Naphthalene	SW8270C	0.35	U	0.38	U	0.36	U	0.39	U	0.41	U	0.4	U
Phenanthrene	SW8270C	0.36		0.39		0.36	U	0.39	U	0.41	U	0.4	U
Pyrene	SW8270C	1.9		0.79		0.64		0.39	U	0.41	U	0.4	U

NA - Not Analyzed
(1) - except percent solids

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Results as Reported by the Laboratory

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 001

Sample WT/Vol: 30 / g
Work Order: DJLX2109
Dilution factor: 50
Moisture %:22

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/11/00

QC Batch: 0251478

Client Sample Id: S35-TB06-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	2100	U
11104-28-2	Aroclor 1221	2100	U
11141-16-5	Aroclor 1232	2100	U
53469-21-9	Aroclor 1242	2100	U
12672-29-6	Aroclor 1248	17000	
11097-69-1	Aroclor 1254	6900	
11096-82-5	Aroclor 1260	2400	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 002

Sample WT/Vol: 30 / g
Work Order: DJLX9103
Dilution factor: 1
Moisture %:27

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/08/00

QC Batch: 0251478

Client Sample Id: S35-TB04-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	45	U
11104-28-2	Aroclor 1221	45	U
11141-16-5	Aroclor 1232	45	U
53469-21-9	Aroclor 1242	45	U
12672-29-6	Aroclor 1248	45	U
11097-69-1	Aroclor 1254	45	U
11096-82-5	**Aroclor 1260**	120	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 004

Sample WT/Vol: 30 / g
Work Order: DJLXH103
Dilution factor: 1
Moisture %:8.6

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/08/00

QC Batch: 0251478

Client Sample Id: S35-TB11-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	36	U
11096-82-5	Aroclor 1260	36	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H300198 005
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30 / g Date Received: 08/30/00
Work Order: DJM00103 Date Extracted:09/07/00
Dilution factor: 1 Date Analyzed: 09/08/00
Moisture %:10

QC Batch: 0251478

Client Sample Id: S35-TB11-0002D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	37	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 006

Sample WT/Vol: 30 / g
Work Order: DJM05103
Dilution factor: 100
Moisture %:15

Date Received: 08/30/00
Date Extracted:09/07/00
Date Analyzed: 09/11/00

QC Batch: 0251478

Client Sample Id: S35-TB10-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	3900	U
11104-28-2	Aroclor 1221	3900	U
11141-16-5	Aroclor 1232	3900	U
53469-21-9	Aroclor 1242	3900	U
12672-29-6	Aroclor 1248	44000	
11097-69-1	Aroclor 1254	16000	
11096-82-5	Aroclor 1260	4100	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 007

Sample WT/Vol: 850 / mL
Work Order: DJM0E101
Dilution factor: 1
Moisture %:NA

Date Received: 08/30/00
Date Extracted:08/31/00
Date Analyzed: 09/02/00

QC Batch: 0244412

Client Sample Id: S35-TB10-0002EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
12674-11-2	Aroclor 1016	1.2	U
11104-28-2	Aroclor 1221	1.2	U
11141-16-5	Aroclor 1232	1.2	U
53469-21-9	Aroclor 1242	1.2	U
12672-29-6	Aroclor 1248	1.2	U
11097-69-1	Aroclor 1254	1.2	U
11096-82-5	Aroclor 1260	1.2	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 008

Sample WT/Vol: 30 / g
Work Order: DJM21103
Dilution factor: 20
Moisture %:23

Date Received: 08/30/00
Date Extracted:09/08/00
Date Analyzed: 09/12/00

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	860	U
11104-28-2	Aroclor 1221	860	U
11141-16-5	Aroclor 1232	860	U
53469-21-9	Aroclor 1242	860	U
12672-29-6	Aroclor 1248	13000	
11097-69-1	Aroclor 1254	4600	
11096-82-5	Aroclor 1260	1200	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H300198 003
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30 / g Date Received: 08/30/00
Work Order: DJLXE103 Date Extracted:09/07/00
Dilution factor: 1 Date Analyzed: 09/08/00
Moisture %:12

QC Batch: 0251478

Client Sample Id: S35-TB07-0002

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	52	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB06-0002

General Chemistry

Lot-Sample #...: C0H300198-001 Work Order #...: DJLX2 Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.64	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
	Dilution Factor: 1			MS Run #.....: 0245043		
Cyanide, Total	2.4	0.64	mg/kg	SW846 9012A	09/01-09/07/00	0245150
	Dilution Factor: 1			MS Run #.....: 0245041		
Percent Solids	77.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
	Dilution Factor: 1			MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB04-0002

General Chemistry

Lot-Sample #...: C0H300198-002 Work Order #...: DJLX9 Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 27

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.69	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	0.89	0.69	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	73.0		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB07-0002

General Chemistry

Lot-Sample #...: C0H300198-003 Work Order #...: DJLXE Matrix.....: SOLID
Date Sampled...: 08/26/00 Date Received..: 08/30/00
% Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.57	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	3.0	0.57	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	88.1		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Resuks and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB11-0002

General Chemistry

Lot-Sample #...: C0H300198-004 Work Order #...: DJLXH Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 8.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.55	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.55	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	91.4		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB11-0002D

General Chemistry

Lot-Sample #...: C0H300198-005 Work Order #...: DJM00 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.56	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.56	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	89.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0002

General Chemistry

Lot-Sample #...: C0H300198-006 Work Order #...: DJM05 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.59	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.59	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	84.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0002EB

General Chemistry

Lot-Sample #...: C0H300198-007 Work Order #...: DJM0E Matrix.....: WATER
Date Sampled...: 08/27/00 Date Received..: 08/30/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.010	mg/L	SM18 4500-CN-I	09/05-09/07/00	0249188
		Dilution Factor: 1		MS Run #.....: 0249084		
Cyanide, Total	ND	10.0	ug/L	SW846 9012A	09/05-09/07/00	0249180
		Dilution Factor: 1		MS Run #.....:		

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S35-TB10-0406

General Chemistry

Lot-Sample #...: C0H300198-008 Work Order #...: DJM21 Matrix.....: SOLID
Date Sampled...: 08/27/00 Date Received..: 08/30/00
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	2.1	0.65	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	10.6	0.65	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	76.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP12-0708

General Chemistry

Lot-Sample #...: C0H300198-009 Work Order #...: DJM49 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.59	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	4.4	0.59	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	85.4		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP13-0910

General Chemistry

Lot-Sample #...: C0H300198-010 Work Order #...: DJM58 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.62	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	1.4	0.62	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	80.6		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-TP14-0708

General Chemistry

Lot-Sample #...: C0H300198-011 Work Order #...: DJM59 Matrix.....: SOLID
Date Sampled...: 08/28/00 Date Received..: 08/30/00
% Moisture....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.60	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.60	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	82.8		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS01-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-012 Work Order #...: DJM5C Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 7.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.54	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	0.73	0.54	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	93.0		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS02-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-013 Work Order #...: DJM5E Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.58	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.58	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	86.6		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S46-SS03-0.0-0.5

General Chemistry

Lot-Sample #...: C0H300198-014 Work Order #...: DJM5G Matrix.....: SOLID
Date Sampled...: 08/29/00 Date Received..: 08/30/00
% Moisture.....: 7.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.54	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	3.6	0.54	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	92.7		%	MCAWW 160.3 MOD	08/31-09/01/00	0244262
		Dilution Factor: 1		MS Run #.....: 0245072		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: S0-05964
Received: 31 AUG 00
Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-6	S35-TB10-0002*SO	08-27-00/15:00	ALCO01
05964-7	S35-TB10-0406*SO	08-27-00/15:20	ALCO01
05964-8	S46-TB12-0708*SO	08-28-00/09:50	ALCO01
05964-9	S46-TP13-0910*SO	08-28-00/12:20	ALCO01
05964-10	S46-TP14-0708*SO	08-28-00/14:02	ALCO01

PARAMETER	05964-6	05964-7	05964-8	05964-9	05964-10
Fluoride (340.2-EXT), mg/kg dw	110	4500	88	7.1	4.9U
Dilution Factor	1	10	1	1	1
Prep Date	09.12.00	09.12.00	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A	0912A	0912A
Percent Solids	75	81	84	80	82

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Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-1	S35-TB06-0002*SO	08-26-00/14:50	ALCO01
05964-2	S35-TB04-0002*SO	08-26-00/16:24	ALCO01
05964-3	S35-TB07-0002*SO	08-26-00/16:50	ALCO01
05964-4	S35-TB11-0002*SO	08-27-00/14:35	ALCO01
05964-5	S35-TB11-0002D*SO	08-27-00/14:35	ALCO01

PARAMETER	05964-1	05964-2	05964-3	05964-4	05964-5
Fluoride (340.2-EXT), mg/kg dw	170	60	320	91	89
Dilution Factor	1	1	1	1	1
Prep Date	09.12.00	09.12.00	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A	0912A	0912A
Percent Solids	72	78	91	89	88

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Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-11	S46-SS01-0.0-0.5*SO	08-29-00/08:35	ALCO01
05964-12	S46-SS02-0.0-0.5*SO	08-29-00/08:43	ALCO01
05964-13	S46-SS03-0.0-0.5*SO	08-29-00/08:48	ALCO01

PARAMETER	05964-11	05964-12	05964-13
Fluoride (340.2-EXT), mg/kg dw	150	77	650
Dilution Factor	1	1	2
Prep Date	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A
Percent Solids	92	86	91

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LOG NO: S0-05964
Received: 31 AUG 00
Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16590102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
05964-14	S35-TB10-0002EB*WH	08-17-00/15:05	ALCO01

PARAMETER	05964-14
Fluoride (340.2), mg/l	0.20U
Dilution Factor	1
Prep Date	09.14.00
Analysis Date	09.14.00
Analysis Time	16:15
Batch ID	0914A

Code of Federal Regulations, Title 40, Part 136; Washington DC, July 1, 1997.

Angie Stewart, Project Manager

Final Page Of Report

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Support Documentation

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CASE NARRATIVE

MFG Environmental
Alcoa Badin, NC Works

STL Lot # C0H300198

Sample Receiving:
STL Pittsburgh received samples for analysis August 30, 2000. The cooler temperatures were within the proper temperature range.

The chain of custody has listed a fluoride bottle for sample S35-TB10-0002 EB. The laboratory did not receive a sample bottle for fluoride. Two sample bottles for cyanide were received. An unpreserved portion from the organic bottles was taken for the fluoride analysis.

GC/MS Semivolatiles:
Due to the concentration of target compounds detected, several samples were analyzed at dilutions.

Sample S35-TB11-0002 was analyzed at a 2X and a 4X dilution. On both of these analyses the surrogate recovery for nitrobenzene-d5 was outside of the control limits.

Due to low sample volume, sample S35-TB10-0002EB was extracted using 830 ml's instead of 1 liter. This elevated the detection limit by a factor of 1.2X.

PCB's:
Due to the concentration of target compounds detected, samples S35-TB06-0002, S35-TB10-0002, and S35-TB10-0406 were analyzed at dilutions. These samples had the surrogates diluted out.

The matrix spike and matrix spike duplicate for sample S35-TB10-0406 were analyzed at 20X dilutions. The surrogates and spikes were diluted out.

The matrix spike duplicate for sample S35-TB04-0002 had decachlorobiphenyl surrogate recovery outside of the control limits.

Due to low sample volume, sample S35-TB10-0002EB was extracted using 850ml's instead of 1 liter. This elevated the detection limit by a factor of 1.2X.

General Chemistry:
As a general comment, please note that in the STL Pittsburgh lab reports the method description for *SM4500-CN-I* will read Free Cyanide and not Weak Acid Dissociable Cyanide.

There were no problems associated with the analyses.

STL Savannah performed the fluoride analysis. The data will be submitted at a later date.

Cooler Receipt Form

STL Pittsburgh

Client: MEG Project: _____ Quote: _____

Cooler Rec'd & Opened for Temp. Check on: 8/30/08

Coolers Opened and Unpacked on: 8/30/08 By _____ (Signature)

STL Pittsburgh Lot Number: COH300198

		Yes	No
1.	Were custody seals on the outside of the cooler?		
	If YES, how many and where? Quantity __ Location		
	Were signatures and date correct?		
2.	Were custody papers included inside the cooler?		
3.	Were custody papers properly filled out (ink, signed, match labels)?	✓	
4.	Did you sign the custody papers in the appropriate place?	✓	
5.	Was shippers packing slip attached to this form?	✓	
6.	Were packing materials used?	✓	
	If YES, what type?		
7.	Were the samples chilled? (Record temperatures on reverse side.)	✓	
8.	Were the samples appropriately preserved?	✓	
9.	Were all bottles sealed in separate plastic bags?	✓	
10.	Did all bottles arrive in good condition (unbroken)?	✓	
11.	Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12.	Did all bottle labels and/or tags agree with custody papers?	✓	
13.	Were correct bottles used for tests indicated?	✓	
14.	Were all VOA vials checked for the presence of air bubbles?	NA	
15.	Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: FEDEX UPS CLIENT DROP-OFF OTHER AIRBORNE

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

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8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 08/10/00 08/22/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.81

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	08/10/00	1021	1.73	10.81
02		M1232	08/10/00	1041		
03		M1242	08/10/00	1100		
04		M1248	08/10/00	1120		
05		L1660	08/10/00	1139	1.73	10.81
06		ML1660	08/10/00	1159	1.73	10.81
07		M1660	08/10/00	1218	1.73	10.81
08		MH1660	08/10/00	1238	1.73	10.81
09		H1660	08/10/00	1257	1.73	10.81
10		2ND2154	08/10/00	1317	1.73	
11		2ND1232	08/10/00	1336		
12		2ND1242	08/10/00	1355		
13		2ND1248	08/10/00	1415		
14		2ND1660	08/10/00	1434		
15		M2154	08/30/00	1126	1.69 1.73	10.81
16		M1232	08/30/00	1146		
17		M1242	08/30/00	1205		
18		M1248	08/30/00	1225		
19		M1660	08/30/00	1244	1.73	10.82
20		M1660	09/01/00	2349	1.73	10.82
21	S35-TB10-000	DJM0E101	09/02/00	0107	1.74	10.82
22	PBLK	DJPP5101	09/02/00	0127	1.73	10.82
23	LCS	DJPP5102	09/02/00	0146	1.74	10.82
24	LCSD	DJPP5103	09/02/00	0206	1.74	10.82
25		M1660	09/02/00	0225	1.74	10.82
26						
27						
28						
29						
30						
31						
32						

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/06/00 09/06/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	09/06/00	1502	1.73	10.81
02		M1232	09/06/00	1522		
03		M1242	09/06/00	1542		
04		M1248	09/06/00	1601		
05		L1660	09/06/00	1621	1.73	10.81
06		ML1660	09/06/00	1641	1.73	10.81
07		M1660	09/06/00	1700	1.73	10.82
08		MH1660	09/06/00	1720	1.73	10.81
09		H1660	09/06/00	1740	1.73	10.81
10		2ND2154	09/06/00	1800	1.73	
11		2ND1232	09/06/00	1819		
12		2ND1242	09/06/00	1839		
13		2ND1248	09/06/00	1859		
14		2ND1660	09/06/00	1918	1.70	
15		M1660	09/08/00	1105	1.73	10.80
16	PBLK	DK270101	09/08/00	1439	1.73	10.81
17	LCS	DK270102	09/08/00	1458	1.73	10.82
18	S35-TB04-000	DJLX9103	09/08/00	1537	1.73	10.81
19	S35-TB04-000	DJLX9107	09/08/00	1557	1.73	10.81
20	S35-TB04-000	DJLX9108	09/08/00	1616	1.73	10.81
21	S35-TB07-000	DJLXE103	09/08/00	1636	1.73	10.81
22	S35-TB11-000	DJLXH103	09/08/00	1655	1.73	10.81
23	S35-TB11-000	DJM00103	09/08/00	1715	1.73	10.81
24		M1660	09/08/00	1754	1.73	10.82
25		M2154	09/11/00	1046	1.73	10.80
26		M1232	09/11/00	1106		
27		M1242	09/11/00	1125		
28		M1248	09/11/00	1145		
29		M1660	09/11/00	1204	1.73	10.81
30	S35-TB06-000	DJLX2109	09/11/00	1224	1.73	10.82
31	S35-TB10-000	DJM05103	09/11/00	1243	1.73	10.82
32	PBLK2439	DK4DK101	09/11/00	1716	1.73	10.82

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

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8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/06/00 09/06/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	LCS2439	DK4DK102	09/11/00	1735	1.73	10.82
02		M1660 (c)	09/11/00	1853	1.73	10.82
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

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8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: C0H300198

GC Column: DB608 ID: 0.53 (mm) Init. Calib. Date(s): 09/12/00 09/12/00

Instrument ID: GC8

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 1.73 DCB: 10.82

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01		M2154	09/12/00	1231	1.73	10.82
02		M1232	09/12/00	1251		
03		M1242	09/12/00	1310		
04		M1248	09/12/00	1330		
05		L1660	09/12/00	1349	1.73	10.82
06		ML1660	09/12/00	1409	1.73	10.82
07		M1660	09/12/00	1428	1.73	10.82
08		MH1660	09/12/00	1447	1.73	10.82
09		H1660	09/12/00	1507	1.73	10.82
10		2ND2154	09/12/00	1526	1.73	
11		2ND1232	09/12/00	1546		
12		2ND1242	09/12/00	1605		
13		2ND1248	09/12/00	1625		
14		2ND1660	09/12/00	1644	1.70	
15	S35-TB10-040	DJM21103	09/12/00	1920	1.73	10.82
16	S35-TB10-040	DJM21107	09/12/00	1940	1.73	10.82
17	S35-TB10-040	DJM21108	09/12/00	1959	1.73	10.82
18		M1660	09/12/00	2334	1.73	10.82
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS
TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.07 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 008

Sample WT/Vol: 30 / g
Work Order: DJM21107
Dilution factor: 20
Moisture %:23

Date Received: 08/30/00
Date Extracted:09/08/00
Date Analyzed: 09/12/00

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg		Q
12674-11-2	Aroclor 1016			NC DIL
11096-82-5	Aroclor 1260			NC DIL

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE DUPLICATE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID
Method: SW846 8082
PCBs (8082)

Lab Sample ID:C0H300198 008

Sample WT/Vol: 30 / g
Work Order: DJM21108
Dilution factor: 20
Moisture %:23

Date Received: 08/30/00
Date Extracted:09/08/00
Date Analyzed: 09/12/00

QC Batch: 0252439

Client Sample Id: S35-TB10-0406

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg		Q
12674-11-2	Aroclor 1016			NC DIL
11096-82-5	Aroclor 1260			NC DIL

FORM I

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: S35-TB10-0406 Level: (low/med) LOW

Lot #: C0H300198 WO #: DJM21107
BATCH: 0252439

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Aroclor 1016	435	ND		0*	26 - 144	NC DIL
Aroclor 1260	435	1200		0*	37 - 138	NC DIL

NOTES(S):

NC The recovery and/or RPD were not calculated.
DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 2 out of 2 outside limits

COMMENTS:

FORM III

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: S35-TB10-0406 Level: (low/med) LOW

Lot #: C0H300198 WO #: DJM21108
BATCH: 0252439

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Aroclor 1016	435		0*		39	26 - 144	NC DIL
Aroclor 1260	435		0*		33	37 - 138	NC DIL

NOTES(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 2 outside limits
pike Recovery: 2 out of 2 outside limits

OMMENTS:

FORM III

SW846 8082 CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Lot #: C0H310000 WO #: DJPP5103
BATCH: 0244412

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	% REC	QC LIMITS REC	QUAL	RPD
Aroclor 1016	10.0	9.30	93	69 61 - 118		4.4%
Aroclor 1260	10.0	10.1	101	67 61 - 124		4.0%

RPD 4.2 < 12.6 ok

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III

SW846 8082 SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEE

Lab Code: QESPIT QESSDG:

Lot #: C0H300198

	CLIENT ID.	SRG01	SRG02	TOT OUT	
01	S35-TB07-0002	80	108	00	
02	S35-TB11-0002	72	92	00	
03	S35-TB06-0002	0 D	0 D	02	ok
04	S35-TB04-0002	59	136	00	
05	S35-TB11-0002D	67	105	00	
06	S35-TB10-0002	0 D	0 D	02	ok
07	S35-TB10-0406	0 D	0 D	02	ok
08	METHOD BLK. DK270101	86	88	00	
09	METHOD BLK. DK4DK101	80	84	00	
10	LCS DK270102	91	92	00	
11	LCS DK4DK102	87	85	00	
12	S35-TB04-0002 D	71	150*	01	ok
13	S35-TB10-0406 D	0 D	0 D	02	ok
14	S35-TB04-0002 S	71	138	00	
15	S35-TB10-0406 S	0 D	0 D	02	ok

SURROGATES		QC LIMITS
SRG01	= Tetrachloro-m-xylene	(31-127)
SRG02	= Decachlorobiphenyl	(23-141)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

Results: C:\FLOW_4\090700A.RST
Results completed: 13:04 September 07, 2000.
Operator: ERIC WESOLOSKI

E. T. Wesoloski 9/7/00

CYANIDE

Time	Cup	Name	Height	Calc.	Flags
---------- User request: Start Data Collect ----------					
09:31	0	CARRYOVER	486	0.001285	
09:32	0	CARRYOVER	46	0.000039	
		Mean & RSD:	266	0.000662	NoRSD
09:33	0	READ BASELIN	0	-0.000090	BL
09:34	301	0.500 PPM ST	163732	0.463259	
09:36	301	0.500 PPM ST	167832	0.474862	
09:37	301	0.500 PPM ST	167803	0.474780	
		Mean & RSD:	166455	0.470967	1.42%
09:38	302	0.400 PPM ST	135738	0.384040	
09:39	302	0.400 PPM ST	137187	0.388139	
09:40	302	0.400 PPM ST	137619	0.389362	
		Mean & RSD:	136848	0.387180	.72%
09:41	303	0.300 ppm ST	104777	0.296422	
09:43	303	0.300 ppm ST	105433	0.298277	
09:44	303	0.300 ppm ST	104759	0.296369	
		Mean & RSD:	104990	0.297023	.366%
09:45	304	0.200 PPM ST	69847	0.197571	
09:46	304	0.200 PPM ST	70465	0.199320	
09:47	304	0.200 PPM ST	70732	0.200077	
		Mean & RSD:	70348	0.198989	.646%
09:48	305	0.100 PPM ST	35693	0.100918	
09:50	305	0.100 PPM ST	35553	0.100523	
09:51	305	0.100 PPM ST	35671	0.100858	
		Mean & RSD:	35639	0.100766	.211%
:52	306	0.050 PPM ST	17818	0.050334	
:53	306	0.050 PPM ST	17708	0.050022	
09:54	306	0.050 PPM ST	17662	0.049893	
		Mean & RSD:	17729	0.050083	.451%
09:55	307	0.010 PPM ST	4221	0.011855	OL
09:57	307	0.010 PPM ST	3987	0.011191	
09:58	307	0.010 PPM ST	3969	0.011142	
		Mean & RSD:	3978	0.011167	3.54%
09:59	0	0.000 PPM ST	-59	-0.000257	LO
10:00	0	0.000 PPM ST	-47	-0.000224	LO
10:01	0	0.000 PPM ST	3	-0.000083	LO OL
		Mean & RSD:	-53	-0.000240	61.7%
10:02	0	BLANK	-31	-0.000179	LO
10:04	2	CCV 7211705	37066	0.104805	104.8%
10:05	0	CCB	7	-0.000070	LO
10:06	0	BASELINE	0	-0.000090	BL
10:07	101	.05 7211702	15897	0.044898	90%
10:08	102	.40 7211703	128792	0.364382	91%
10:09	0	BLANK	-4	-0.000102	LO

Page #1
Run Results Report

E. T. Wesoloski
9/7/00

Run Results Report
Results: C:\FLOW_4\090700B.RST
Results completed: 15:21 September 07, 2000.
Operator: ERIC WESOLOSKI

Eric L. Wesoloski 9/7/00

CYANIDE

Time	Cup	Name	Height	Calc.	Flags
----------	User request:	Start Data Collect	----------		
13:19	0	CARRYOVER	454	0.001066	
13:20	0	CARRYOVER	-34	-0.000227	LO
	Mean & RSD:		210	0.000419	NoRSD
13:21	0	READ BASELIN	0	-0.000137	BL
13:22	301	0.500 PPM ST	184257	0.487913	
13:23	301	0.500 PPM ST	184081	0.487448	
13:24	301	0.500 PPM ST	186387	0.493556	
	Mean & RSD:		184908	0.489639	.694%
13:26	302	0.400 PPM ST	150571	0.398688	
13:27	302	0.400 PPM ST	151416	0.400927	
13:28	302	0.400 PPM ST	150694	0.399012	
	Mean & RSD:		150894	0.399542	.303%
13:29	303	0.300 ppm ST	113675	0.300959	
13:30	303	0.300 ppm ST	113464	0.300400	
13:31	303	0.300 ppm ST	115122	0.304793	
	Mean & RSD:		114087	0.302050	.791%
13:33	304	0.200 PPM ST	76646	0.202878	
13:34	304	0.200 PPM ST	75327	0.199385	
13:35	304	0.200 PPM ST	75448	0.199707	
	Mean & RSD:		75807	0.200656	.961%
13:36	305	0.100 PPM ST	38047	0.100640	
13:37	305	0.100 PPM ST	37703	0.099730	
13:38	305	0.100 PPM ST	37880	0.100196	
	Mean & RSD:		37877	0.100189	.454%
13:40	306	0.050 PPM ST	19142	0.050566	
13:41	306	0.050 PPM ST	19117	0.050499	
13:42	306	0.050 PPM ST	18936	0.050018	
	Mean & RSD:		19065	0.050361	.591%
13:43	307	0.010 PPM ST	4247	0.011112	
13:44	307	0.010 PPM ST	4332	0.011337	
13:45	307	0.010 PPM ST	4121	0.010779	OL
	Mean & RSD:		4289	0.011225	2.47%
13:47	0	0.000 PPM ST	-77	-0.000342	LO OL
13:48	0	0.000 PPM ST	-31	-0.000220	LO
13:49	0	0.000 PPM ST	7	-0.000118	LO
	Mean & RSD:		-12	-0.000169	353%
13:50	0	BLANK	-41	-0.000245	LO
13:51	2	CCV 7211705	39851	0.105418	105.4%
13:52	0	CCB	2	-0.000131	LO
13:54	0	BASELINE	0	-0.000137	BL
13:55	101	.05 7211702	17390	0.045924	91.8%
13:56	102	.40 7211703	144256	0.381960	95.5%
13:57	0	BLANK	34	-0.000046	LO

Eric L. Wesoloski 9/7/00

L Pittsburgh

3043

STL Pittsburgh

Cyanide Distillation Worksheet

COH300198
COH310243 Total 0245150

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: I. Johnson Start 6915 | Date: 9.1.00 | Reagent /Std Book ID: 342.162.5/342.163.7/342.152 Balance 676383

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1. MTQCH101	1.00g	50ml			NA
2. MTQCH102	0.10g				NA
3. MTLX101	1.00g				9.9.00
4. MTLX102	1.00g				9.9.00
5. MTLX103	1.00g				9.10.00
6. MTLX104	1.00g				9.10.00
7. MTMQ101	1.00g				9.11.00
8. MTMQ102	1.00g				9.11.00
9. MTMT101	1.00g				9.11.00
10. MTMT102	1.00g				9.11.00
11. MTMU101	1.00g				9.12.00
12. MTMU102	1.00g				9.12.00
13. MTMU103	1.00g				9.12.00
14. MTMU104	1.00g				9.12.00
15. MTMV101	1.00g				9.12.00
16. MTMV102	1.00g				9.12.00
17. MTMV103	1.00g				9.12.00
18. MTMV104	1.00g				9.12.00
19. MTLT101A	1.00g				9.12.00
20. MTLT102A	1.00g				9.12.00
21. MTLU101A	1.00g				9.12.00
22. MTLU102A	1.00g				9.12.00
23. MTLV101A	1.00g				9.12.00
24. MTLV102A	1.00g	50ml			9.12.00
25.					
26.					

I. Johnson 9.1.00

Distillate(s) (Record line number from)	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-23	9-1-00	1030	I. Johnson	WC	9-1-00	1100	I. Johnson	Disposal
	9-7-00	0600		WC	9-7-00	1600		

Comments: LLC: bottle 1kg 9.11.00 Soil 1kg 9.11.00 To 1.00g of Sample 9-6-00

Reviewed by: Date:

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Cyanide Distillation Worksheet

COH300198
COH310243 Free 024515 1

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Committed To Your Success

Distilled by: J. Johnson, Stact 1215 | Date: 9.1.00 | Reagent /Std Book ID: 932-162-5 / 9354-08 / 9373-00 | Balances 6763B3

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1.	1.000	50ml			NA
2.	1.000	↓			NA
3.	1.000				9.9.00
4.	1.000				↓
5.	1.000				9.9.00
6.	1.000				9.10.00
7.	1.000				↓
8.	1.000				9.10.00
9.	1.000				9.11.00
10.	1.000				↓
11.	1.000				9.11.00
12.	1.000				9.12.00
13.	1.000				↓
14.	1.000				9.12.00
15.	1.000				
16.	1.000				
17.	1.000				
18.	1.000				
19.	1.000				
20.	1.000				
21.	1.000				
22.	1.000				
23.	1.000				
24.	1.000	50ml			
25.					
26.					

Distillate(s) (Record line number from)	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-33	9-1-00 / 9-7-00	1330 / 0600	J. Johnson / [illegible]	WC	9-1-00 / 9-7-00	1600	J. Johnson / [illegible]	Disposal

Comments: 1.0 mg/kg 72.11.04
1.0 mg/kg 0.5 ml of 72.11.01 To 1.00g of Sample

Reviewed by: Date: 9-1-00

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL Pittsburgh

Cyanide Distillation Worksheet

COH300198 Total 0249180
COH300236
COH310279 Total 0249183

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: J. Johnson Start Load Date: 9.5.00 Reagent /Std Book ID: 342:163.5 342:163.7 342:152.6

Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1.	50ml	50ml			NA
2.					NA
3.					NA
4.					9.10.00
5.					NA
6.					NA
7.					9.12.00
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					9.12.00
16.					9.13.00
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.	50ml	50ml			9.13.00
26.					

J. Q. Johnson 9.5.00

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-24	9-7-00	0600	T. Smith	WC	9-7-00	1600	T. Smith	Disposal

Comments: LCS/LCSD: 1.1ppm 72.11.07 72.11.08 LCS: 1.1ppm 72.11.09
MS/MSD: 0.1ppm 0.5ml of 72.11.05 To 50 ml of Sample

Reviewed by: [signature] Date: 9-8-00

050
N:\QA\LOGBOOKS\CN_DISTILLATION

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

TL Pittsburgh

Cyanide Distillation Worksheet

COH300190
COH300236
COH310279 Free 0249188

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238
412-820-8380

Distilled by: L. Johnson Start 1330 Date: 9.5.00 Reagent /Std Book ID: 262.162.5 | 254.08 | 223.09

	Sample ID	Distillation Initial	Distillation Final	Sample Description (CLP Samples Only) Before Distillation	After Distillation	Expiration Date
1.	MBLK101	50ml	50ml			NA
2.	MBLK102					NA
3.	MOE105	1330 9.5.00				9.12.00
4.	MA105	MA7105				
5.	MB01 05					
6.	MB21 05					
7.	MB41 05					
8.	MB81 05					
9.	MBH1 05					
10.	MBH1 05					
11.	MBN1 05					
12.	MBA1 05					
13.	MBE1 05					9.12.00
14.	MB61 05					
15.	MBK1 05					
16.	MBM1 05					
17.	MB51 05					
18.	MBT1 05					
19.	MBV1 25					
20.	MBV1 25					
21.	MBV1 25					
22.		50ml	50ml			9.12.00
23.						
24.						
25.						
26.				I.J. Johnson 9-5-00		

Distillate(s) (Record line number from	Distillate(s) Received Date	Time	Analyst	Location	Distillate(s) Relinquished Date	Time	Analyst	Location
1-22	9-7-00	1060	[signature]	WC	9-7-00	1444 1600	[signature]	Disposal

Comments: LCS: 1.40 ppm 72.116.10
MB: 0.11 ppm 0.5 MB of 72.116.10 To 50 ml Sample

Reviewed by: [signature] Date: 9-5-00

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: \\qpitpa02\d\chem\gc8.i\6060.b\H-A60126.D
Report Date: 11-Sep-2000 08:35

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Peaks not detected for Quant. or Qual. signal(s).							
20 Aroclor-1016					CAS #: 12674-11-2		
Peaks not detected for Quant. or Qual. signal(s).							
21 Aroclor-1248					CAS #: 12672-29-6		
Operator disabled compound identification.							
33 Aroclor-1254					CAS #: 11097-69-1		
Peaks not detected for Quant. or Qual. signal(s).							
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.812	10.817	(-0.005)	71634	0.02728	9.0934		
36 Aroclor-1260					CAS #: 11096-82-5		
5.638	5.634	(0.004)	25497	0.09443	31.477	0.00- 0.00	0.00(M)
5.755	5.755	(0.000)	37340	0.13411	44.704	95.86- 135.86	0.00
6.474	6.481	(-0.007)	90119	0.31498	104.99	116.91- 156.91	0.00
7.351	7.354	(-0.003)	206649	0.47633	158.78	120.00- 160.00	0.00
8.151	8.151	(0.000)	0			108.33- 148.33	0.00
Average of Peak Concentrations = 84.988							

QC Flag Legend

M - Compound response manually integrated.

Data File: \\qpitpa02\d\chem\gc8.i\6060.b\H-A60129.D
Report Date: 11-Sep-2000 08:35

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Operator disabled compound identification.							
20 Aroclor-1016					CAS #: 12674-11-2		
Operator disabled compound identification.							
21 Aroclor-1248					CAS #: 12672-29-6		
3.468	3.469	(-0.001)	12910	0.07272	24.238	0.00- 0.00	0.00(a)
3.914	3.917	(-0.003)	12817	0.07588	25.295	114.57- 154.57	0.00
4.266	4.265	(0.001)	18664	0.09289	30.962	63.67- 103.67	0.00
4.365	4.365	(0.000)	17027	0.09124	30.413	43.86- 83.86	0.00
4.783	4.786	(-0.003)	17786	0.08934	29.779	128.08- 168.08	0.00
Average of Peak Concentrations =					28.137		
33 Aroclor-1254					CAS #: 11097-69-1		
Operator disabled compound identification.							
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.814	10.817	(-0.003)	56828	0.02164	7.2139		
36 Aroclor-1260					CAS #: 11096-82-5		
5.633	5.634	(-0.001)	34405	0.12742	42.474	0.00- 0.00	0.00
5.755	5.755	(0.000)	41338	0.14847	49.491	95.86- 135.86	0.00
6.481	6.481	(0.000)	0			116.91- 156.91	0.00
7.349	7.354	(-0.005)	49985	0.11522	38.406	120.00- 160.00	0.00
8.153	8.151	(0.002)	34188	0.15825	52.752	108.33- 148.33	0.00
Average of Peak Concentrations =					45.781		

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Operator disabled compound identification.							
20 Aroclor-1016					CAS #: 12674-11-2		
Peaks not detected for Quant. or Qual. signal(s).							
21 Aroclor-1248					CAS #: 12672-29-6		
3.469	3.469	(0.000)	183878	1.03569	34523	0.00- 0.00	0.00
3.917	3.917	(0.000)	198178	1.17333	39111	114.57- 154.57	0.00
4.265	4.265	(0.000)	225955	1.12453	37484	63.67- 103.67	0.00
4.366	4.365	(0.001)	234455	1.25632	41877	43.86- 83.86	0.00
4.784	4.786	(-0.002)	208498	1.04726	34908	128.08- 168.08	0.00
Average of Peak Concentrations =					37581		
33 Aroclor-1254					CAS #: 11097-69-1		
4.480	4.477	(0.003)	82676	0.43871	14624	0.00- 0.00	0.00
4.556	4.553	(0.003)	85712	0.37930	12643	92.23- 132.23	0.00
5.192	5.191	(0.001)	77373	0.45308	15103	77.40- 117.40	0.00
5.363	5.360	(0.003)	140899	0.41540	13846	51.09- 91.09	0.00
5.539	5.535	(0.004)	82903	0.38584	12861	65.01- 105.01	0.00
Average of Peak Concentrations =					13815		
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.816	10.817	(-0.001)	818	<0.0	10.384		(R)
36 Aroclor-1260					CAS #: 11096-82-5		
5.632	5.634	(-0.002)	35033	0.12975	4325.0	0.00- 0.00	0.00
5.755	5.755	(0.000)	0			95.86- 135.86	0.00
6.479	6.481	(-0.002)	37829	0.13222	4407.3	116.91- 156.91	0.00
7.353	7.354	(-0.001)	34389	0.07927	2642.2	120.00- 160.00	0.00
8.152	8.151	(0.001)	16275	0.07534	2511.2	108.33- 148.33	0.00
Average of Peak Concentrations =					3471.4		

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

535-4810-0002

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	FINAL (ug/Kg)	TARGET RANGE	RATIO
15 Aroclor-1242					CAS #: 53469-21-9		
Operator disabled compound identification.							
20 Aroclor-1016					CAS #: 12674-11-2		
Operator disabled compound identification.							
21 Aroclor-1248					CAS #: 12672-29-6		
3.469	3.471	(-0.002)	265779	1.27627	8508.5	0.00- 0.00	0.00(M)
3.919	3.918	(0.001)	289624	1.46492	9766.2	114.57- 154.57	0.00
4.268	4.269	(-0.001)	353450	1.51052	10070	63.67- 103.67	0.00
4.368	4.367	(0.001)	361717	1.65085	11006	43.86- 83.86	0.00
4.789	4.788	(0.001)	329783	1.41194	9412.9	128.08- 168.08	0.00
Average of Peak Concentrations =					9752.7		
33 Aroclor-1254					CAS #: 11097-69-1		
4.484	4.483	(0.001)	120124	0.51784	3452.2	0.00- 0.00	0.00(M)
4.559	4.558	(0.001)	126565	0.47046	3136.4	92.23- 132.23	0.00
5.196	5.195	(0.001)	121149	0.59363	3957.6	77.40- 117.40	0.00
5.365	5.365	(0.000)	224114	0.53688	3579.2	51.09- 91.09	0.00
5.539	5.540	(-0.001)	133516	0.50742	3382.8	65.01- 105.01	0.00
Average of Peak Concentrations =					3501.6		
$ 34 Decachlorobiphenyl					CAS #: 2051-24-3		
10.819	10.821	(-0.002)	3440	0.00109	7.2826		
36 Aroclor-1260					CAS #: 11096-82-5		
5.637	5.636	(0.001)	51607	0.15917	1061.1	0.00- 0.00	0.00(M)
5.758	5.758	(0.000)	0			95.86- 135.86	0.00
6.481	6.483	(-0.002)	59401	0.17314	1154.3	116.91- 156.91	0.00
7.357	7.357	(0.000)	53867	0.10393	692.88	120.00- 160.00	0.00
8.157	8.156	(0.001)	26130	0.10075	671.68	108.33- 148.33	0.00
Average of Peak Concentrations =					894.99		

QC Flag Legend

M - Compound response manually integrated.

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MEMORANDUM

TO: Mr. Mark Portman
MFG - Pittsburgh
800 Vinial Street, Building A
Pittsburgh, PA 15212

FROM: Andrew Mehalko – MFG Pittsburgh

DATE: 6 December 2000

SUBJECT: **Data Validation of: Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Total Metals, Total and Weak Acid Dissociable Cyanide, Fluoride, and Percent Moisture**

Re: Quanterra, Inc.
Package No.: C0H310243

Soil/Sediment Samples:

S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D
S44-SS03-0.0-0.5	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5

Equipment Rinsate Blanks

S44-SS03-0.0-0.5-EB

Trip Blanks:

TB-01

Field Duplicates:

Sample S44-SS02-0.0-0.5D is a field duplicate of sample S44-SS02-0.0-0.5.

Overview

This set of samples collected on August 29 and 30, 2000 for the Alcoa Badin Site contains six (6) soil samples, including one (1) field duplicate pair, one (1) equipment rinsate blank, and one (1) trip blank. The samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total metals, and total cyanide by USEPA SW-846 Methods 8260B, 8270C, series 6000/7000, and 9012A, respectively. The samples were also analyzed for free cyanide by SM18-4500-CN-I, fluoride

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by MCAWW 340.2, and percent solids by ASTM D2216-90. Note that not all samples were analyzed for all parameters.

Summary

All compounds were successfully analyzed in all samples with the exceptions of those that were rejected "R". The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. The inorganic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, initial and continuing calibrations, method and field blanks, laboratory control samples (LCSs), matrix spike/matrix spike duplicates (MS/MSDs), laboratory and field duplicates, ICP serial dilution, ICP interference check samples, analytical sequence, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

Major Issues

VOCs

The initial calibration and/or continuing calibration relative response factors (RRFs) for acrolein, acetone, acetonitrile, acrylonitrile, methyl ethyl ketone, propionitrile, methacrylonitrile, isobutyl alcohol, 1,4-dioxane, and trans-1,4-dichloro-2-butene associated with the aqueous samples and acrolein, acetonitrile, propionitrile, isobutyl alcohol, and 1,4-dioxane associated with the soil samples were less than 0.05. As a result, associated positive sample values were qualified as estimated "J" while non-detect values were rejected "R".

SVOCs

The initial and/or calibration and continuing calibration relative response factors (RRFs) for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol on September 8, 2000 and 1,3,5-trinitrobenzene and 4-nitroquinoline-1-oxide on September 11, 2000 were less than 0.05. As a result, associated positive sample values were qualified as estimated "J" while non-detect values were rejected "R".

Minor Issues

VOCs

A comparison of the initial calibration mean RRFs and the continuing calibration RRFs for dichlorodifluoromethane, isobutanol, styrene, methylmethacrylate, and ethylmethacrylate on September 12, 2000 (associated with the aqueous samples) and acetone on September 6, 2000 (associated with the soil samples) showed the percent differences between these values to exceeded the control limit. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

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Low levels of contamination below the reporting limit but above the method detection limit were found in the following blanks: acetone, methlene chloride, and 2-hexanone in soil method blank (J5031), 1,1-dichloroethene, acetone, and methylene chloride in soil method/preparation blank (DK20Q101), and methylene chloride in aqueous method blank (DK9P5101). As all of the associated sample results were non-detect, no action was necessary.

In addition, low levels of toluene below the reporting limit were found in the equipment rinsate blank, and low levels for 1,1-dichloroethene, methylene chloride, and toluene were found in the trip blank. As all of the associated sample results were non-detect, no action was necessary.

Note that an MS/MSD analysis was not performed for the VOC soil fraction and could not be evaluated. As the LCS/LCSD criteria were met, no action was deemed necessary.

The internal standard area count for 1,4-dichlorobenzene-d4 in sample S44-SS03-0.0-0.5 was less than control limits. As a result, associated compounds in this sample were qualified as estimated "J" and "UJ" for positive and non-detect sample results, respectively.

SVOCs

The percent relative standard deviation between the initial calibration relative response factors for 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol on September 8, 2000 and 1,3,5-trinitrobenzene on September 11, 2000 exceeded the control limit. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

A comparison of the initial calibration mean RRFs and the continuing calibration RRFs for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol on September 11, 2000 and 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and a,a-dimethylphenethylamine on September 12, 2000 yielded percent differences that exceeded control limits. As a result, associated sample values were qualified as estimated, "J" and "UJ", for positive and non-detect results, respectively.

Note that bis(2-ethylhexyl)phthalate was detected in the equipment rinsate blank at a concentration of 190 ug/L. As this compound was not detected in any site sample, no action was necessary.

The surrogate percent recovery to nitrobenzene-d5 was below quality control limits in the intra-lab QC sample. As all site sample surrogate percent recoveries were acceptable, no action was necessary.

The mass spectral chromatograms for benzo(k)fluoranthene in samples S44-SS01-0.0-0.5, S44-SS02-0.0-0.5, S44-SS03-0.0-0.5, S44-SS04-0.0-0.5, S44-SS05-0.0-0.5, and S44-SS02-0.0-0.5D showed minor inconsistencies when compared with the reference spectrums. As a result, these values were qualified as estimated "J".

Total Metals

The percent recoveries for arsenic, cadmium, and lead were above quality control limits in the CRDL standard. As a result, positive sample values within 5 times the reporting limit were qualified as estimated "J".

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Lead was detected slightly above the IDL in the ICP interference check sample (ICS). However, as all of the site sample values were greater than five times the value found in this ICS, no action was necessary.

Total Cyanide

No problems encountered.

Free Cyanide by SM18

No problems encountered.

Fluoride

No problems encountered.

Percent Solids

No problems encountered.

Notes

Note that several non-target compound initial and continuing calibration criteria were outside quality control limits. In addition, several initial and continuing calibration criteria associated only with QC samples were outside of control limits. As this did not impact the site sample results, no action was necessary.

In addition, note that the laboratory did not report positive values that were above the method detection limit but below the reporting limit in any analyses.

Note that the appendix IX compound trichlorofluoromethane was not reported by the laboratory on the sample Form Is but instead the laboratory reported trichlorotrifluoroethane. As a result, values for the appendix IX compound trichlorofluoromethane are not present on the validated data summary, however, this compound was calibrated for and was not detected in the raw data for any sample.

Note that not all of the BFB tuning criteria was available for the initial calibrations associated with the aqueous samples and this criteria could not be evaluated. As the only aqueous samples were the trip and equipment rinsate blanks, no action was taken.

Note that several samples in the SVOC analyses were reported at various dilutions due to elevated target compound concentrations. In these instances, only the best data from both the diluted and undiluted runs are presented on the validated data summary. In addition, several metal analyses were run with dilution for selenium due to interferences caused by elevated levels of manganese. As a result, the reporting limit is elevated in these samples.

Note that the VOC pentachloroethane was analyzed and reported with the SVOC fraction. In addition, the following compounds were reported with the SVOC fraction even though they are usually reported

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with pesticide or herbicide fractions: 2-sec-butyl-4,6-dinitrophenol (dinoseb), famphur, parathion, and phorate.

Note that hexachorophene was reported for the equipment rinsate blank even though no calibration was present for this compound. As a result, this value should only be considered a screening value. In addition, isopropyl ether was reported for both the trip and equipment rinsate blanks even though this is not a required Appendix IX compound. None of these values were reported for any soil sample.

The MS/MSD for the soil SVOC fraction (DTT3V102) was not present on either the DFTPP tuning Form 5 or internal standard Form 8. However, as all site sample criteria was acceptable, no action was deemed necessary.

The laboratory presented reporting limits instead of instrument detection limits (IDLs) on the Form 10 associated with the metals analyses. Per a conversation with the laboratory these limits are calculated annually and were reported in lieu of the IDLs as sample results were only reported down to these levels. Pursuant to this conversation the laboratory submitted via a PDF file the quarterly IDL summary for the ICP used in the metals analyses performed during August 2000. As all reporting limits were greater than the IDLs, no action was necessary.

Note that an initial calibration verification was not performed with the fluoride analysis. However, a continuing calibration verification sample was performed at the beginning of the analytical run and found to be acceptable.

Note that two separate percent solids determinations were performed for all samples. One determination was performed with respect to the VOC analyses while the other determination was applied to all other sample parameters. This occurred because containers for the VOC analyses were shipped in a separate cooler from the other containers utilized for the remaining analyses. Only the percent solids determination values associated with the non-volatile analyses are presented on the validated data summary.

Note that a CRA standard was not provided for the total or WAD cyanide analyses. However, a review of the raw data showed that the laboratory did rerun high and low initial calibration standards (with the low standard being within 5 times the reporting limit) after the initial calibration was performed to assess the goodness of the curve. All of these percent recoveries were acceptable and no action was taken.

Note that per the laboratory midrange standards are performed on a per day basis and not on a per batch basis. As a result, no distilled mid range standard was prepared with the total or WAD cyanide samples. However, a laboratory control sample is prepared with each batch and the results of this LCS were acceptable.

The data validated under this report were only evaluated on the information supplied with the data package.

Note that the field duplicates were found to be comparable. These were evaluated as follows: a control limit of four times the reporting limit was utilized to assess the absolute difference between the sample results (soils) when one or both sample results were less than five times the reporting limit, otherwise a relative percent difference (RPD) of 50 percent was applied.

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The organic data were reviewed according to the U.S. EPA's National Functional Guidelines for Organic Data Review (February, 1994) while the inorganic data were reviewed according to the U.S. EPA's National Functional Guidelines for Inorganic Data Review (February, 1994) and with respect to method requirements. The results are presented in the data summary of this report and should be accepted as qualified. All results, with the exceptions of those that were rejected are deemed acceptable and valid for the intended use.

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Information Regarding Report Content

Attachments:

1. Glossary of data qualifier codes.
2. Data Summary. This may include:

    a) All positive results with qualifier codes, if applicable; and
    b) All estimated detection limits qualified with UJ.

3. Appendix A – Results as Reported by the Laboratory.
4. Appendix B – Support Documentation includes details to support the statements made in this report.

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Glossary of Data Qualifier Codes

Codes Relating to Identification
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present is the sample. Supporting data necessary to confirm result.

N = Presumptively present.

Codes Related to Quantitation
(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.

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Data Summary

Data Summary
Alcoa Badin Facilty
SDG - C0H031243

	ANALYTICAL METHOD	S44-SS01-0.0-0.5		S44-SS02-0.0-0.5		S44-SS02-0.0-0.5D		S44-SS03-0.0-0.5		S44SS03-0.0-0.5EB		S44-SS04-0.0-0.5		S44-SS05-0.0-0.5		TB01	
	Units[1]	mg/kg		mg/kg		mg/kg		mg/kg		mg/L		mg/kg		mg/kg		mg/L	
	Sampled	8/29-30/00		8/29-30/00		8/29-30/00		8/29-30/00		8/29-30/00		8/29-30/00		8/29-30/00		8/30/00	
Wet Chemistry Parameters																	
Percent Solids	E160.3	**86.6**		**83.3**		**82.7**		**83.6**		NA		**87**		**84.6**		NA	
CYANIDE, DISSOCIABLE	SM4500-CN-I	0.58	U	0.6	U	0.6	U	0.6	U	NA		0.57	U	0.59	U	NA	
Cyanide, Total	SW9012A	**1.1**		0.6	U	0.6	U	0.6	U	NA		0.57	U	0.59	U	NA	
Fluoride	340.2-EXT	**36**		**21**		**22**		**16**		NA		**36**		**40**		NA	
Total Metals																	
Arsenic	SW6010B	**9.9**	J	**9.5**		**10.4**		**8.8**		0.01	U	**7**		**11.6**		NA	
Barium	SW6010B	46.2	U	**24.4**		**26.3**		**57.3**		0.2	U	**30.6**		**40.8**		NA	
Cadmium	SW6010B	1.2	U	0.6	U	0.6	U	0.6	U	0.005	U	0.58	U	0.59	U	NA	
Chromium	SW6010B	**14.4**		**11.8**		**13.2**		**21.7**		0.005	U	**13.6**		**14.6**		NA	
Lead	SW6010B	**35.8**		**23.1**		**23.9**		**45.2**		0.003	U	**26.8**		**27.5**		NA	
Selenium	SW6010B	1.2	U	**1.4**		**1.4**		**1.5**		0.005	U	**1.8**		**1.7**		NA	
Appendix IX Volatiles																	
1,1,1,2-Tetrachloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,1,1-Trichloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,1,2,2-Tetrachloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	UJ	0.001	U	0.0057	U	0.0059	U	0.001	U
1,1,2-Trichloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,1-Dichloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,1-Dichloroethene	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,2,3-Trichloropropane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	UJ	0.001	U	0.0057	U	0.0059	U	0.001	U
1,2-Dibromo-3-chloropropane (DBC	SW8260B	0.015	U	0.012	U	0.016	U	0.015	UJ	0.002	U	0.011	U	0.012	U	0.002	U
1,2-Dibromoethane (EDB)	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,2-Dichloroethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,2-Dichloropropane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
1,4-Dioxane	SW8260B	0.77	R	0.6	R	0.79	R	0.75	R	0.2	R	0.57	R	0.59	R	0.2	R
2-Butanone (MEK)	SW8260B	0.031	U	0.024	U	0.032	U	0.03	U	0.005	R	0.023	U	0.024	U	0.005	R
2-Hexanone	SW8260B	0.031	U	0.024	U	0.032	U	0.03	U	0.005	U	0.023	U	0.024	U	0.005	U
4-Methyl-2-pentanone	SW8260B	0.031	U	0.024	U	0.032	U	0.03	U	0.005	U	0.023	U	0.024	U	0.005	U
Acetone	SW8260B	**0.16**	J	0.024	UJ	0.032	UJ	**0.27**	J	0.01	R	0.023	UJ	**0.24**	J	0.01	R
Acetonitrile	SW8260B	0.15	R	0.12	R	0.16	R	0.15	R	0.02	R	0.11	R	0.12	R	0.02	R
Acrolein	SW8260B	0.15	R	0.12	R	0.16	R	0.15	R	0.02	R	0.11	R	0.12	R	0.02	R
Acrylonitrile	SW8260B	0.15	U	0.12	U	0.16	U	0.15	U	0.02	R	0.11	U	0.12	U	0.02	R
Allyl chloride	SW8260B	0.015	U	0.012	U	0.016	U	0.015	U	0.002	U	0.011	U	0.012	U	0.002	U
Benzene	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Bromodichloromethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Bromoform	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Bromomethane	SW8260B	0.015	U	0.012	U	0.016	U	0.015	U	0.002	U	0.011	U	0.012	U	0.002	U
Carbon disulfide	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Carbon tetrachloride	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Chlorobenzene	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Chloroethane	SW8260B	0.015	U	0.012	U	0.016	U	0.015	U	0.002	U	0.011	U	0.012	U	0.002	U
Chloroform	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Chloromethane	SW8260B	0.015	U	0.012	U	0.016	U	0.015	U	0.002	U	0.011	U	0.012	U	0.002	U
Chloroprene	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
cis-1,2-Dichloroethene	SW8260B	0.0039	U	0.003	U	0.004	U	0.0038	U	0.001	U	0.0029	U	0.003	U	0.001	U
cis-1,3-Dichloropropene	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Dibromochloromethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U
Dibromomethane	SW8260B	0.0077	U	0.006	U	0.0079	U	0.0075	U	0.001	U	0.0057	U	0.0059	U	0.001	U

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Data Summary
Alcoa Badin Facilty
SDG - C0H031243

	ANALYTICAL METHOD	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44SS03-0.0-0.5EB	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5	TB01
	Units[1]	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L
	Sampled	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/30/00
Dichlorodifluoromethane	SW8260B	0.015 U	0.012 U	0.016 U	0.015 U	0.002 UJ	0.011 U	0.012 U	0.002 UJ
Ethyl methacrylate	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 UJ	0.0057 U	0.0059 U	0.001 UJ
Ethylbenzene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
Iodomethane	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
Isobutyl alcohol	SW8260B	0.31 R	0.24 R	0.32 R	0.3 R	0.05 R	0.23 R	0.24 R	0.05 R
Isopropyl ether	SW8260B	NA	NA	NA	NA	0.01 U	NA	NA	0.01 U
Methacrylonitrile	SW8260B	0.077 U	0.06 U	0.079 U	0.075 U	0.01 R	0.057 U	0.059 U	0.01 R
Methyl methacrylate	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 UJ	0.0057 U	0.0059 U	0.001 UJ
Methylene chloride	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
Propionitrile	SW8260B	0.031 R	0.024 R	0.032 R	0.03 R	0.005 R	0.023 R	0.024 R	0.005 R
Styrene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 UJ	0.0057 U	0.0059 U	0.001 UJ
Tetrachloroethene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
Toluene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
trans-1,2-Dichloroethene	SW8260B	0.0039 U	0.003 U	0.004 U	0.0038 U	0.0005 U	0.0029 U	0.003 U	0.0005 U
trans-1,3-Dichloropropene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
trans-1,4-Dichloro-2-butene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 UJ	0.001 R	0.0057 U	0.0059 U	0.001 R
Trichloroethene	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.001 U	0.0057 U	0.0059 U	0.001 U
Trichlorotrifluoroethane	SW8260B	0.031 U	0.024 U	0.032 U	0.03 U	0.001 U	0.023 U	0.024 U	0.001 U
Vinyl acetate	SW8260B	0.015 U	0.012 U	0.016 U	0.015 U	0.002 U	0.011 U	0.012 U	0.002 U
Vinyl chloride	SW8260B	0.015 U	0.012 U	0.016 U	0.015 U	0.001 U	0.011 U	0.012 U	0.001 U
Xylenes (total)	SW8260B	0.0077 U	0.006 U	0.0079 U	0.0075 U	0.002 U	0.0057 U	0.0059 U	0.002 U
Appendix IX Semi-Volatiles									
1,2,4,5-Tetrachlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,2,4-Trichlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,2-Dichlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,3,5-Trinitrobenzene	SW8270C	1.8 R	1.9 R	1.9 R	1.9 R	0.05 R	1.8 R	1.9 R	NA
1,3-Dichlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,3-Dinitrobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,4-Dichlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
1,4-Naphthoquinone	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
1-Naphthylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,3,4,6-Tetrachlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,4,5-Trichlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,4,6-Trichlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,4-Dichlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,4-Dimethylphenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,4-Dinitrophenol	SW8270C	1.8 R	1.9 R	1.9 R	1.9 R	0.05 R	1.8 R	1.9 R	NA
2,4-Dinitrotoluene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,6-Dichlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2,6-Dinitrotoluene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Acetylaminofluorene	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
2-Chloronaphthalene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Chlorophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Methylnaphthalene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Methylphenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Naphthylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
2-Nitroaniline	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
2-Nitrophenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA

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Data Summary
Alcoa Badin Facilty
SDG - C0H031243

	ANALYTICAL METHOD Units[1] Sampled	S44-SS01-0.0-0.5 mg/kg 8/29-30/00		S44-SS02-0.0-0.5 mg/kg 8/29-30/00		S44-SS02-0.0-0.5D mg/kg 8/29-30/00		S44-SS03-0.0-0.5 mg/kg 8/29-30/00		S44SS03-0.0-0.5EB mg/L 8/29-30/00		S44-SS04-0.0-0.5 mg/kg 8/29-30/00		S44-SS05-0.0-0.5 mg/kg 8/29-30/00		TB01 mg/L 8/30/00	
2-Picoline	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
3&4 Methylphenol total	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.02	U	0.38	U	0.39	U	NA	
3,3'-Dichlorobenzidine	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
3,3'-Dimethylbenzidine	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
3-Methylcholanthrene	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
3-Methylphenol	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
3-Nitroaniline	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
4,6-Dinitro-2-methylphenol	SW8270C	1.8	R	1.9	R	1.9	R	1.9	R	0.05	R	1.8	R	1.9	R	NA	
4-Aminobiphenyl	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
4-Bromophenyl phenyl ether	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
4-Chloro-3-methylphenol	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
4-Chloroaniline	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
4-Chlorophenyl phenyl ether	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
4-Nitroaniline	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
4-Nitrophenol	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
4-Nitroquinoline-1-oxide	SW8270C	3.8	R	4	R	4	R	3.9	R	0.1	R	3.8	R	3.9	R	NA	
5-Nitro-o-toluidine	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
7,12-Dimethylbenz(a)anthracene	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
a,a-Dimethylphenethylamine	SW8270C	1.8	U	1.9	U	1.9	UJ	1.9	U	0.05	U	1.8	U	1.9	UJ	NA	
Acenaphthene	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Acenaphthylene	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Acetophenone	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Aniline	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Anthracene	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Aramite	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
Benzo(a)anthracene	SW8270C	**1.1**		**0.51**		**0.48**		**1.2**		0.01	U	**0.42**		**0.66**		NA	
Benzo(a)pyrene	SW8270C	**1.3**		**0.62**		**0.6**		**1.6**		0.01	U	**0.53**		**0.79**		NA	
Benzo(b)fluoranthene	SW8270C	**2**		**0.96**		**1.1**		**2.7**		0.01	U	**0.85**		**1.5**		NA	
Benzo(ghi)perylene	SW8270C	**0.67**		0.4	U	0.4	U	0.61		0.01	U	0.38	U	0.39	U	NA	
Benzo(k)fluoranthene	SW8270C	**1.1**	J	**0.62**	J	**0.65**	J	**1.6**	J	0.01	U	**0.6**	J	**0.9**	J	NA	
Benzyl alcohol	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
bis(2-Chloroethoxy)methane	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
bis(2-Chloroethyl) ether	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
bis(2-Chloroisopropyl) ether	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
bis(2-Ethylhexyl) phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	**0.19**		0.38	U	0.39	U	NA	
Butyl benzyl phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Chrysene	SW8270C	**1.4**		**0.69**		**0.65**		**1.9**		0.01	U	**0.56**		**0.92**		NA	
Dibenz(a,h)anthracene	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Dibenzofuran	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Diethyl phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Dimethoate	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
Dimethyl phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Di-n-butyl phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Di-n-octyl phthalate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Dinoseb	SW8270C	0.76	U	0.79	U	0.8	U	0.79	U	0.02	U	0.76	U	0.78	U	NA	
Diphenylamine	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	
Disulfoton	SW8270C	1.8	U	1.9	U	1.9	U	1.9	U	0.05	U	1.8	U	1.9	U	NA	
Ethyl methanesulfonate	SW8270C	0.38	U	0.4	U	0.4	U	0.39	U	0.01	U	0.38	U	0.39	U	NA	

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Data ,mary
Alcoa Badin Facilty
SDG - C0H031243

	ANALYTICAL METHOD	S44-SS01-0.0-0.5	S44-SS02-0.0-0.5	S44-SS02-0.0-0.5D	S44-SS03-0.0-0.5	S44SS03-0.0-0.5EB	S44-SS04-0.0-0.5	S44-SS05-0.0-0.5	TB01
	Units[1]	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L
	Sampled	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/29-30/00	8/30/00
Famphur	SW8270C	3.8 U	4 U	4 U	3.9 U	0.1 U	3.8 U	3.9 U	NA
Fluoranthene	SW8270C	**1.7**	**0.77**	**0.73**	**1.9**	0.01 U	**0.73**	**1.1**	NA
Fluorene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Hexachlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Hexachlorobutadiene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Hexachlorocyclopentadiene	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Hexachloroethane	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Hexachlorophene	SW8270C	NA	NA	NA	NA	0.01 U	NA	NA	NA
Hexachloropropene	SW8270C	3.8 U	4 U	4 U	3.9 U	0.1 U	3.8 U	3.9 U	NA
Indeno(1,2,3-cd)pyrene	SW8270C	**0.7**	0.4 U	0.4 U	**0.66**	0.01 U	0.38 U	0.39 U	NA
Isodrin	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Isophorone	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Isosafrole	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Methapyrilene	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Methyl methanesulfonate	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Methyl parathion	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Naphthalene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Nitrobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosodimethylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosodi-n-butylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosodi-n-propylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosodiphenylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosomethylethylamine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosomorpholine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosopiperidine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
N-Nitrosopyrrolidine	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
O,O,O-Triethyl phosphorothioate	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
o-Toluidine	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Parathion	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
p-Dimethylaminoazobenzene	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Pentachlorobenzene	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Pentachloroethane	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Pentachloronitrobenzene	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Pentachlorophenol	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Phenacetin	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Phenanthrene	SW8270C	**0.71**	0.4 U	0.4 U	**0.79**	0.01 U	0.38 U	0.39 U	NA
Phenol	SW8270C	0.38 U	0.4 U	0.4 U	0.39 U	0.01 U	0.38 U	0.39 U	NA
Phorate	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
p-Phenylene diamine	SW8270C	3.8 U	4 U	4 U	3.9 U	0.1 U	3.8 U	3.9 U	NA
Pronamide	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Pyrene	SW8270C	**1.1**	**0.55**	**0.48**	**1.2**	0.01 U	**0.4**	**0.64**	NA
Pyridine	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Safrole	SW8270C	0.76 U	0.79 U	0.8 U	0.79 U	0.02 U	0.76 U	0.78 U	NA
Sulfotepp	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA
Thionazin	SW8270C	1.8 U	1.9 U	1.9 U	1.9 U	0.05 U	1.8 U	1.9 U	NA

(1) - except percent solids
NA - Not Analyzed

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Results as Reported by the Laboratory

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.74 / g Date Received: 08/31/00
Work Order: DJPLH101 Date Extracted:09/06/00
Dilution factor: 1.33 Date Analyzed: 09/06/00
Moisture %:13

QC Batch: 0251435

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	160	
107-02-8	Acrolein	150	U
107-13-1	Acrylonitrile	150	U
71-43-2	Benzene	7.7	U
75-27-4	Bromodichloromethane	7.7	U
75-25-2	Bromoform	7.7	U
74-83-9	Bromomethane	15	U
78-93-3	2-Butanone (MEK)	31	U
75-15-0	Carbon disulfide	7.7	U
56-23-5	Carbon tetrachloride	7.7	U
108-90-7	Chlorobenzene	7.7	U
75-00-3	Chloroethane	15	U
67-66-3	Chloroform	7.7	U
74-87-3	Chloromethane	15	U
124-48-1	Dibromochloromethane	7.7	U
74-95-3	Dibromomethane	7.7	U
106-93-4	1,2-Dibromoethane (EDB)	7.7	U
75-71-8	Dichlorodifluoromethane	15	U
75-34-3	1,1-Dichloroethane	7.7	U
107-06-2	1,2-Dichloroethane	7.7	U
75-35-4	1,1-Dichloroethene	7.7	U
156-59-2	cis-1,2-Dichloroethene	3.9	U
156-60-5	trans-1,2-Dichloroethene	3.9	U
78-87-5	1,2-Dichloropropane	7.7	U
10061-01-5	cis-1,3-Dichloropropene	7.7	U
10061-02-6	trans-1,3-Dichloropropene	7.7	U
110-57-6	trans-1,4-Dichloro-2-butene	7.7	U
123-91-1	1,4-Dioxane	770	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.74 / g Date Received: 08/31/00
Work Order: DJPLH101 Date Extracted:09/06/00
Dilution factor: 1.33 Date Analyzed: 09/06/00
Moisture %:13

QC Batch: 0251435

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	7.7	U
97-63-2	Ethyl methacrylate	7.7	U
591-78-6	2-Hexanone	31	U
74-88-4	Iodomethane	7.7	U
75-09-2	Methylene chloride	7.7	U
108-10-1	4-Methyl-2-pentanone	31	U
100-42-5	Styrene	7.7	U
79-34-5	1,1,2,2-Tetrachloroethane	7.7	U
127-18-4	Tetrachloroethene	7.7	U
108-88-3	Toluene	7.7	U
71-55-6	1,1,1-Trichloroethane	7.7	U
79-00-5	1,1,2-Trichloroethane	7.7	U
79-01-6	Trichloroethene	7.7	U
96-18-4	1,2,3-Trichloropropane	7.7	U
76-13-1	Trichlorotrifluoroethane	31	U
108-05-4	Vinyl acetate	15	U
75-01-4	Vinyl chloride	15	U
1330-20-7	Xylenes (total)	7.7	U
75-05-8	Acetonitrile	150	U
107-05-1	Allyl chloride	15	U
126-99-8	Chloroprene	7.7	U
107-12-0	Propionitrile	31	U
126-98-7	Methacrylonitrile	77	U
78-83-1	Isobutyl alcohol	310	U
80-62-6	Methyl methacrylate	7.7	U
630-20-6	1,1,1,2-Tetrachloroethane	7.7	U
96-12-8	1,2-Dibromo-3-chloropropane	15	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 004
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.47 / g Date Received: 08/31/00
Work Order: DJPLK101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:17

QC Batch: 0251435

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	24	U
107-02-8	Acrolein	120	U
107-13-1	Acrylonitrile	120	U
71-43-2	Benzene	6.0	U
75-27-4	Bromodichloromethane	6.0	U
75-25-2	Bromoform	6.0	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone (MEK)	24	U
75-15-0	Carbon disulfide	6.0	U
56-23-5	Carbon tetrachloride	6.0	U
108-90-7	Chlorobenzene	6.0	U
75-00-3	Chloroethane	12	U
67-66-3	Chloroform	6.0	U
74-87-3	Chloromethane	12	U
124-48-1	Dibromochloromethane	6.0	U
74-95-3	Dibromomethane	6.0	U
106-93-4	1,2-Dibromoethane (EDB)	6.0	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6.0	U
107-06-2	1,2-Dichloroethane	6.0	U
75-35-4	1,1-Dichloroethene	6.0	U
156-59-2	cis-1,2-Dichloroethene	3.0	U
156-60-5	trans-1,2-Dichloroethene	3.0	U
78-87-5	1,2-Dichloropropane	6.0	U
10061-01-5	cis-1,3-Dichloropropene	6.0	U
10061-02-6	trans-1,3-Dichloropropene	6.0	U
110-57-6	trans-1,4-Dichloro-2-butene	6.0	U
123-91-1	1,4-Dioxane	600	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 004
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.47 / g Date Received: 08/31/00
Work Order: DJPLK101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:17

QC Batch: 0251435

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	6.0	U
97-63-2	Ethyl methacrylate	6.0	U
591-78-6	2-Hexanone	24	U
74-88-4	Iodomethane	6.0	U
75-09-2	Methylene chloride	6.0	U
108-10-1	4-Methyl-2-pentanone	24	U
100-42-5	Styrene	6.0	U
79-34-5	1,1,2,2-Tetrachloroethane	6.0	U
127-18-4	Tetrachloroethene	6.0	U
108-88-3	Toluene	6.0	U
71-55-6	1,1,1-Trichloroethane	6.0	U
79-00-5	1,1,2-Trichloroethane	6.0	U
79-01-6	Trichloroethene	6.0	U
96-18-4	1,2,3-Trichloropropane	6.0	U
76-13-1	Trichlorotrifluoroethane	24	U
108-05-4	Vinyl acetate	12	U
75-01-4	Vinyl chloride	12	U
1330-20-7	Xylenes (total)	6.0	U
75-05-8	Acetonitrile	120	U
107-05-1	Allyl chloride	12	U
126-99-8	Chloroprene	6.0	U
107-12-0	Propionitrile	24	U
126-98-7	Methacrylonitrile	60	U
78-83-1	Isobutyl alcohol	240	U
80-62-6	Methyl methacrylate	6.0	U
630-20-6	1,1,1,2-Tetrachloroethane	6.0	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 006
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.95 / g Date Received: 08/31/00
Work Order: DJPLM101 Date Extracted:09/06/00
Dilution factor: 1.25 Date Analyzed: 09/06/00
Moisture %:16

QC Batch: 0251435

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	270	
107-02-8	Acrolein	150	U
107-13-1	Acrylonitrile	150	U
71-43-2	Benzene	7.5	U
75-27-4	Bromodichloromethane	7.5	U
75-25-2	Bromoform	7.5	U
74-83-9	Bromomethane	15	U
78-93-3	2-Butanone (MEK)	30	U
75-15-0	Carbon disulfide	7.5	U
56-23-5	Carbon tetrachloride	7.5	U
108-90-7	Chlorobenzene	7.5	U
75-00-3	Chloroethane	15	U
67-66-3	Chloroform	7.5	U
74-87-3	Chloromethane	15	U
124-48-1	Dibromochloromethane	7.5	U
74-95-3	Dibromomethane	7.5	U
106-93-4	1,2-Dibromoethane (EDB)	7.5	U
75-71-8	Dichlorodifluoromethane	15	U
75-34-3	1,1-Dichloroethane	7.5	U
107-06-2	1,2-Dichloroethane	7.5	U
75-35-4	1,1-Dichloroethene	7.5	U
156-59-2	cis-1,2-Dichloroethene	3.8	U
156-60-5	trans-1,2-Dichloroethene	3.8	U
78-87-5	1,2-Dichloropropane	7.5	U
10061-01-5	cis-1,3-Dichloropropene	7.5	U
10061-02-6	trans-1,3-Dichloropropene	7.5	U
110-57-6	trans-1,4-Dichloro-2-butene	7.5	U
123-91-1	1,4-Dioxane	750	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 006
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.95 / g Date Received: 08/31/00
Work Order: DJPLM101 Date Extracted:09/06/00
Dilution factor: 1.25 Date Analyzed: 09/06/00
Moisture %:16

QC Batch: 0251435

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	7.5	U
97-63-2	Ethyl methacrylate	7.5	U
591-78-6	2-Hexanone	30	U
74-88-4	Iodomethane	7.5	U
75-09-2	Methylene chloride	7.5	U
108-10-1	4-Methyl-2-pentanone	30	U
100-42-5	Styrene	7.5	U
79-34-5	1,1,2,2-Tetrachloroethane	7.5	U
127-18-4	Tetrachloroethene	7.5	U
108-88-3	Toluene	7.5	U
71-55-6	1,1,1-Trichloroethane	7.5	U
79-00-5	1,1,2-Trichloroethane	7.5	U
79-01-6	Trichloroethene	7.5	U
96-18-4	1,2,3-Trichloropropane	7.5	U
76-13-1	Trichlorotrifluoroethane	30	U
108-05-4	Vinyl acetate	15	U
75-01-4	Vinyl chloride	15	U
1330-20-7	Xylenes (total)	7.5	U
75-05-8	Acetonitrile	150	U
107-05-1	Allyl chloride	15	U
126-99-8	Chloroprene	7.5	U
107-12-0	Propionitrile	30	U
126-98-7	Methacrylonitrile	75	U
78-83-1	Isobutyl alcohol	300	U
80-62-6	Methyl methacrylate	7.5	U
630-20-6	1,1,1,2-Tetrachloroethane	7.5	U
96-12-8	1,2-Dibromo-3-chloropropane	15	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 008
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.36 / g Date Received: 08/31/00
Work Order: DJPLQ101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:13

QC Batch: 0251435

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	23	U
107-02-8	Acrolein	110	U
107-13-1	Acrylonitrile	110	U
71-43-2	Benzene	5.7	U
75-27-4	Bromodichloromethane	5.7	U
75-25-2	Bromoform	5.7	U
74-83-9	Bromomethane	11	U
78-93-3	2-Butanone (MEK)	23	U
75-15-0	Carbon disulfide	5.7	U
56-23-5	Carbon tetrachloride	5.7	U
108-90-7	Chlorobenzene	5.7	U
75-00-3	Chloroethane	11	U
67-66-3	Chloroform	5.7	U
74-87-3	Chloromethane	11	U
124-48-1	Dibromochloromethane	5.7	U
74-95-3	Dibromomethane	5.7	U
106-93-4	1,2-Dibromoethane (EDB)	5.7	U
75-71-8	Dichlorodifluoromethane	11	U
75-34-3	1,1-Dichloroethane	5.7	U
107-06-2	1,2-Dichloroethane	5.7	U
75-35-4	1,1-Dichloroethene	5.7	U
156-59-2	cis-1,2-Dichloroethene	2.9	U
156-60-5	trans-1,2-Dichloroethene	2.9	U
78-87-5	1,2-Dichloropropane	5.7	U
10061-01-5	cis-1,3-Dichloropropene	5.7	U
10061-02-6	trans-1,3-Dichloropropene	5.7	U
110-57-6	trans-1,4-Dichloro-2-butene	5.7	U
123-91-1	1,4-Dioxane	570	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 008
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.36 / g Date Received: 08/31/00
Work Order: DJPLQ101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:13

QC Batch: 0251435

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	5.7	U
97-63-2	Ethyl methacrylate	5.7	U
591-78-6	2-Hexanone	23	U
74-88-4	Iodomethane	5.7	U
75-09-2	Methylene chloride	5.7	U
108-10-1	4-Methyl-2-pentanone	23	U
100-42-5	Styrene	5.7	U
79-34-5	1,1,2,2-Tetrachloroethane	5.7	U
127-18-4	Tetrachloroethene	5.7	U
108-88-3	Toluene	5.7	U
71-55-6	1,1,1-Trichloroethane	5.7	U
79-00-5	1,1,2-Trichloroethane	5.7	U
79-01-6	Trichloroethene	5.7	U
96-18-4	1,2,3-Trichloropropane	5.7	U
76-13-1	Trichlorotrifluoroethane	23	U
108-05-4	Vinyl acetate	11	U
75-01-4	Vinyl chloride	11	U
1330-20-7	Xylenes (total)	5.7	U
75-05-8	Acetonitrile	110	U
107-05-1	Allyl chloride	11	U
126-99-8	Chloroprene	5.7	U
107-12-0	Propionitrile	23	U
126-98-7	Methacrylonitrile	57	U
78-83-1	Isobutyl alcohol	230	U
80-62-6	Methyl methacrylate	5.7	U
630-20-6	1,1,1,2-Tetrachloroethane	5.7	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 010
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.35 / g Date Received: 08/31/00
Work Order: DJPLV101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:15

QC Batch: 0251435

Client Sample Id: S44-SS05-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	240	
107-02-8	Acrolein	120	U
107-13-1	Acrylonitrile	120	U
71-43-2	Benzene	5.9	U
75-27-4	Bromodichloromethane	5.9	U
75-25-2	Bromoform	5.9	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone (MEK)	24	U
75-15-0	Carbon disulfide	5.9	U
56-23-5	Carbon tetrachloride	5.9	U
108-90-7	Chlorobenzene	5.9	U
75-00-3	Chloroethane	12	U
67-66-3	Chloroform	5.9	U
74-87-3	Chloromethane	12	U
124-48-1	Dibromochloromethane	5.9	U
74-95-3	Dibromomethane	5.9	U
106-93-4	1,2-Dibromoethane (EDB)	5.9	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	5.9	U
107-06-2	1,2-Dichloroethane	5.9	U
75-35-4	1,1-Dichloroethene	5.9	U
156-59-2	cis-1,2-Dichloroethene	3.0	U
156-60-5	trans-1,2-Dichloroethene	3.0	U
78-87-5	1,2-Dichloropropane	5.9	U
10061-01-5	cis-1,3-Dichloropropene	5.9	U
10061-02-6	trans-1,3-Dichloropropene	5.9	U
110-57-6	trans-1,4-Dichloro-2-butene	5.9	U
123-91-1	1,4-Dioxane	590	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 010
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 4.35 / g Date Received: 08/31/00
Work Order: DJPLV101 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/06/00
Moisture %:15

QC Batch: 0251435

Client Sample Id: S44-SS05-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	5.9	U
97-63-2	Ethyl methacrylate	5.9	U
591-78-6	2-Hexanone	24	U
74-88-4	Iodomethane	5.9	U
75-09-2	Methylene chloride	5.9	U
108-10-1	4-Methyl-2-pentanone	24	U
100-42-5	Styrene	5.9	U
79-34-5	1,1,2,2-Tetrachloroethane	5.9	U
127-18-4	Tetrachloroethene	5.9	U
108-88-3	Toluene	5.9	U
71-55-6	1,1,1-Trichloroethane	5.9	U
79-00-5	1,1,2-Trichloroethane	5.9	U
79-01-6	Trichloroethene	5.9	U
96-18-4	1,2,3-Trichloropropane	5.9	U
76-13-1	Trichlorotrifluoroethane	24	U
108-05-4	Vinyl acetate	12	U
75-01-4	Vinyl chloride	12	U
1330-20-7	Xylenes (total)	5.9	U
75-05-8	Acetonitrile	120	U
107-05-1	Allyl chloride	12	U
126-99-8	Chloroprene	5.9	U
107-12-0	Propionitrile	24	U
126-98-7	Methacrylonitrile	59	U
78-83-1	Isobutyl alcohol	240	U
80-62-6	Methyl methacrylate	5.9	U
630-20-6	1,1,1,2-Tetrachloroethane	5.9	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 012
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.81 / g Date Received: 08/31/00
Work Order: DJPLX101 Date Extracted:09/06/00
Dilution factor: 1.31 Date Analyzed: 09/06/00
Moisture %:17

QC Batch: 0251435

Client Sample Id: S44-SS02-0.0-0.5 D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	32	U
107-02-8	Acrolein	160	U
107-13-1	Acrylonitrile	160	U
71-43-2	Benzene	7.9	U
75-27-4	Bromodichloromethane	7.9	U
75-25-2	Bromoform	7.9	U
74-83-9	Bromomethane	16	U
78-93-3	2-Butanone (MEK)	32	U
75-15-0	Carbon disulfide	7.9	U
56-23-5	Carbon tetrachloride	7.9	U
108-90-7	Chlorobenzene	7.9	U
75-00-3	Chloroethane	16	U
67-66-3	Chloroform	7.9	U
74-87-3	Chloromethane	16	U
124-48-1	Dibromochloromethane	7.9	U
74-95-3	Dibromomethane	7.9	U
106-93-4	1,2-Dibromoethane (EDB)	7.9	U
75-71-8	Dichlorodifluoromethane	16	U
75-34-3	1,1-Dichloroethane	7.9	U
107-06-2	1,2-Dichloroethane	7.9	U
75-35-4	1,1-Dichloroethene	7.9	U
156-59-2	cis-1,2-Dichloroethene	4.0	U
156-60-5	trans-1,2-Dichloroethene	4.0	U
78-87-5	1,2-Dichloropropane	7.9	U
10061-01-5	cis-1,3-Dichloropropene	7.9	U
10061-02-6	trans-1,3-Dichloropropene	7.9	U
110-57-6	trans-1,4-Dichloro-2-butene	7.9	U
123-91-1	1,4-Dioxane	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SO Lab Sample ID:C0H310243 012
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 3.81 / g Date Received: 08/31/00
Work Order: DJPLX101 Date Extracted:09/06/00
Dilution factor: 1.31 Date Analyzed: 09/06/00
Moisture %:17

QC Batch: 0251435

Client Sample Id: S44-SS02-0.0-0.5 D

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
100-41-4	Ethylbenzene	7.9	U
97-63-2	Ethyl methacrylate	7.9	U
591-78-6	2-Hexanone	32	U
74-88-4	Iodomethane	7.9	U
75-09-2	Methylene chloride	7.9	U
108-10-1	4-Methyl-2-pentanone	32	U
100-42-5	Styrene	7.9	U
79-34-5	1,1,2,2-Tetrachloroethane	7.9	U
127-18-4	Tetrachloroethene	7.9	U
108-88-3	Toluene	7.9	U
71-55-6	1,1,1-Trichloroethane	7.9	U
79-00-5	1,1,2-Trichloroethane	7.9	U
79-01-6	Trichloroethene	7.9	U
96-18-4	1,2,3-Trichloropropane	7.9	U
76-13-1	Trichlorotrifluoroethane	32	U
108-05-4	Vinyl acetate	16	U
75-01-4	Vinyl chloride	16	U
1330-20-7	Xylenes (total)	7.9	U
75-05-8	Acetonitrile	160	U
107-05-1	Allyl chloride	16	U
126-99-8	Chloroprene	7.9	U
107-12-0	Propionitrile	32	U
126-98-7	Methacrylonitrile	79	U
78-83-1	Isobutyl alcohol	320	U
80-62-6	Methyl methacrylate	7.9	U
630-20-6	1,1,1,2-Tetrachloroethane	7.9	U
96-12-8	1,2-Dibromo-3-chloropropane	16	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0H310243 014
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 08/31/00
Work Order: DJPM4101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-64-1	Acetone	10	U
107-02-8	Acrolein	20	U
107-13-1	Acrylonitrile	20	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	2.0	U
78-93-3	2-Butanone (MEK)	5.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	2.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	2.0	U
124-48-1	Dibromochloromethane	1.0	U
74-95-3	Dibromomethane	1.0	U
106-93-4	1,2-Dibromoethane (EDB)	1.0	U
75-71-8	Dichlorodifluoromethane	2.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	U
123-91-1	1,4-Dioxane	200	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0H310243 014
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 08/31/00
Work Order: DJPM4101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
100-41-4	Ethylbenzene	1.0	U
97-63-2	Ethyl methacrylate	1.0	U
591-78-6	2-Hexanone	5.0	U
74-88-4	Iodomethane	1.0	U
75-09-2	Methylene chloride	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
76-13-1	Trichlorotrifluoroethane	1.0	U
108-05-4	Vinyl acetate	2.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes (total)	2.0	U
75-05-8	Acetonitrile	20	U
107-05-1	Allyl chloride	2.0	U
126-99-8	Chloroprene	1.0	U
108-20-3	Isopropyl ether	10	U
107-12-0	Propionitrile	5.0	U
126-98-7	Methacrylonitrile	10	U
78-83-1	Isobutyl alcohol	50	U
80-62-6	Methyl methacrylate	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	2.0	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0H310243 015
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 08/31/00
Work Order: DJPM5101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: TB01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-64-1	Acetone	10	U
107-02-8	Acrolein	20	U
107-13-1	Acrylonitrile	20	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	2.0	U
78-93-3	2-Butanone (MEK)	5.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	2.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	2.0	U
124-48-1	Dibromochloromethane	1.0	U
74-95-3	Dibromomethane	1.0	U
106-93-4	1,2-Dibromoethane (EDB)	1.0	U
75-71-8	Dichlorodifluoromethane	2.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	U
123-91-1	1,4-Dioxane	200	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WQ Lab Sample ID:C0H310243 015
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 20 / mL Date Received: 08/31/00
Work Order: DJPM5101 Date Extracted:09/12/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:

QC Batch: 0257410

Client Sample Id: TB01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
100-41-4	Ethylbenzene	1.0	U
97-63-2	Ethyl methacrylate	1.0	U
591-78-6	2-Hexanone	5.0	U
74-88-4	Iodomethane	1.0	U
75-09-2	Methylene chloride	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
76-13-1	Trichlorotrifluoroethane	1.0	U
108-05-4	Vinyl acetate	2.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes (total)	2.0	U
75-05-8	Acetonitrile	20	U
107-05-1	Allyl chloride	2.0	U
126-99-8	Chloroprene	1.0	U
108-20-3	Isopropyl ether	10	U
107-12-0	Propionitrile	5.0	U
126-98-7	Methacrylonitrile	10	U
78-83-1	Isobutyl alcohol	50	U
80-62-6	Methyl methacrylate	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	2.0	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLA101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	380	U
208-96-8	Acenaphthylene	380	U
120-12-7	Anthracene	380	U
56-55-3	Benzo(a)anthracene	1100	
50-32-8	Benzo(a)pyrene	1300	
205-99-2	Benzo(b)fluoranthene	2000	
207-08-9	Benzo(k)fluoranthene	1100	
191-24-2	Benzo(ghi)perylene	670	
111-91-1	bis(2-Chloroethoxy)methane	380	U
111-44-4	bis(2-Chloroethyl) ether	380	U
117-81-7	bis(2-Ethylhexyl) phthalate	380	U
101-55-3	4-Bromophenyl phenyl ether	380	U
85-68-7	Butyl benzyl phthalate	380	U
106-47-8	4-Chloroaniline	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-58-7	2-Chloronaphthalene	380	U
95-57-8	2-Chlorophenol	380	U
7005-72-3	4-Chlorophenyl phenyl ether	380	U
218-01-9	Chrysene	1400	
53-70-3	Dibenz(a,h)anthracene	380	U
132-64-9	Dibenzofuran	380	U
95-50-1	1,2-Dichlorobenzene	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
91-94-1	3,3'-Dichlorobenzidine	1800	U
120-83-2	2,4-Dichlorophenol	380	U
84-66-2	Diethyl phthalate	380	U
105-67-9	2,4-Dimethylphenol	380	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLA101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	380	U
84-74-2	Di-n-butyl phthalate	380	U
117-84-0	Di-n-octyl phthalate	380	U
51-28-5	2,4-Dinitrophenol	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
121-14-2	2,4-Dinitrotoluene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
206-44-0	Fluoranthene	1700	
86-73-7	Fluorene	380	U
118-74-1	Hexachlorobenzene	380	U
87-68-3	Hexachlorobutadiene	380	U
77-47-4	Hexachlorocyclopentadiene	1800	U
67-72-1	Hexachloroethane	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	700	
78-59-1	Isophorone	380	U
91-57-6	2-Methylnaphthalene	380	U
95-48-7	2-Methylphenol	380	U
91-20-3	Naphthalene	380	U
88-74-4	2-Nitroaniline	1800	U
99-09-2	3-Nitroaniline	1800	U
100-01-6	4-Nitroaniline	1800	U
98-95-3	Nitrobenzene	380	U
88-75-5	2-Nitrophenol	380	U
100-02-7	4-Nitrophenol	1800	U
621-64-7	N-Nitrosodi-n-propylamine	380	U
86-30-6	N-Nitrosodiphenylamine	380	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	710	

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLA101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	380	U
129-00-0	Pyrene	1100	
120-82-1	1,2,4-Trichlorobenzene	380	U
95-95-4	2,4,5-Trichlorophenol	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
98-86-2	Acetophenone	380	U
53-96-3	2-Acetylaminofluorene	760	U
92-67-1	4-Aminobiphenyl	1800	U
62-53-3	Aniline	380	U
100-51-6	Benzyl alcohol	380	U
108-60-1	bis(2-Chloroisopropyl) ether	380	U
87-65-0	2,6-Dichlorophenol	380	U
297-97-2	Thionazin	1800	U
60-51-5	Dimethoate	760	U
60-11-7	p-Dimethylaminoazobenzene	760	U
57-97-6	7,12-Dimethylbenz(a)anthrace	760	U
119-93-7	3,3'-Dimethylbenzidine	1800	U
99-65-0	1,3-Dinitrobenzene	380	U
88-85-7	Dinoseb	760	U
122-39-4	Diphenylamine	380	U
298-04-4	Disulfoton	1800	U
62-50-0	Ethyl methanesulfonate	380	U
52-85-7	Famphur	3800	U
1888-71-7	Hexachloropropene	3800	U
465-73-6	Isodrin	380	U
120-58-1	Isosafrole	760	U
91-80-5	Methapyrilene	1800	U
95-53-4	o-Toluidine	760	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLA101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	760	U
66-27-3	Methyl methanesulfonate	380	U
298-00-0	Methyl parathion	380	U
108-39-4	3-Methylphenol	380	U
130-15-4	1,4-Naphthoquinone	1800	U
134-32-7	1-Naphthylamine	380	U
91-59-8	2-Naphthylamine	380	U
56-57-5	4-Nitroquinoline-1-oxide	3800	U
924-16-3	N-Nitrosodi-n-butylamine	380	U
55-18-5	N-Nitrosodiethylamine	380	U
62-75-9	N-Nitrosodimethylamine	380	U
10595-95-6	N-Nitrosomethylethylamine	380	U
59-89-2	N-Nitrosomorpholine	380	U
100-75-4	N-Nitrosopiperidine	380	U
930-55-2	N-Nitrosopyrrolidine	380	U
99-55-8	5-Nitro-o-toluidine	760	U
56-38-2	Parathion	380	U
608-93-5	Pentachlorobenzene	380	U
76-01-7	Pentachloroethane	1800	U
82-68-8	Pentachloronitrobenzene	1800	U
62-44-2	Phenacetin	760	U
106-50-3	p-Phenylene diamine	3800	U
298-02-2	Phorate	1800	U
109-06-8	2-Picoline	760	U
23950-58-5	Pronamide	760	U
110-86-1	Pyridine	760	U
94-59-7	Safrole	760	U
95-94-3	1,2,4,5-Tetrachlorobenzene	380	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLA101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS01-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	380	U
3689-24-5	Sulfotepp	1800	U
126-68-1	O,O,O-Triethyl phosphorothio	1800	U
99-35-4	1,3,5-Trinitrobenzene	1800	U
122-09-8	a,a-Dimethylphenethylamine	1800	U
140-57-8	Aramite	1800	U
65794-96-9	3&4 Methylphenol total	380	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name: Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID: C0H310243 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLJ101 Date Extracted: 09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %: 17

QC Batch: 0245432

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	400	U
208-96-8	Acenaphthylene	400	U
120-12-7	Anthracene	400	U
56-55-3	Benzo(a)anthracene	510	
50-32-8	Benzo(a)pyrene	620	
205-99-2	Benzo(b)fluoranthene	960	
207-08-9	Benzo(k)fluoranthene	620	
191-24-2	Benzo(ghi)perylene	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
111-44-4	bis(2-Chloroethyl) ether	400	U
117-81-7	bis(2-Ethylhexyl) phthalate	400	U
101-55-3	4-Bromophenyl phenyl ether	400	U
85-68-7	Butyl benzyl phthalate	400	U
106-47-8	4-Chloroaniline	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-58-7	2-Chloronaphthalene	400	U
95-57-8	2-Chlorophenol	400	U
7005-72-3	4-Chlorophenyl phenyl ether	400	U
218-01-9	Chrysene	690	
53-70-3	Dibenz(a,h)anthracene	400	U
132-64-9	Dibenzofuran	400	U
95-50-1	1,2-Dichlorobenzene	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
120-83-2	2,4-Dichlorophenol	400	U
84-66-2	Diethyl phthalate	400	U
105-67-9	2,4-Dimethylphenol	400	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLJ101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:17

QC Batch: 0245432

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	400	U
84-74-2	Di-n-butyl phthalate	400	U
117-84-0	Di-n-octyl phthalate	400	U
51-28-5	2,4-Dinitrophenol	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
121-14-2	2,4-Dinitrotoluene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
206-44-0	**Fluoranthene**	**770**	
86-73-7	Fluorene	400	U
118-74-1	Hexachlorobenzene	400	U
87-68-3	Hexachlorobutadiene	400	U
77-47-4	Hexachlorocyclopentadiene	1900	U
67-72-1	Hexachloroethane	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
78-59-1	Isophorone	400	U
91-57-6	2-Methylnaphthalene	400	U
95-48-7	2-Methylphenol	400	U
91-20-3	Naphthalene	400	U
88-74-4	2-Nitroaniline	1900	U
99-09-2	3-Nitroaniline	1900	U
100-01-6	4-Nitroaniline	1900	U
98-95-3	Nitrobenzene	400	U
88-75-5	2-Nitrophenol	400	U
100-02-7	4-Nitrophenol	1900	U
621-64-7	N-Nitrosodi-n-propylamine	400	U
86-30-6	N-Nitrosodiphenylamine	400	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	400	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLJ101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:17

QC Batch: 0245432

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	400	U
129-00-0	Pyrene	550	
120-82-1	1,2,4-Trichlorobenzene	400	U
95-95-4	2,4,5-Trichlorophenol	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
98-86-2	Acetophenone	400	U
53-96-3	2-Acetylaminofluorene	790	U
92-67-1	4-Aminobiphenyl	1900	U
62-53-3	Aniline	400	U
100-51-6	Benzyl alcohol	400	U
108-60-1	bis(2-Chloroisopropyl) ether	400	U
87-65-0	2,6-Dichlorophenol	400	U
297-97-2	Thionazin	1900	U
60-51-5	Dimethoate	790	U
60-11-7	p-Dimethylaminoazobenzene	790	U
57-97-6	7,12-Dimethylbenz(a)anthrace	790	U
119-93-7	3,3'-Dimethylbenzidine	1900	U
99-65-0	1,3-Dinitrobenzene	400	U
88-85-7	Dinoseb	790	U
122-39-4	Diphenylamine	400	U
298-04-4	Disulfoton	1900	U
62-50-0	Ethyl methanesulfonate	400	U
52-85-7	Famphur	4000	U
1888-71-7	Hexachloropropene	4000	U
465-73-6	Isodrin	400	U
120-58-1	Isosafrole	790	U
91-80-5	Methapyrilene	1900	U
95-53-4	o-Toluidine	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLJ101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:17

QC Batch: 0245432

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	790	U
66-27-3	Methyl methanesulfonate	400	U
298-00-0	Methyl parathion	400	U
108-39-4	3-Methylphenol	400	U
130-15-4	1,4-Naphthoquinone	1900	U
134-32-7	1-Naphthylamine	400	U
91-59-8	2-Naphthylamine	400	U
56-57-5	4-Nitroquinoline-1-oxide	4000	U
924-16-3	N-Nitrosodi-n-butylamine	400	U
55-18-5	N-Nitrosodiethylamine	400	U
62-75-9	N-Nitrosodimethylamine	400	U
10595-95-6	N-Nitrosomethylethylamine	400	U
59-89-2	N-Nitrosomorpholine	400	U
100-75-4	N-Nitrosopiperidine	400	U
930-55-2	N-Nitrosopyrrolidine	400	U
99-55-8	5-Nitro-o-toluidine	790	U
56-38-2	Parathion	400	U
608-93-5	Pentachlorobenzene	400	U
76-01-7	Pentachloroethane	1900	U
82-68-8	Pentachloronitrobenzene	1900	U
62-44-2	Phenacetin	790	U
106-50-3	p-Phenylene diamine	4000	U
298-02-2	Phorate	1900	U
109-06-8	2-Picoline	790	U
23950-58-5	Pronamide	790	U
110-86-1	Pyridine	790	U
94-59-7	Safrole	790	U
95-94-3	1,2,4,5-Tetrachlorobenzene	400	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLJ101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:17

QC Batch: 0245432

Client Sample Id: S44-SS02-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	400	U
3689-24-5	Sulfotepp	1900	U
126-68-1	O,O,O-Triethyl phosphorothio	1900	U
99-35-4	1,3,5-Trinitrobenzene	1900	U
122-09-8	a,a-Dimethylphenethylamine	1900	U
140-57-8	Aramite	1900	U
65794-96-9	3&4 Methylphenol total	400	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	390	U
208-96-8	Acenaphthylene	390	U
120-12-7	Anthracene	390	U
56-55-3	Benzo(a)anthracene	1200	
50-32-8	Benzo(a)pyrene	1600	
205-99-2	Benzo(b)fluoranthene	3500	E
207-08-9	Benzo(k)fluoranthene	1600	
191-24-2	Benzo(ghi)perylene	610	
111-91-1	bis(2-Chloroethoxy)methane	390	U
111-44-4	bis(2-Chloroethyl) ether	390	U
117-81-7	bis(2-Ethylhexyl) phthalate	390	U
101-55-3	4-Bromophenyl phenyl ether	390	U
85-68-7	Butyl benzyl phthalate	390	U
106-47-8	4-Chloroaniline	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-58-7	2-Chloronaphthalene	390	U
95-57-8	2-Chlorophenol	390	U
7005-72-3	4-Chlorophenyl phenyl ether	390	U
218-01-9	Chrysene	1900	
53-70-3	Dibenz(a,h)anthracene	390	U
132-64-9	Dibenzofuran	390	U
95-50-1	1,2-Dichlorobenzene	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
120-83-2	2,4-Dichlorophenol	390	U
84-66-2	Diethyl phthalate	390	U
105-67-9	2,4-Dimethylphenol	390	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	390	U
84-74-2	Di-n-butyl phthalate	390	U
117-84-0	Di-n-octyl phthalate	390	U
51-28-5	2,4-Dinitrophenol	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
121-14-2	2,4-Dinitrotoluene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
206-44-0	Fluoranthene	1900	
86-73-7	Fluorene	390	U
118-74-1	Hexachlorobenzene	390	U
87-68-3	Hexachlorobutadiene	390	U
77-47-4	Hexachlorocyclopentadiene	1900	U
67-72-1	Hexachloroethane	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	660	
78-59-1	Isophorone	390	U
91-57-6	2-Methylnaphthalene	390	U
95-48-7	2-Methylphenol	390	U
91-20-3	Naphthalene	390	U
88-74-4	2-Nitroaniline	1900	U
99-09-2	3-Nitroaniline	1900	U
100-01-6	4-Nitroaniline	1900	U
98-95-3	Nitrobenzene	390	U
88-75-5	2-Nitrophenol	390	U
100-02-7	4-Nitrophenol	1900	U
621-64-7	N-Nitrosodi-n-propylamine	390	U
86-30-6	N-Nitrosodiphenylamine	390	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	790	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	390	U
129-00-0	Pyrene	1200	
120-82-1	1,2,4-Trichlorobenzene	390	U
95-95-4	2,4,5-Trichlorophenol	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
98-86-2	Acetophenone	390	U
53-96-3	2-Acetylaminofluorene	790	U
92-67-1	4-Aminobiphenyl	1900	U
62-53-3	Aniline	390	U
100-51-6	Benzyl alcohol	390	U
108-60-1	bis(2-Chloroisopropyl) ether	390	U
87-65-0	2,6-Dichlorophenol	390	U
297-97-2	Thionazin	1900	U
60-51-5	Dimethoate	790	U
60-11-7	p-Dimethylaminoazobenzene	790	U
57-97-6	7,12-Dimethylbenz(a)anthrace	790	U
119-93-7	3,3'-Dimethylbenzidine	1900	U
99-65-0	1,3-Dinitrobenzene	390	U
88-85-7	Dinoseb	790	U
122-39-4	Diphenylamine	390	U
298-04-4	Disulfoton	1900	U
62-50-0	Ethyl methanesulfonate	390	U
52-85-7	Famphur	3900	U
1888-71-7	Hexachloropropene	3900	U
465-73-6	Isodrin	390	U
120-58-1	Isosafrole	790	U
91-80-5	Methapyrilene	1900	U
95-53-4	o-Toluidine	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	790	U
66-27-3	Methyl methanesulfonate	390	U
298-00-0	Methyl parathion	390	U
108-39-4	3-Methylphenol	390	U
130-15-4	1,4-Naphthoquinone	1900	U
134-32-7	1-Naphthylamine	390	U
91-59-8	2-Naphthylamine	390	U
56-57-5	4-Nitroquinoline-1-oxide	3900	U
924-16-3	N-Nitrosodi-n-butylamine	390	U
55-18-5	N-Nitrosodiethylamine	390	U
62-75-9	N-Nitrosodimethylamine	390	U
10595-95-6	N-Nitrosomethylethylamine	390	U
59-89-2	N-Nitrosomorpholine	390	U
100-75-4	N-Nitrosopiperidine	390	U
930-55-2	N-Nitrosopyrrolidine	390	U
99-55-8	5-Nitro-o-toluidine	790	U
56-38-2	Parathion	390	U
608-93-5	Pentachlorobenzene	390	U
76-01-7	Pentachloroethane	1900	U
82-68-8	Pentachloronitrobenzene	1900	U
62-44-2	Phenacetin	790	U
106-50-3	p-Phenylene diamine	3900	U
298-02-2	Phorate	1900	U
109-06-8	2-Picoline	790	U
23950-58-5	Pronamide	790	U
110-86-1	Pyridine	790	U
94-59-7	Safrole	790	U
95-94-3	1,2,4,5-Tetrachlorobenzene	390	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	390	U
3689-24-5	Sulfotepp	1900	U
126-68-1	O,O,O-Triethyl phosphorothio	1900	U
99-35-4	1,3,5-Trinitrobenzene	1900	U
122-09-8	a,a-Dimethylphenethylamine	1900	U
140-57-8	Aramite	1900	U
65794-96-9	3&4 Methylphenol total	390	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005

Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL201 Date Extracted:09/01/00
Dilution factor: 2 Date Analyzed: 09/12/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	790	U
208-96-8	Acenaphthylene	790	U
120-12-7	Anthracene	790	U
56-55-3	Benzo(a)anthracene	1200	
50-32-8	Benzo(a)pyrene	1500	
205-99-2	Benzo(b)fluoranthene	2700	
207-08-9	Benzo(k)fluoranthene	1100	
191-24-2	Benzo(ghi)perylene	1100	
111-91-1	bis(2-Chloroethoxy)methane	790	U
111-44-4	bis(2-Chloroethyl) ether	790	U
117-81-7	bis(2-Ethylhexyl) phthalate	790	U
101-55-3	4-Bromophenyl phenyl ether	790	U
85-68-7	Butyl benzyl phthalate	790	U
106-47-8	4-Chloroaniline	790	U
59-50-7	4-Chloro-3-methylphenol	790	U
91-58-7	2-Chloronaphthalene	790	U
95-57-8	2-Chlorophenol	790	U
7005-72-3	4-Chlorophenyl phenyl ether	790	U
218-01-9	Chrysene	1900	
53-70-3	Dibenz(a,h)anthracene	790	U
132-64-9	Dibenzofuran	790	U
95-50-1	1,2-Dichlorobenzene	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
91-94-1	3,3'-Dichlorobenzidine	3800	U
120-83-2	2,4-Dichlorophenol	790	U
84-66-2	Diethyl phthalate	790	U
105-67-9	2,4-Dimethylphenol	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL201 Date Extracted:09/01/00
Dilution factor: 2 Date Analyzed: 09/12/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	790	U
84-74-2	Di-n-butyl phthalate	790	U
117-84-0	Di-n-octyl phthalate	790	U
51-28-5	2,4-Dinitrophenol	3800	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
121-14-2	2,4-Dinitrotoluene	790	U
606-20-2	2,6-Dinitrotoluene	790	U
206-44-0	Fluoranthene	1900	
86-73-7	Fluorene	790	U
118-74-1	Hexachlorobenzene	790	U
87-68-3	Hexachlorobutadiene	790	U
77-47-4	Hexachlorocyclopentadiene	3800	U
67-72-1	Hexachloroethane	790	U
193-39-5	Indeno(1,2,3-cd)pyrene	1100	
78-59-1	Isophorone	790	U
91-57-6	2-Methylnaphthalene	790	U
95-48-7	2-Methylphenol	790	U
91-20-3	Naphthalene	790	U
88-74-4	2-Nitroaniline	3800	U
99-09-2	3-Nitroaniline	3800	U
100-01-6	4-Nitroaniline	3800	U
98-95-3	Nitrobenzene	790	U
88-75-5	2-Nitrophenol	790	U
100-02-7	4-Nitrophenol	3800	U
621-64-7	N-Nitrosodi-n-propylamine	790	U
86-30-6	N-Nitrosodiphenylamine	790	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL201 Date Extracted:09/01/00
Dilution factor: 2 Date Analyzed: 09/12/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	790	U
129-00-0	Pyrene	1400	
120-82-1	1,2,4-Trichlorobenzene	790	U
95-95-4	2,4,5-Trichlorophenol	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
98-86-2	Acetophenone	790	U
53-96-3	2-Acetylaminofluorene	1600	U
92-67-1	4-Aminobiphenyl	3800	U
62-53-3	Aniline	790	U
100-51-6	Benzyl alcohol	790	U
108-60-1	bis(2-Chloroisopropyl) ether	790	U
87-65-0	2,6-Dichlorophenol	790	U
297-97-2	Thionazin	3800	U
60-51-5	Dimethoate	1600	U
60-11-7	p-Dimethylaminoazobenzene	1600	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1600	U
119-93-7	3,3'-Dimethylbenzidine	3800	U
99-65-0	1,3-Dinitrobenzene	790	U
88-85-7	Dinoseb	1600	U
122-39-4	Diphenylamine	790	U
298-04-4	Disulfoton	3800	U
62-50-0	Ethyl methanesulfonate	790	U
52-85-7	Famphur	7900	U
1888-71-7	Hexachloropropene	7900	U
465-73-6	Isodrin	790	U
120-58-1	Isosafrole	1600	U
91-80-5	Methapyrilene	3800	U
95-53-4	o-Toluidine	1600	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL201 Date Extracted:09/01/00
Dilution factor: 2 Date Analyzed: 09/12/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	1600	U
66-27-3	Methyl methanesulfonate	790	U
298-00-0	Methyl parathion	790	U
108-39-4	3-Methylphenol	790	U
130-15-4	1,4-Naphthoquinone	3800	U
134-32-7	1-Naphthylamine	790	U
91-59-8	2-Naphthylamine	790	U
56-57-5	4-Nitroquinoline-1-oxide	7900	U
924-16-3	N-Nitrosodi-n-butylamine	790	U
55-18-5	N-Nitrosodiethylamine	790	U
62-75-9	N-Nitrosodimethylamine	790	U
10595-95-6	N-Nitrosomethylethylamine	790	U
59-89-2	N-Nitrosomorpholine	790	U
100-75-4	N-Nitrosopiperidine	790	U
930-55-2	N-Nitrosopyrrolidine	790	U
99-55-8	5-Nitro-o-toluidine	1600	U
56-38-2	Parathion	790	U
608-93-5	Pentachlorobenzene	790	U
76-01-7	Pentachloroethane	3800	U
82-68-8	Pentachloronitrobenzene	3800	U
62-44-2	Phenacetin	1600	U
106-50-3	p-Phenylene diamine	7900	U
298-02-2	Phorate	3800	U
109-06-8	2-Picoline	1600	U
23950-58-5	Pronamide	1600	U
110-86-1	Pyridine	1600	U
94-59-7	Safrole	1600	U
95-94-3	1,2,4,5-Tetrachlorobenzene	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 005
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLL201 Date Extracted:09/01/00
Dilution factor: 2 Date Analyzed: 09/12/00
Moisture %:16

QC Batch: 0245432

Client Sample Id: S44-SS03-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	790	U
3689-24-5	Sulfotepp	3800	U
126-68-1	O,O,O-Triethyl phosphorothio	3800	U
99-35-4	1,3,5-Trinitrobenzene	3800	U
122-09-8	a,a-Dimethylphenethylamine	3800	U
140-57-8	Aramite	3800	U
65794-96-9	3&4 Methylphenol total	790	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLP101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	380	U
208-96-8	Acenaphthylene	380	U
120-12-7	Anthracene	380	U
56-55-3	Benzo(a)anthracene	420	
50-32-8	Benzo(a)pyrene	530	
205-99-2	Benzo(b)fluoranthene	850	
207-08-9	Benzo(k)fluoranthene	600	
191-24-2	Benzo(ghi)perylene	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
111-44-4	bis(2-Chloroethyl) ether	380	U
117-81-7	bis(2-Ethylhexyl) phthalate	380	U
101-55-3	4-Bromophenyl phenyl ether	380	U
85-68-7	Butyl benzyl phthalate	380	U
106-47-8	4-Chloroaniline	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-58-7	2-Chloronaphthalene	380	U
95-57-8	2-Chlorophenol	380	U
7005-72-3	4-Chlorophenyl phenyl ether	380	U
218-01-9	Chrysene	560	
53-70-3	Dibenz(a,h)anthracene	380	U
132-64-9	Dibenzofuran	380	U
95-50-1	1,2-Dichlorobenzene	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
91-94-1	3,3'-Dichlorobenzidine	1800	U
120-83-2	2,4-Dichlorophenol	380	U
84-66-2	Diethyl phthalate	380	U
105-67-9	2,4-Dimethylphenol	380	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLP101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	380	U
84-74-2	Di-n-butyl phthalate	380	U
117-84-0	Di-n-octyl phthalate	380	U
51-28-5	2,4-Dinitrophenol	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
121-14-2	2,4-Dinitrotoluene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
206-44-0	**Fluoranthene**	**730**	
86-73-7	Fluorene	380	U
118-74-1	Hexachlorobenzene	380	U
87-68-3	Hexachlorobutadiene	380	U
77-47-4	Hexachlorocyclopentadiene	1800	U
67-72-1	Hexachloroethane	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
78-59-1	Isophorone	380	U
91-57-6	2-Methylnaphthalene	380	U
95-48-7	2-Methylphenol	380	U
91-20-3	Naphthalene	380	U
88-74-4	2-Nitroaniline	1800	U
99-09-2	3-Nitroaniline	1800	U
100-01-6	4-Nitroaniline	1800	U
98-95-3	Nitrobenzene	380	U
88-75-5	2-Nitrophenol	380	U
100-02-7	4-Nitrophenol	1800	U
621-64-7	N-Nitrosodi-n-propylamine	380	U
86-30-6	N-Nitrosodiphenylamine	380	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	380	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLP101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	380	U
129-00-0	Pyrene	400	
120-82-1	1,2,4-Trichlorobenzene	380	U
95-95-4	2,4,5-Trichlorophenol	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
98-86-2	Acetophenone	380	U
53-96-3	2-Acetylaminofluorene	760	U
92-67-1	4-Aminobiphenyl	1800	U
62-53-3	Aniline	380	U
100-51-6	Benzyl alcohol	380	U
108-60-1	bis(2-Chloroisopropyl) ether	380	U
87-65-0	2,6-Dichlorophenol	380	U
297-97-2	Thionazin	1800	U
60-51-5	Dimethoate	760	U
60-11-7	p-Dimethylaminoazobenzene	760	U
57-97-6	7,12-Dimethylbenz(a)anthrace	760	U
119-93-7	3,3'-Dimethylbenzidine	1800	U
99-65-0	1,3-Dinitrobenzene	380	U
88-85-7	Dinoseb	760	U
122-39-4	Diphenylamine	380	U
298-04-4	Disulfoton	1800	U
62-50-0	Ethyl methanesulfonate	380	U
52-85-7	Famphur	3800	U
1888-71-7	Hexachloropropene	3800	U
465-73-6	Isodrin	380	U
120-58-1	Isosafrole	760	U
91-80-5	Methapyrilene	1800	U
95-53-4	o-Toluidine	760	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLP101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	760	U
66-27-3	Methyl methanesulfonate	380	U
298-00-0	Methyl parathion	380	U
108-39-4	3-Methylphenol	380	U
130-15-4	1,4-Naphthoquinone	1800	U
134-32-7	1-Naphthylamine	380	U
91-59-8	2-Naphthylamine	380	U
56-57-5	4-Nitroquinoline-1-oxide	3800	U
924-16-3	N-Nitrosodi-n-butylamine	380	U
55-18-5	N-Nitrosodiethylamine	380	U
62-75-9	N-Nitrosodimethylamine	380	U
10595-95-6	N-Nitrosomethylethylamine	380	U
59-89-2	N-Nitrosomorpholine	380	U
100-75-4	N-Nitrosopiperidine	380	U
930-55-2	N-Nitrosopyrrolidine	380	U
99-55-8	5-Nitro-o-toluidine	760	U
56-38-2	Parathion	380	U
608-93-5	Pentachlorobenzene	380	U
76-01-7	Pentachloroethane	1800	U
82-68-8	Pentachloronitrobenzene	1800	U
62-44-2	Phenacetin	760	U
106-50-3	p-Phenylene diamine	3800	U
298-02-2	Phorate	1800	U
109-06-8	2-Picoline	760	U
23950-58-5	Pronamide	760	U
110-86-1	Pyridine	760	U
94-59-7	Safrole	760	U
95-94-3	1,2,4,5-Tetrachlorobenzene	380	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLP101 Date Extracted:09/01/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:13

QC Batch: 0245432

Client Sample Id: S44-SS04-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	380	U
3689-24-5	Sulfotepp	1800	U
126-68-1	O,O,O-Triethyl phosphorothio	1800	U
99-35-4	1,3,5-Trinitrobenzene	1800	U
122-09-8	a,a-Dimethylphenethylamine	1800	U
140-57-8	Aramite	1800	U
65794-96-9	3&4 Methylphenol total	380	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	390	U
208-96-8	Acenaphthylene	390	U
120-12-7	Anthracene	390	U
56-55-3	Benzo(a)anthracene	660	
50-32-8	Benzo(a)pyrene	790	
205-99-2	Benzo(b)fluoranthene	1500	
207-08-9	Benzo(k)fluoranthene	900	
191-24-2	Benzo(ghi)perylene	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
111-44-4	bis(2-Chloroethyl) ether	390	U
117-81-7	bis(2-Ethylhexyl) phthalate	390	U
101-55-3	4-Bromophenyl phenyl ether	390	U
85-68-7	Butyl benzyl phthalate	390	U
106-47-8	4-Chloroaniline	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-58-7	2-Chloronaphthalene	390	U
95-57-8	2-Chlorophenol	390	U
7005-72-3	4-Chlorophenyl phenyl ether	390	U
218-01-9	Chrysene	920	
53-70-3	Dibenz(a,h)anthracene	390	U
132-64-9	Dibenzofuran	390	U
95-50-1	1,2-Dichlorobenzene	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
120-83-2	2,4-Dichlorophenol	390	U
84-66-2	Diethyl phthalate	390	U
105-67-9	2,4-Dimethylphenol	390	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	390	U
84-74-2	Di-n-butyl phthalate	390	U
117-84-0	Di-n-octyl phthalate	390	U
51-28-5	2,4-Dinitrophenol	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
121-14-2	2,4-Dinitrotoluene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
206-44-0	**Fluoranthene**	**1100**	
86-73-7	Fluorene	390	U
118-74-1	Hexachlorobenzene	390	U
87-68-3	Hexachlorobutadiene	390	U
77-47-4	Hexachlorocyclopentadiene	1900	U
67-72-1	Hexachloroethane	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
78-59-1	Isophorone	390	U
91-57-6	2-Methylnaphthalene	390	U
95-48-7	2-Methylphenol	390	U
91-20-3	Naphthalene	390	U
88-74-4	2-Nitroaniline	1900	U
99-09-2	3-Nitroaniline	1900	U
100-01-6	4-Nitroaniline	1900	U
98-95-3	Nitrobenzene	390	U
88-75-5	2-Nitrophenol	390	U
100-02-7	4-Nitrophenol	1900	U
621-64-7	N-Nitrosodi-n-propylamine	390	U
86-30-6	N-Nitrosodiphenylamine	390	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	390	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	390	U
129-00-0	Pyrene	640	
120-82-1	1,2,4-Trichlorobenzene	390	U
95-95-4	2,4,5-Trichlorophenol	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
98-86-2	Acetophenone	390	U
53-96-3	2-Acetylaminofluorene	780	U
92-67-1	4-Aminobiphenyl	1900	U
62-53-3	Aniline	390	U
100-51-6	Benzyl alcohol	390	U
108-60-1	bis(2-Chloroisopropyl) ether	390	U
87-65-0	2,6-Dichlorophenol	390	U
297-97-2	Thionazin	1900	U
60-51-5	Dimethoate	780	U
60-11-7	p-Dimethylaminoazobenzene	780	U
57-97-6	7,12-Dimethylbenz(a)anthrace	780	U
119-93-7	3,3'-Dimethylbenzidine	1900	U
99-65-0	1,3-Dinitrobenzene	390	U
88-85-7	Dinoseb	780	U
122-39-4	Diphenylamine	390	U
298-04-4	Disulfoton	1900	U
62-50-0	Ethyl methanesulfonate	390	U
52-85-7	Famphur	3900	U
1888-71-7	Hexachloropropene	3900	U
465-73-6	Isodrin	390	U
120-58-1	Isosafrole	780	U
91-80-5	Methapyrilene	1900	U
95-53-4	o-Toluidine	780	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	780	U
66-27-3	Methyl methanesulfonate	390	U
298-00-0	Methyl parathion	390	U
108-39-4	3-Methylphenol	390	U
130-15-4	1,4-Naphthoquinone	1900	U
134-32-7	1-Naphthylamine	390	U
91-59-8	2-Naphthylamine	390	U
56-57-5	4-Nitroquinoline-1-oxide	3900	U
924-16-3	N-Nitrosodi-n-butylamine	390	U
55-18-5	N-Nitrosodiethylamine	390	U
62-75-9	N-Nitrosodimethylamine	390	U
10595-95-6	N-Nitrosomethylethylamine	390	U
59-89-2	N-Nitrosomorpholine	390	U
100-75-4	N-Nitrosopiperidine	390	U
930-55-2	N-Nitrosopyrrolidine	390	U
99-55-8	5-Nitro-o-toluidine	780	U
56-38-2	Parathion	390	U
608-93-5	Pentachlorobenzene	390	U
76-01-7	Pentachloroethane	1900	U
82-68-8	Pentachloronitrobenzene	1900	U
62-44-2	Phenacetin	780	U
106-50-3	p-Phenylene diamine	3900	U
298-02-2	Phorate	1900	U
109-06-8	2-Picoline	780	U
23950-58-5	Pronamide	780	U
110-86-1	Pyridine	780	U
94-59-7	Safrole	780	U
95-94-3	1,2,4,5-Tetrachlorobenzene	390	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	390	U
3689-24-5	Sulfotepp	1900	U
126-68-1	O,O,O-Triethyl phosphorothio	1900	U
99-35-4	1,3,5-Trinitrobenzene	1900	U
122-09-8	a,a-Dimethylphenethylamine	1900	U
140-57-8	Aramite	1900	U
65794-96-9	3&4 Methylphenol total	390	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR10D Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	1230	
59-50-7	4-Chloro-3-methylphenol	1920	
95-57-8	2-Chlorophenol	1580	
106-46-7	1,4-Dichlorobenzene	954	
121-14-2	2,4-Dinitrotoluene	1700	
100-02-7	4-Nitrophenol	2660	
621-64-7	N-Nitrosodi-n-propylamine	973	
87-86-5	Pentachlorophenol	2780	
108-95-2	Phenol	1470	
129-00-0	Pyrene	1600	
120-82-1	1,2,4-Trichlorobenzene	1100	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS
MATRIX SPIKE DUPLICATE COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 009
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLR10E Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:15

QC Batch: 0250546

Client Sample Id: S44-SS05-0.0-0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	1350	
59-50-7	4-Chloro-3-methylphenol	2190	
95-57-8	2-Chlorophenol	1730	
106-46-7	1,4-Dichlorobenzene	1050	
121-14-2	2,4-Dinitrotoluene	1900	
100-02-7	4-Nitrophenol	3030	
621-64-7	N-Nitrosodi-n-propylamine	1070	
87-86-5	Pentachlorophenol	3090	
108-95-2	Phenol	1610	
129-00-0	Pyrene	1740	
120-82-1	1,2,4-Trichlorobenzene	1190	

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 011
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLW201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:17

QC Batch: 0250546

Client Sample Id: S44-SS02-0.0-0.5 D -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	400	U
208-96-8	Acenaphthylene	400	U
120-12-7	Anthracene	400	U
56-55-3	Benzo(a)anthracene	480	
50-32-8	Benzo(a)pyrene	600	
205-99-2	Benzo(b)fluoranthene	1100	
207-08-9	Benzo(k)fluoranthene	650	
191-24-2	Benzo(ghi)perylene	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
111-44-4	bis(2-Chloroethyl) ether	400	U
117-81-7	bis(2-Ethylhexyl) phthalate	400	U
101-55-3	4-Bromophenyl phenyl ether	400	U
85-68-7	Butyl benzyl phthalate	400	U
106-47-8	4-Chloroaniline	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-58-7	2-Chloronaphthalene	400	U
95-57-8	2-Chlorophenol	400	U
7005-72-3	4-Chlorophenyl phenyl ether	400	U
218-01-9	Chrysene	650	
53-70-3	Dibenz(a,h)anthracene	400	U
132-64-9	Dibenzofuran	400	U
95-50-1	1,2-Dichlorobenzene	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
120-83-2	2,4-Dichlorophenol	400	U
84-66-2	Diethyl phthalate	400	U
105-67-9	2,4-Dimethylphenol	400	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 011
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLW201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:17

QC Batch: 0250546

Client Sample Id: S44-SS02-0.0-0.5 D -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	400	U
84-74-2	Di-n-butyl phthalate	400	U
117-84-0	Di-n-octyl phthalate	400	U
51-28-5	2,4-Dinitrophenol	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
121-14-2	2,4-Dinitrotoluene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
206-44-0	**Fluoranthene**	**730**	
86-73-7	Fluorene	400	U
118-74-1	Hexachlorobenzene	400	U
87-68-3	Hexachlorobutadiene	400	U
77-47-4	Hexachlorocyclopentadiene	1900	U
67-72-1	Hexachloroethane	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
78-59-1	Isophorone	400	U
91-57-6	2-Methylnaphthalene	400	U
95-48-7	2-Methylphenol	400	U
91-20-3	Naphthalene	400	U
88-74-4	2-Nitroaniline	1900	U
99-09-2	3-Nitroaniline	1900	U
100-01-6	4-Nitroaniline	1900	U
98-95-3	Nitrobenzene	400	U
88-75-5	2-Nitrophenol	400	U
100-02-7	4-Nitrophenol	1900	U
621-64-7	N-Nitrosodi-n-propylamine	400	U
86-30-6	N-Nitrosodiphenylamine	400	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	400	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 011
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLW201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:17

QC Batch: 0250546

Client Sample Id: S44-SS02-0.0-0.5 D -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	400	U
129-00-0	Pyrene	480	
120-82-1	1,2,4-Trichlorobenzene	400	U
95-95-4	2,4,5-Trichlorophenol	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
98-86-2	Acetophenone	400	U
53-96-3	2-Acetylaminofluorene	800	U
92-67-1	4-Aminobiphenyl	1900	U
62-53-3	Aniline	400	U
100-51-6	Benzyl alcohol	400	U
108-60-1	bis(2-Chloroisopropyl) ether	400	U
87-65-0	2,6-Dichlorophenol	400	U
297-97-2	Thionazin	1900	U
60-51-5	Dimethoate	800	U
60-11-7	p-Dimethylaminoazobenzene	800	U
57-97-6	7,12-Dimethylbenz(a)anthrace	800	U
119-93-7	3,3'-Dimethylbenzidine	1900	U
99-65-0	1,3-Dinitrobenzene	400	U
88-85-7	Dinoseb	800	U
122-39-4	Diphenylamine	400	U
298-04-4	Disulfoton	1900	U
62-50-0	Ethyl methanesulfonate	400	U
52-85-7	Famphur	4000	U
1888-71-7	Hexachloropropene	4000	U
465-73-6	Isodrin	400	U
120-58-1	Isosafrole	800	U
91-80-5	Methapyrilene	1900	U
95-53-4	o-Toluidine	800	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 011
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLW201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:17

QC Batch: 0250546

Client Sample Id: S44-SS02-0.0-0.5 D -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
56-49-5	3-Methylcholanthrene	800	U
66-27-3	Methyl methanesulfonate	400	U
298-00-0	Methyl parathion	400	U
108-39-4	3-Methylphenol	400	U
130-15-4	1,4-Naphthoquinone	1900	U
134-32-7	1-Naphthylamine	400	U
91-59-8	2-Naphthylamine	400	U
56-57-5	4-Nitroquinoline-1-oxide	4000	U
924-16-3	N-Nitrosodi-n-butylamine	400	U
55-18-5	N-Nitrosodiethylamine	400	U
62-75-9	N-Nitrosodimethylamine	400	U
10595-95-6	N-Nitrosomethylethylamine	400	U
59-89-2	N-Nitrosomorpholine	400	U
100-75-4	N-Nitrosopiperidine	400	U
930-55-2	N-Nitrosopyrrolidine	400	U
99-55-8	5-Nitro-o-toluidine	800	U
56-38-2	Parathion	400	U
608-93-5	Pentachlorobenzene	400	U
76-01-7	Pentachloroethane	1900	U
82-68-8	Pentachloronitrobenzene	1900	U
62-44-2	Phenacetin	800	U
106-50-3	p-Phenylene diamine	4000	U
298-02-2	Phorate	1900	U
109-06-8	2-Picoline	800	U
23950-58-5	Pronamide	800	U
110-86-1	Pyridine	800	U
94-59-7	Safrole	800	U
95-94-3	1,2,4,5-Tetrachlorobenzene	400	U

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) SOLID Lab Sample ID:C0H310243 011
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/31/00
Work Order: DJPLW201 Date Extracted:09/06/00
Dilution factor: 1 Date Analyzed: 09/12/00
Moisture %:17

QC Batch: 0250546

Client Sample Id: S44-SS02-0.0-0.5 D -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
58-90-2	2,3,4,6-Tetrachlorophenol	400	U
3689-24-5	Sulfotepp	1900	U
126-68-1	O,O,O-Triethyl phosphorothio	1900	U
99-35-4	1,3,5-Trinitrobenzene	1900	U
122-09-8	a,a-Dimethylphenethylamine	1900	U
140-57-8	Aramite	1900	U
65794-96-9	3&4 Methylphenol total	400	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0101 Date Extracted:09/05/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
83-32-9	Acenaphthene	10	U
208-96-8	Acenaphthylene	10	U
98-86-2	Acetophenone	10	U
53-96-3	2-Acetylaminofluorene	20	U
92-67-1	4-Aminobiphenyl	50	U
62-53-3	Aniline	10	U
120-12-7	Anthracene	10	U
56-55-3	Benzo(a)anthracene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
191-24-2	Benzo(ghi)perylene	10	U
50-32-8	Benzo(a)pyrene	10	U
100-51-6	Benzyl alcohol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
111-44-4	bis(2-Chloroethyl) ether	10	U
108-60-1	bis(2-Chloroisopropyl) ether	10	U
117-81-7	bis(2-Ethylhexyl) phthalate	170	E
101-55-3	4-Bromophenyl phenyl ether	10	U
85-68-7	Butyl benzyl phthalate	10	U
106-47-8	4-Chloroaniline	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-58-7	2-Chloronaphthalene	10	U
95-57-8	2-Chlorophenol	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
218-01-9	Chrysene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
132-64-9	Dibenzofuran	10	U
84-74-2	Di-n-butyl phthalate	10	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0101 Date Extracted:09/05/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
91-94-1	3,3'-Dichlorobenzidine	50	U
120-83-2	2,4-Dichlorophenol	10	U
87-65-0	2,6-Dichlorophenol	10	U
84-66-2	Diethyl phthalate	10	U
297-97-2	Thionazin	50	U
60-51-5	Dimethoate	20	U
60-11-7	p-Dimethylaminoazobenzene	20	U
57-97-6	7,12-Dimethylbenz(a)anthrace	20	U
119-93-7	3,3'-Dimethylbenzidine	50	U
105-67-9	2,4-Dimethylphenol	10	U
131-11-3	Dimethyl phthalate	10	U
117-84-0	Di-n-octyl phthalate	10	U
99-65-0	1,3-Dinitrobenzene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
51-28-5	2,4-Dinitrophenol	50	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
88-85-7	Dinoseb	20	U
122-39-4	Diphenylamine	10	U
298-04-4	Disulfoton	50	U
62-50-0	Ethyl methanesulfonate	10	U
52-85-7	Famphur	100	U
206-44-0	Fluoranthene	10	U
86-73-7	Fluorene	10	U
118-74-1	Hexachlorobenzene	10	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0101 Date Extracted:09/05/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
87-68-3	Hexachlorobutadiene	10	U
77-47-4	Hexachlorocyclopentadiene	50	U
67-72-1	Hexachloroethane	10	U
70-30-4	Hexachlorophene	10	U
1888-71-7	Hexachloropropene	100	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
465-73-6	Isodrin	10	U
78-59-1	Isophorone	10	U
120-58-1	Isosafrole	20	U
91-80-5	Methapyrilene	50	U
95-53-4	o-Toluidine	20	U
56-49-5	3-Methylcholanthrene	20	U
66-27-3	Methyl methanesulfonate	10	U
91-57-6	2-Methylnaphthalene	10	U
298-00-0	Methyl parathion	10	U
95-48-7	2-Methylphenol	10	U
108-39-4	3-Methylphenol	10	U
91-20-3	Naphthalene	10	U
130-15-4	1,4-Naphthoquinone	50	U
134-32-7	1-Naphthylamine	10	U
91-59-8	2-Naphthylamine	10	U
88-74-4	2-Nitroaniline	50	U
99-09-2	3-Nitroaniline	50	U
100-01-6	4-Nitroaniline	50	U
98-95-3	Nitrobenzene	10	U
88-75-5	2-Nitrophenol	10	U
100-02-7	4-Nitrophenol	50	U
56-57-5	4-Nitroquinoline-1-oxide	100	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0101 Date Extracted:09/05/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
924-16-3	N-Nitrosodi-n-butylamine	10	U
55-18-5	N-Nitrosodiethylamine	10	U
62-75-9	N-Nitrosodimethylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
10595-95-6	N-Nitrosomethylethylamine	10	U
59-89-2	N-Nitrosomorpholine	10	U
100-75-4	N-Nitrosopiperidine	10	U
930-55-2	N-Nitrosopyrrolidine	10	U
99-55-8	5-Nitro-o-toluidine	20	U
56-38-2	Parathion	10	U
608-93-5	Pentachlorobenzene	10	U
76-01-7	Pentachloroethane	50	U
82-68-8	Pentachloronitrobenzene	50	U
87-86-5	Pentachlorophenol	50	U
62-44-2	Phenacetin	20	U
85-01-8	Phenanthrene	10	U
108-95-2	Phenol	10	U
106-50-3	p-Phenylene diamine	100	U
298-02-2	Phorate	50	U
109-06-8	2-Picoline	20	U
23950-58-5	Pronamide	20	U
129-00-0	Pyrene	10	U
110-86-1	Pyridine	20	U
94-59-7	Safrole	20	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
3689-24-5	Sulfotepp	50	U

FORM I

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MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name: Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID: C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0101 Date Extracted: 09/05/00
Dilution factor: 1 Date Analyzed: 09/11/00
Moisture %: NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
120-82-1	1,2,4-Trichlorobenzene	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
126-68-1	O,O,O-Triethyl phosphorothio	50	U
99-35-4	1,3,5-Trinitrobenzene	50	U
65794-96-9	3-Methylphenol & 4-Methylphe	20	U
122-09-8	a,a-Dimethylphenethylamine	50	U
140-57-8	Aramite	50	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013 DL
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0201 Date Extracted:09/05/00
Dilution factor: 3 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
83-32-9	Acenaphthene	30	U
208-96-8	Acenaphthylene	30	U
98-86-2	Acetophenone	30	U
53-96-3	2-Acetylaminofluorene	60	U
92-67-1	4-Aminobiphenyl	150	U
62-53-3	Aniline	30	U
120-12-7	Anthracene	30	U
56-55-3	Benzo(a)anthracene	30	U
205-99-2	Benzo(b)fluoranthene	30	U
207-08-9	Benzo(k)fluoranthene	30	U
191-24-2	Benzo(ghi)perylene	30	U
50-32-8	Benzo(a)pyrene	30	U
100-51-6	Benzyl alcohol	30	U
111-91-1	bis(2-Chloroethoxy)methane	30	U
111-44-4	bis(2-Chloroethyl) ether	30	U
108-60-1	bis(2-Chloroisopropyl) ether	30	U
117-81-7	bis(2-Ethylhexyl) phthalate	190	
101-55-3	4-Bromophenyl phenyl ether	30	U
85-68-7	Butyl benzyl phthalate	30	U
106-47-8	4-Chloroaniline	30	U
59-50-7	4-Chloro-3-methylphenol	30	U
91-58-7	2-Chloronaphthalene	30	U
95-57-8	2-Chlorophenol	30	U
7005-72-3	4-Chlorophenyl phenyl ether	30	U
218-01-9	Chrysene	30	U
53-70-3	Dibenz(a,h)anthracene	30	U
132-64-9	Dibenzofuran	30	U
84-74-2	Di-n-butyl phthalate	30	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0201 Date Extracted:09/05/00
Dilution factor: 3 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	30	U
91-94-1	3,3'-Dichlorobenzidine	150	U
120-83-2	2,4-Dichlorophenol	30	U
87-65-0	2,6-Dichlorophenol	30	U
84-66-2	Diethyl phthalate	30	U
297-97-2	Thionazin	150	U
60-51-5	Dimethoate	60	U
60-11-7	p-Dimethylaminoazobenzene	60	U
57-97-6	7,12-Dimethylbenz(a)anthrace	60	U
119-93-7	3,3'-Dimethylbenzidine	150	U
105-67-9	2,4-Dimethylphenol	30	U
131-11-3	Dimethyl phthalate	30	U
117-84-0	Di-n-octyl phthalate	30	U
99-65-0	1,3-Dinitrobenzene	30	U
534-52-1	4,6-Dinitro-2-methylphenol	150	U
51-28-5	2,4-Dinitrophenol	150	U
121-14-2	2,4-Dinitrotoluene	30	U
606-20-2	2,6-Dinitrotoluene	30	U
88-85-7	Dinoseb	60	U
122-39-4	Diphenylamine	30	U
298-04-4	Disulfoton	150	U
62-50-0	Ethyl methanesulfonate	30	U
52-85-7	Famphur	300	U
206-44-0	Fluoranthene	30	U
86-73-7	Fluorene	30	U
118-74-1	Hexachlorobenzene	30	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0201 Date Extracted:09/05/00
Dilution factor: 3 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
87-68-3	Hexachlorobutadiene	30	U
77-47-4	Hexachlorocyclopentadiene	150	U
67-72-1	Hexachloroethane	30	U
70-30-4	Hexachlorophene	30	U
1888-71-7	Hexachloropropene	300	U
193-39-5	Indeno(1,2,3-cd)pyrene	30	U
465-73-6	Isodrin	30	U
78-59-1	Isophorone	30	U
120-58-1	Isosafrole	60	U
91-80-5	Methapyrilene	150	U
95-53-4	o-Toluidine	60	U
56-49-5	3-Methylcholanthrene	60	U
66-27-3	Methyl methanesulfonate	30	U
91-57-6	2-Methylnaphthalene	30	U
298-00-0	Methyl parathion	30	U
95-48-7	2-Methylphenol	30	U
108-39-4	3-Methylphenol	30	U
91-20-3	Naphthalene	30	U
130-15-4	1,4-Naphthoquinone	150	U
134-32-7	1-Naphthylamine	30	U
91-59-8	2-Naphthylamine	30	U
88-74-4	2-Nitroaniline	150	U
99-09-2	3-Nitroaniline	150	U
100-01-6	4-Nitroaniline	150	U
98-95-3	Nitrobenzene	30	U
88-75-5	2-Nitrophenol	30	U
100-02-7	4-Nitrophenol	150	U
56-57-5	4-Nitroquinoline-1-oxide	300	U

FORM I

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0201 Date Extracted:09/05/00
Dilution factor: 3 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
924-16-3	N-Nitrosodi-n-butylamine	30	U
55-18-5	N-Nitrosodiethylamine	30	U
62-75-9	N-Nitrosodimethylamine	30	U
621-64-7	N-Nitrosodi-n-propylamine	30	U
86-30-6	N-Nitrosodiphenylamine	30	U
10595-95-6	N-Nitrosomethylethylamine	30	U
59-89-2	N-Nitrosomorpholine	30	U
100-75-4	N-Nitrosopiperidine	30	U
930-55-2	N-Nitrosopyrrolidine	30	U
99-55-8	5-Nitro-o-toluidine	60	U
56-38-2	Parathion	30	U
608-93-5	Pentachlorobenzene	30	U
76-01-7	Pentachloroethane	150	U
82-68-8	Pentachloronitrobenzene	150	U
87-86-5	Pentachlorophenol	150	U
62-44-2	Phenacetin	60	U
85-01-8	Phenanthrene	30	U
108-95-2	Phenol	30	U
106-50-3	p-Phenylene diamine	300	U
298-02-2	Phorate	150	U
109-06-8	2-Picoline	60	U
23950-58-5	Pronamide	60	U
129-00-0	Pyrene	30	U
110-86-1	Pyridine	60	U
94-59-7	Safrole	60	U
95-94-3	1,2,4,5-Tetrachlorobenzene	30	U
58-90-2	2,3,4,6-Tetrachlorophenol	30	U
3689-24-5	Sulfotepp	150	U

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:

Matrix: (soil/water) WATER Lab Sample ID:C0H310243 013
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 08/31/00
Work Order: DJPM0201 Date Extracted:09/05/00
Dilution factor: 3 Date Analyzed: 09/11/00
Moisture %:NA

QC Batch: 0250095

Client Sample Id: S44-SS03-0.0-0.5 EB -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
120-82-1	1,2,4-Trichlorobenzene	30	U
95-95-4	2,4,5-Trichlorophenol	30	U
88-06-2	2,4,6-Trichlorophenol	30	U
126-68-1	O,O,O-Triethyl phosphorothio	150	U
99-35-4	1,3,5-Trinitrobenzene	150	U
65794-96-9	3-Methylphenol & 4-Methylphe	60	U
122-09-8	a,a-Dimethylphenethylamine	150	U
140-57-8	Aramite	150	U

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPM0 **Client ID:** S44-SS03-0.0-0.5 EB

Matrix: Water **Units:** ug/L **Prep Date:** 9/11/00 **Prep Batch:** 0255112

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	10.0	10.0	10.0	U	1	ICPST	9/13/00	7:43
Barium	493.41	200	200	200	U	1	ICPST	9/13/00	7:43
Cadmium	226.50	5.0	5.0	5.0	U	1	ICPST	9/13/00	7:43
Chromium	267.72	5.0	5.0	5.0	U	1	ICPST	9/13/00	7:43
Lead	220.35	3.0	3.0	3.0	U	1	ICPST	9/13/00	7:43
Selenium	220.35	5.0	5.0	5.0	U	1	ICPST	9/13/00	7:43

Comments: Lot #: C0H310243 Sample #: 13

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLA **Client ID:** S44-SS01-0.0-0.5

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 13.40

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**2.3**	**2.3**	**9.9**		**2**	**ICPST**	**9/13/00**	**8:46**
Barium	493.41	46.2	46.2	46.2	U	2	ICPST	9/13/00	8:46
Cadmium	226.50	1.2	1.2	1.2	U	2	ICPST	9/13/00	8:46
Chromium	**267.72**	**1.2**	**1.2**	**14.4**		**2**	**ICPST**	**9/13/00**	**8:46**
Lead	**220.35**	**0.69**	**0.69**	**35.8**		**2**	**ICPST**	**9/13/00**	**8:46**
Selenium	220.35	1.2	1.2	1.2	U	2	ICPST	9/13/00	8:46

Comments: Lot #: C0H310243 Sample #: 1

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

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STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLJ **Client ID:** S44-SS02-0.0-0.5

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 16.70

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.2	1.2	9.5		1	ICPST	9/13/00	8:20
Barium	493.41	24.0	24.0	24.4		1	ICPST	9/13/00	8:20
Cadmium	226.50	0.60	0.60	0.60	U	1	ICPST	9/13/00	8:20
Chromium	267.72	0.60	0.60	11.8		1	ICPST	9/13/00	8:20
Lead	220.35	0.36	0.36	23.1		1	ICPST	9/13/00	8:20
Selenium	220.35	1.2	1.2	1.4		2	ICPST	9/13/00	10:09

Comments: Lot #: C0H310243 Sample #: 3

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLL **Client ID:** S44-SS03-0.0-0.5

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 16.43

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.2	1.2	8.8		1	ICPST	9/13/00	8:25
Barium	493.41	23.9	23.9	57.3		1	ICPST	9/13/00	8:25
Cadmium	226.50	0.60	0.60	0.60	U	1	ICPST	9/13/00	8:25
Chromium	267.72	0.60	0.60	21.7		1	ICPST	9/13/00	8:25
Lead	220.35	0.36	0.36	45.2		1	ICPST	9/13/00	8:25
Selenium	220.35	0.60	0.60	1.5		1	ICPST	9/13/00	8:25

Comments: Lot #: C0H310243 Sample #: 5

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLP **Client ID:** S44-SS04-0.0-0.5

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 13.01

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.2	1.2	7.0		1	ICPST	9/13/00	8:29
Barium	493.41	23.0	23.0	30.6		1	ICPST	9/13/00	8:29
Cadmium	226.50	0.58	0.58	0.58	U	1	ICPST	9/13/00	8:29
Chromium	267.72	0.58	0.58	13.6		1	ICPST	9/13/00	8:29
Lead	220.35	0.35	0.35	26.8		1	ICPST	9/13/00	8:29
Selenium	220.35	1.2	1.2	1.8		2	ICPST	9/13/00	10:14

Comments: Lot #: C0H310243 Sample #: 7

Version 4.10.2

U Result is less than the MDL
B Result is between MDL and RL

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLR **Client ID:** S44-SS05-0.0-0.5

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 15.45

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.2	1.2	11.6		1	ICPST	9/13/00	8:33
Barium	493.41	23.7	23.7	40.8		1	ICPST	9/13/00	8:33
Cadmium	226.50	0.59	0.59	0.59	U	1	ICPST	9/13/00	8:33
Chromium	267.72	0.59	0.59	14.6		1	ICPST	9/13/00	8:33
Lead	220.35	0.36	0.36	27.5		1	ICPST	9/13/00	8:33
Selenium	220.35	1.2	1.2	1.7		2	ICPST	9/13/00	10:18

Comments: Lot #: C0H310243 Sample #: 9

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: DJPLW **Client ID:** S44-SS02-0.0-0.5 D

Matrix: Soil **Units:** mg/kg **Prep Date:** 9/11/00 **Prep Batch:** 0255226

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 17.27

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.2	1.2	10.4		1	ICPST	9/13/00	8:37
Barium	493.41	24.2	24.2	26.3		1	ICPST	9/13/00	8:37
Cadmium	226.50	0.60	0.60	0.60	U	1	ICPST	9/13/00	8:37
Chromium	267.72	0.60	0.60	13.2		1	ICPST	9/13/00	8:37
Lead	220.35	0.36	0.36	23.9		1	ICPST	9/13/00	8:37
Selenium	220.35	1.2	1.2	1.4		2	ICPST	9/13/00	10:23

Comments: Lot #: C0H310243 Sample #: 11

Version 4.10.2

U Result is less than the MDL

B Result is between MDL and RL

Form 1 Equivalent

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS01-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-001 Work Order #...: DJPLA Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.58	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
	Dilution Factor: 1			MS Run #.....: 0245043		
Cyanide, Total	1.1	0.58	mg/kg	SW846 9012A	09/01-09/07/00	0245150
	Dilution Factor: 1			MS Run #.....: 0245041		
Percent Solids	86.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
	Dilution Factor: 1			MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS01-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-002 Work Order #...: DJPLH Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	86.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS02-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-003 Work Order #...: DJPLJ Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.60	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.60	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	83.3		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
		Dilution Factor: 1		MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS02-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-004 Work Order #...: DJPLK Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	83.3		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/J.i/060600a.b/j3747.d
Report Date: 06/07/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j3747.d
Analysis Type: SOIL

Injection Date: 07-JUN-2000 04:40
Lab Sample ID: Sec. Source
Method File: /chem/J.i/060600a.b/J5030-8260B-soil.

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
75	1,2-Dibromo-3-chloropropane	50.0000	49.0311	1.9	50.0	
105	1,2,4-Trichlorobenzene	50.0000	41.3774	17.2	50.0	
106	Hexachlorobutadiene	50.0000	38.9560	22.1	50.0	
107	Napthalene	50.0000	36.5866	26.8	50.0	Not TC
108	1,2,3-Trichlorobenzene	50.0000	40.3743	19.3	50.0	

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

STL Denver

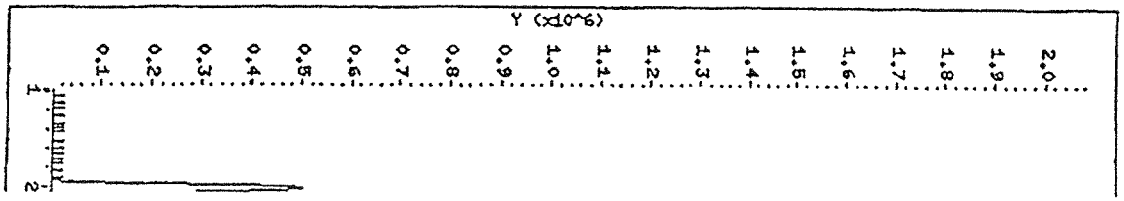
INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/060600a.b/J5030-8260B-soil.m
Cal Date : 07-Jun-2000 13:27 appelhad
Curve Type : Average

Calibration File Names:
Level 1: /chem/J.i/060600a.b/j3741.d
Level 2: /chem/J.i/060600a.b/j3742.d
Level 3: /chem/J.i/060600a.b/j3743.d
Level 4: /chem/J.i/060600a.b/j3744.d
Level 5: /chem/J.i/060600a.b/j3745.d
Level 6: /chem/J.i/060600a.b/j3746.d

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	8 Dichlorofluoromethane	0.17682	0.19102	0.23298	0.27103	0.30491	0.34321	0.25333	25.706
	11 Ethyl Ether	0.22209	0.22085	0.21147	0.19828	0.19833	0.19656	0.20793	5.668
	15 Trichlorotrifluoroethane	0.43742	0.40135	0.37809	0.38028	0.35385	0.35876	0.38496	8.001
	17 Carbon Disulfide	0.99744	0.90372	0.85998	0.85628	0.78211	0.78983	0.86489	9.201
	19 Allyl Chloride	0.56930	0.50207	0.47068	0.46339	0.43284	0.43467	0.47882	10.687
	24 Methyl t-butyl ether	0.82321	0.76226	0.74812	0.69087	0.67806	0.67314	0.72928	8.116
	25 Hexane	2.64101	2.47004	2.13758	2.23907	2.03321	2.04445	2.26089	10.881
	27 Vinyl acetate	0.71666	0.72568	0.67479	0.65971	0.66675	0.66208	0.68428	4.264
	34 Ethyl Acetate	0.39240	0.32285	0.29358	0.28903	0.28740	0.29152	0.31280	13.158
	38 Tetrahydrofuran	0.08477	0.08892	0.07194	0.07297	0.07411	0.07433	0.07784	9.184
	115 Cyclohexane	0.60810	0.55812	0.50434	0.51391	0.46128	0.46775	0.51892	10.787
	56 2-Chloroethyl vinyl ether	+++++	0.01349	0.01365	0.01430	0.01542	0.01809	0.01499	12.630
	51 Methyl Methacrylate	0.30610	0.30671	0.29131	0.28101	0.27964	0.28248	0.29121	4.278
	55 2-nitropropane	0.29412	0.33069	0.28729	0.30337	0.29747	0.30340	0.30272	4.950
	62 Ethyl methacrylate	1.78076	1.80444	1.66427	1.61070	1.58218	1.60012	1.67375	5.756
	84 t-1,4-Dichloro-2-butene	0.21910	0.22796	0.20345	0.22051	0.21373	0.21604	0.21680	3.757
\$	39 Dibromofluoromethane	0.38525	0.37816	0.38497	0.37214	0.36774	0.37040	0.37644	2.003
\$	44 1,2-Dichloroethane-d4	0.23351	0.22806	0.22888	0.22663	0.22354	0.22393	0.22742	1.615
\$	59 Toluene-d8	4.12460	4.06575	4.05889	4.01006	3.96914	3.91560	4.02400	1.861
\$	80 Bromofluorobenzene	1.45182	1.46720	1.45068	1.45425	1.42106	1.39547	1.44008	1.847

D+TC



ECM Soil

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/J.i/090600.b/j5028.d
Report Date: 09/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
85 1,2-Dichloroethene (total)	100.0000	101.8871	1.9	50.0
83 Xylene (total)	150.0000	149.8505	0.1	50.0
64 dichlorodifluoromethane	50.0000	51.3361	2.7	50.0
1 Chloromethane	50.0000	43.7872	12.4	50.0
4 Vinyl Chloride	50.0000	47.6567	4.7	20.0
2 Bromomethane	50.0000	48.1219	3.8	50.0
5 Chloroethane	50.0000	46.5835	6.8	50.0
11 Trichlorofluoromethane	50.0000	57.5746	15.1	50.0
3 Ethanol	2500.0000	2134.8397	14.6	50.0
8 Acrolein	500.0000	484.6033	3.1	50.0
12 1,1-Dichloroethene	50.0000	49.4296	1.1	20.0
7 Acetone	100.0000	138.4197	38.4	50.0
21 Iodomethane	50.0000	56.7127	13.4	50.0
68 Acetonitrile	500.0000	482.2790	3.5	50.0
6 Methylene Chloride	50.0000	50.4068	0.8	50.0
86 tert-Butyl alcohol	1000.0000	1105.3954	10.5	50.0
9 Acrylonitrile	500.0000	459.7919	8.0	50.0
0 trans-1,2-Dichloroethene	50.0000	50.3770	0.8	50.0
15 1,1-Dichloroethane	50.0000	51.4916	3.0	50.0
84 Isopropyl ether	250.0000	265.8951	6.4	50.0
69 Chloroprene	50.0000	50.9775	2.0	50.0
20 2-Butanone	100.0000	107.7590	7.8	50.0
0 cis-1,2-Dichloroethene	50.0000	51.5101	3.0	50.0
93 2,2-Dichloropropane	50.0000	51.2325	2.5	50.0
70 Propionitrile	500.0000	478.0795	4.4	50.0
72 Methacrylonitrile	500.0000	473.8584	5.2	50.0
13 Bromochloromethane	50.0000	53.8252	7.7	50.0
17 Chloroform	50.0000	51.1880	2.4	20.0
22 1,1,1-Trichloroethane	50.0000	51.7698	3.5	50.0
94 1,1-Dichloropropene	50.0000	49.5672	0.9	50.0
23 Carbon Tetrachloride	50.0000	51.8314	3.7	50.0
71 Isobutanol	1000.0000	988.6047	1.1	50.0
30 Benzene	50.0000	48.8716	2.3	50.0
16 1,2-Dichloroethane	50.0000	53.1992	6.4	50.0
90 Fluorobenzene	50.0000	50.0000	0.0	50.0
88 n-Butanol	1000.0000	1067.9807	6.8	50.0
29 Trichloroethene	50.0000	51.9805	4.0	50.0
26 1,2-Dichloropropane	50.0000	50.7755	1.6	20.0
34 Dibromomethane	50.0000	52.9480	5.9	50.0

OK 8-6

CCU Soil

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/J.i/090600.b/j5028.d
Report Date: 09/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
57	1,4-Dioxane	2500.0000	2498.6646	0.1	50.0	
25	Bromodichloromethane	50.0000	53.4446	6.9	50.0	
28	cis-1,3-Dichloropropene	50.0000	54.1334	8.3	50.0	
38	4-Methyl-2-pentanone	100.0000	99.5549	0.4	50.0	
45	Toluene	50.0000	47.8522	4.3	20.0	
31	trans-1,3-Dichloropropene	50.0000	52.1458	4.3	50.0	
32	1,1,2-Trichloroethane	50.0000	50.0231	0.0	50.0	
109	1,3-Dichloropropane	50.0000	49.6869	0.6	50.0	
42	Tetrachloroethene	50.0000	51.5960	3.2	50.0	
43	2-Hexanone	100.0000	109.3148	9.3	50.0	
36	Dibromochloromethane	50.0000	52.4986	5.0	50.0	
58	1,2-Dibromoethane	50.0000	50.9770	2.0	50.0	
92	1-Chlorohexane	50.0000	50.1255	0.3	50.0	
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
46	Chlorobenzene	50.0000	50.1656	0.3	50.0	
74	1,1,1,2-Tetrachloroethane	50.0000	52.2930	4.6	50.0	
47	Ethylbenzene	50.0000	50.4244	0.8	20.0	
0	m and p-Xylene	100.0000	99.4388	0.6	50.0	
49	Styrene	50.0000	54.0087	8.0	50.0	
0	o-Xylene	50.0000	50.4117	0.8	50.0	
37	Bromoform	50.0000	57.6138	15.2	50.0	
79	isopropyl benzene	50.0000	50.9786	2.0	50.0	
76	Cyclohexanone	1000.0000	3007.8288	200.8	50.0	<- Not RC
40	1,1,2,2-Tetrachloroethane	50.0000	42.1913	15.6	50.0	
95	Bromobenzene	50.0000	46.9485	6.1	50.0	
50	1,2,3-Trichloropropane	50.0000	44.8168	10.4	50.0	
96	n-Propylbenzene	50.0000	44.3024	11.4	50.0	
97	2-Chlorotoluene	50.0000	43.6133	12.8	50.0	
98	1,3,5-Trimethylbenzene	50.0000	43.7879	12.4	50.0	
99	4-Chlorotoluene	50.0000	45.3461	9.3	50.0	
100	tert-Butylbenzene	50.0000	42.3012	15.4	50.0	
101	1,2,4-Trimethylbenzene	50.0000	45.9312	8.1	50.0	
102	sec-Butylbenzene	50.0000	43.6425	12.7	50.0	
61	m-Dichlorobenzene	50.0000	48.8462	2.3	50.0	
103	4-Isopropyltoluene	50.0000	45.5156	9.0	50.0	
91	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0	
62	p-dichlorobenzene	50.0000	48.1529	3.7	50.0	
104	n-Butylbenzene	50.0000	49.7634	0.5	50.0	
63	o-Dichlorobenzene	50.0000	48.0748	3.9	50.0	

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS03-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-005 Work Order #...: DJPLL Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.60	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.60	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	83.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
		Dilution Factor: 1		MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS03-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-006 Work Order #...: DJPLM Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	83.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS04-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-007 Work Order #...: DJPLP Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.57	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.57	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	87.0		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
		Dilution Factor: 1		MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS04-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-008 Work Order #...: DJPLQ Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	87.0		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS05-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-009 Work Order #...: DJPLR Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.59	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.59	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	84.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
		Dilution Factor: 1		MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS05-0.0-0.5

General Chemistry

Lot-Sample #...: C0H310243-010 Work Order #...: DJPLV Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	84.6		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS02-0.0-0.5 D

General Chemistry

Lot-Sample #...: C0H310243-011 Work Order #...: DJPLW Matrix.....: SO
Date Sampled...: 08/29/00 Date Received..: 08/31/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide (Free)	ND	0.60	mg/kg	SM18 4500-CN-I	09/01-09/07/00	0245151
		Dilution Factor: 1		MS Run #.....: 0245043		
Cyanide, Total	ND	0.60	mg/kg	SW846 9012A	09/01-09/07/00	0245150
		Dilution Factor: 1		MS Run #.....: 0245041		
Percent Solids	82.7		%	MCAWW 160.3 MOD	09/05-09/06/00	0249302
		Dilution Factor: 1		MS Run #.....: 0249130		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Client Sample ID: S44-SS02-0.0-0.5 D

General Chemistry

Lot-Sample #...: C0H310243-012 Work Order #...: DJPLX Matrix.....: SO
Date Sampled...: 08/30/00 Date Received..: 08/31/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	82.7		%	MCAWW 160.3 MOD	09/05-09/06/00	0258175

Dilution Factor: 1 MS Run #.....: 0249130

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Savannah Laboratories
a division of Severn Trent Laboratories, Inc.
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: SO-05994
Received: 01 SEP 00
Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16570102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05994-1	SS44-SS01-0.0-0.5*SO	08-29-00/16:30	ALCO01
05994-2	SS44-SS02-0.0-0.5*SO	08-29-00/17:00	ALCO01
05994-3	SS44-SS03-0.0-0.5*SO	08-29-00/17:20	ALCO01
05994-4	SS44-SS04-0.0-0.5*SO	08-29-00/17:10	ALCO01
05994-5	SS44-SS05-0.0-0.5*SO	08-29-00/16:50	ALCO01

PARAMETER	05994-1	05994-2	05994-3	05994-4	05994-5
Fluoride (340.2)					
Fluoride, mg/kg dw	36	21	16	36	40
Dilution Factor	1	1	1	1	1
Prep Date	09.12.00	09.12.00	09.12.00	09.12.00	09.12.00
Analysis Date	09.13.00	09.13.00	09.13.00	09.13.00	09.13.00
Analysis Time	14:30	14:30	14:30	14:30	14:30
Batch ID	0912A	0912A	0912A	0912A	0912A
Percent Solids	84	82	82	85	83

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Savannah Laboratories
a division of Severn Trent Laboratories, Inc
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165 • www.stlsavlab.com

LOG NO: S0-05994
Received: 01 SEP 00
Reported: 29 SEP 00

Mr. Veronica Bortot
Severn Trent Laboratories
450 William Pitt Way - Bldg 6
Pittsburg, PA 15238

Project: Alcoa Badin
Sampled By: Client
Code: 16570102

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
05994-6	SS44-SS02-0.0-0.5 DUP*SO	08-29-00/17:00	ALCO01

PARAMETER	05994-6
Fluoride (340.2)	
Fluoride, mg/kg dw	22
Dilution Factor	1
Prep Date	09.12.00
Analysis Date	09.13.00
Analysis Time	14:30
Batch ID	0912A
Percent Solids	81

Code of Federal Regulations, Title 40, Part 136; Washington DC, July 1, 1997.

Angie Stewart, Project Manager

Final Page Of Report

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Support Documentation

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

CASE NARRATIVE

MFG Environmental
Alcoa Badin, NC Works

STL Lot # C0H310243

Sample Receiving:
STL Pittsburgh received samples for analysis August 31, 2000. The cooler temperatures were within the proper temperature range.

GC/MS Volatiles:
STL Denver performed the GC/MS Volatile analysis. All data is included in the package.

The 3rd internal standard for sample S44-SS03-0.0-0.5 was outside of the recovery limits. The sample was reanalyzed with the same occurrence. The second analysis was reported.

GC/MS Semivolatiles:
Due to the concentration of target compounds detected, sample S44-SS03-0.0-0.5 was analyzed undiluted and at a 2X dilution. Both sets of data are reported.

Due to the concentration of target compounds detected, sample S44-SS03-0.0-0.5 EB was analyzed undiluted and at a 3X dilution. Both sets of data are reported.

Metals:
Several samples were over the instruments linear range for manganese. The samples were diluted for selenium due to interelement corrections associated with manganese.

Sample S44-SS01-000-0.5 and the matrix spike, matrix spike duplicate were diluted for arsenic, barium, cadmium, chromium, lead, and selenium due to high counts of the internal standard on the Trace ICP.

A reporting limit verification standard (CRA) was analyzed 2.0ug\L for cadmium and at 10ug\L for chromium. These are lower than the requested levels of 5.0ug\L for cadmium and 5.0ug\L for chromium.

General Chemistry:
As a general comment, please note that in the STL Pittsburgh lab reports the method description for *SM4500-CN-I* will read Free Cyanide and not Weak Acid Dissociable Cyanide.

There were no problems associated with the analyses.

STL Savannah performed the fluoride analysis. The data will be submitted at a later date.

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P: Preserved
UP: Unpreserved

Sample ID	TMET PH<2	DMET PH<2	HG PH<2	NUT(1) PH<2	CN PH ≥12	OG TPHC PH<2	PHEN PH<2	SULF PH ≥12	TOC PH<2	TOX PH<2	VOA P/UP	hrdnss PH<2			

(1) "NUT" could include sample bottles for ammonia, chemical oxygen demand, nitrate/nitrite, TKN, or total phosphorus

Comments: _____

Cooler Number	Temperature
	3°

Bottle Type	Lot Number*

* Please use an asterisk if bottle lot number was covered by the label.

TB + RB not labeled

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SEVERN TRENT DENVER Contract:

Lab Code: Case No.: 0251435 SAS No.: 8260B SDG No.: C0H310243

Lab File ID (Standard): J5029 Date Analyzed: 09/06/00

Instrument ID: J Time Analyzed: 1453

GC Column: DB624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(CBZ) AREA #	RT #	IS2 AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	402121	10.34	1708354	7.15	657485	13.32
	UPPER LIMIT	804242	10.84	3416708	7.65	1314970	13.82
	LOWER LIMIT	201060	9.84	854177	6.65	328742	12.82
	CLIENT SAMPLE NO.						
01	LCS	402591	10.34	1703275	7.14	721322	13.32
02	PBLK	399301	10.34	1687681	7.14	656596	13.32
03	LCSD	385379	10.34	1710040	7.15	710199	13.32
04	S44-SS01-0.0	347266	10.34	1646401	7.15	421628	13.32
05	S44-SS21-0.0	361005	10.34	1666732	7.15	437015	13.32
06	S44-SS04-0.0	347856	10.34	1669993	7.15	393654	13.32
07	S44-SS05-0.0	345964	10.32	1672203	7.13	385804	13.32
08	S44-SS02-0.0	375259	10.32	1720521	7.13	476006	13.32
09	S44-SS03-0.0	268384	10.33	1542572	7.13	235619*	13.32
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (CBZ) = Chlorobenzene-d5
IS2 = Fluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Report Date : 13-Sep-2000 16:21 Page 1

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 28-AUG-2000 11:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/091200.b/H-20ml-h2o.m
Cal Date : 12-Sep-2000 18:28 hoffmanm
Curve Type : Average

Calibration File Names:
Level 1: /chem/H.i/082800.b/h1282.d
Level 2: /chem/H.i/082800.b/h1283.d
Level 3: /chem/H.i/082800.b/h1284.d
Level 4: /chem/H.i/082800.b/h1285.d
Level 5: /chem/H.i/082800.b/h1286.d
Level 6: /chem/H.i/082800.b/h1287.d

	Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD	
M	1 1,2-Dichloroethene (total)	0.32511	0.29995	0.30223	0.30399	0.29951	0.29852	0.30488	3.315	
M	2 Xylene (total)	6.57829	6.62597	6.49529	6.46531	6.47987	6.34490	6.49827	1.503	
	3 dichlorodifluoromethane	0.48710	0.42699	0.45270	0.45393	0.42706	0.42118	0.44483	5.620	
	4 Chloromethane	0.24965	0.24755	0.23329	0.23727	0.22995	0.22140	0.23652	4.541	
	5 Vinyl Chloride	0.32408	0.29858	0.29815	0.29700	0.28872	0.28059	0.29785	4.913	
	6 Ethylene Oxide	0.00385	0.00327	0.00275	0.00268	0.00291	0.00304	0.00308	14.037	DoT TC
	7 Bromomethane	0.27220	0.29101	0.27253	0.26931	0.26072	0.24826	0.26901	5.272	
	8 Chloroethane	0.21866	0.20281	0.20642	0.20272	0.19601	0.19265	0.20321	4.471	
	9 Dichlorofluoromethane	0.57305	0.52079	0.56317	0.53730	0.63068	0.61691	0.57365	7.538	
	10 Trichlorofluoromethane	0.69855	0.67166	0.64569	0.64789	0.63147	0.60683	0.65035	4.890	
	11 Ethanol	+++++	0.00029	0.00033	0.00034	0.00035	0.00034	0.00033	7.712	DoT TC
	12 Ethyl Ether	0.13487	0.10275	0.09216	0.09337	0.09352	0.09377	0.10174	16.399	
	13 Acrolein	0.00765	0.00781	0.00750	0.00797	0.00805	0.00792	0.00782	2.629	
	14 1,1-Dichloroethene	0.34618	0.32716	0.32114	0.32808	0.31852	0.31001	0.32518	3.751	
	15 Acetone	+++++	0.02196	0.01654	0.01549	0.01619	0.01564	0.01716	15.815	
	16 Trichlorotrifluoroethane	0.71224	0.60685	0.58584	0.57555	0.64295	0.58655	0.61833	8.389	
	17 Iodomethane	0.76558	0.73554	0.72891	0.73615	0.73361	0.68782	0.73127	3.415	
	18 Carbon Disulfide	1.22266	1.03138	0.98261	0.97705	1.19032	1.02798	1.07200	9.985	
	19 Acetonitrile	0.00411	0.00239	0.00260	0.00278	0.00297	0.00300	0.00298	20.140	
	20 Allyl Chloride	0.45369	0.39108	0.37631	0.36753	0.48424	0.40102	0.41231	11.255	
	21 Methylene Chloride	0.24463	0.23351	0.22574	0.23215	0.21962	0.21652	0.22869	4.495	
	22 tert-Butyl alcohol	0.00380	0.00368	0.00371	0.00395	0.00390	0.00377	0.00380	2.800	DoT TC
	23 Acrylonitrile	0.01276	0.01044	0.01070	0.01146	0.01198	0.01243	0.01163	8.026	
	24 trans-1,2-Dichloroethene	0.34328	0.31280	0.32109	0.32283	0.31401	0.30990	0.32065	3.789	
	25 Methyl t-butyl ether	0.37186	0.34576	0.30284	0.30121	0.31895	0.29407	0.32245	9.446	

Agrees

Report Date : 13-Sep-2000 16:21 Page 2

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 28-AUG-2000 11:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/091200.b/H-20ml-h2o.m
Cal Date : 12-Sep-2000 18:28 hoffmanm
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	___ RRF	% RSD
26 Hexane	3.00653	2.60877	2.50080	2.46890	2.41210	2.65709	2.60903	8.229
27 1,1-Dichloroethane	0.51824	0.50638	0.49833	0.51168	0.51903	0.54208	0.51596	2.898
28 Chloroprene	0.45637	0.43977	0.44203	0.45439	0.47115	0.49574	0.45991	4.539
29 Vinyl acetate	0.19103	0.16698	0.12639	0.13496	0.17273	0.17536	0.16124	15.584
30 Isopropyl ether	0.19962	0.19833	0.20168	0.21629	0.22514	0.23185	0.21215	6.771
31 2,2-Dichloropropane	0.55043	0.52682	0.50510	0.50280	0.47111	0.46503	0.50355	6.453
32 cis-1,2-Dichloroethene	0.30695	0.28710	0.28338	0.28514	0.28501	0.28714	0.28912	3.060
113 2-Chloroethyl vinyl ether	0.11850	0.09662	0.08764	0.07912	0.07563	0.07972	0.08954	17.947
33 2-Butanone	+++++	0.02295	0.01829	0.02072	0.02202	0.02252	0.02130	8.836
34 Propionitrile	0.00404	0.00395	0.00373	0.00432	0.00398	0.00431	0.00406	5.643
35 Ethyl Acetate	0.06867	0.07668	0.05104	0.05161	0.04907	0.04994	0.05783	20.414
36 Methacrylonitrile	0.02604	0.02743	0.02759	0.02931	0.03125	0.03213	0.02895	8.196
37 Bromochloromethane	0.10866	0.10817	0.10716	0.11259	0.11199	0.11053	0.10985	1.997
38 Chloroform	0.51976	0.51424	0.51279	0.53611	0.52088	0.52134	0.52085	1.590
39 Tetrahydrofuran	+++++	0.01552	0.01116	0.01042	0.01100	0.01120	0.01186	17.435
41 1,1,1-Trichloroethane	0.58241	0.56643	0.55475	0.56153	0.53728	0.53839	0.55680	3.106
114 Cyclohexane	0.56264	0.48490	0.46803	0.45569	0.48282	0.48721	0.49022	7.645
42 1,1-Dichloropropene	0.52635	0.50994	0.50971	0.51575	0.51283	0.52158	0.51602	1.299
43 Carbon Tetrachloride	0.53661	0.54005	0.53119	0.53975	0.53234	0.53601	0.53599	0.685
45 Isobutanol	+++++	0.00086	0.00104	0.00134	0.00145	0.00138	0.00121	20.638
46 Benzene	0.96249	0.93339	0.92625	0.94483	0.94249	0.94753	0.94283	1.322
47 1,2-Dichloroethane	0.16419	0.15636	0.15552	0.16280	0.16183	0.16385	0.16076	2.385
49 n-Butanol	+++++	0.00069	0.00089	0.00102	0.00106	0.00106	0.00095	16.730
50 Trichloroethene	0.41516	0.39885	0.40074	0.40609	0.39610	0.39496	0.40198	1.881
51 Crotonaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
52 1,2-Dichloropropane	0.22395	0.21694	0.22012	0.22694	0.22198	0.22456	0.22241	1.594
53 Dibromomethane	0.09622	0.09973	0.09350	0.10198	0.09724	0.09598	0.09744	3.081
54 Methyl Methacrylate	0.06246	0.05824	0.05991	0.05386	0.05591	0.05941	0.05830	5.232
55 1,4-Dioxane	0.00051	0.00049	0.00054	0.00058	0.00058	0.00057	0.00054	7.109
56 Bromodichloromethane	0.35258	0.34181	0.33818	0.35282	0.34852	0.34653	0.34674	1.690
57 2-nitropropane	+++++	0.06091	0.05757	0.06478	0.06408	0.06265	0.06200	4.652
59 cis-1,3-Dichloropropene	1.71161	1.72120	1.68114	1.71137	1.62599	1.53283	1.66402	4.394
60 4-Methyl-2-pentanone	0.25977	0.23835	0.26780	0.29021	0.27420	0.25781	0.26469	6.580

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 28-AUG-2000 11:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/091200.b/H-20ml-h2o.m
Cal Date : 12-Sep-2000 18:28 hoffmanm
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD
62 Toluene	5.87524	5.60605	5.49127	5.45965	5.20290	4.93219	5.42788	6.016
63 trans-1,3-Dichloropropene	1.06877	1.11739	1.03288	1.07663	1.01762	0.95153	1.04414	5.491
64 Ethyl methacrylate	0.89381	0.82120	0.70718	0.56848	0.58646	0.61505	0.69870	19.170
65 1,1,2-Trichloroethane	0.57187	0.56634	0.56821	0.58903	0.55017	0.52467	0.56171	3.915
66 Tetrachloroethene	2.34397	2.32108	2.24893	2.21777	2.09308	1.99037	2.20253	6.206
67 1,3-Dichloropropane	1.15226	1.12982	1.10937	1.14605	1.09476	1.05024	1.11375	3.407
68 2-Hexanone	0.16530	0.17238	0.16156	0.17021	0.17654	0.16769	0.16895	3.136
69 Dibromochloromethane	1.15031	1.14604	1.10954	1.14581	1.08861	1.02955	1.11165	4.242
70 1,2-Dibromoethane	0.70136	0.64415	0.65148	0.66678	0.64196	0.60163	0.65123	5.024
71 1-Chlorohexane	2.75829	2.76007	2.71269	2.68331	2.63766	2.59817	2.69170	2.424
73 Chlorobenzene	3.11605	3.03983	3.02417	3.06056	2.98325	2.88029	3.01738	2.656
74 1,1,1,2-Tetrachloroethane	1.56754	1.51428	1.49324	1.51287	1.43759	1.41173	1.48954	3.799
75 Ethylbenzene	1.78852	1.76849	1.70791	1.73092	1.68308	1.63166	1.71843	3.339
76 m and p-Xylene	2.30498	2.30410	2.29352	2.27496	2.28810	2.24443	2.28502	0.997
77 o-Xylene	1.96832	2.01776	1.90825	1.91539	1.90368	1.85604	1.92824	2.934
78 Styrene	2.64270	2.65207	2.69290	2.80174	2.78035	2.71709	2.71447	2.414
79 Bromoform	0.59395	0.58504	0.60088	0.61805	0.59741	0.56493	0.59338	2.977
80 Isopropyl benzene	6.63113	6.54625	6.54906	6.48033	6.29300	6.05162	6.42523	3.356
81 Cyclohexanone	0.02406	0.02401	0.02359	0.02419	0.02432	0.02340	0.02393	1.493
83 1,1,2,2-Tetrachloroethane	0.57921	0.59581	0.56467	0.53382	0.57960	0.56457	0.56961	3.690
84 Bromobenzene	0.96735	0.94750	0.91166	0.89185	0.83740	0.82257	0.89639	6.472
85 1,2,3-Trichloropropane	0.11150	0.09706	0.09461	0.08678	0.08317	0.08248	0.09260	11.894
86 t-1,4-Dichloro-2-butene	0.05493	0.05385	0.04934	0.04337	0.04484	0.04283	0.04819	11.060
87 n-Propylbenzene	1.06520	1.01602	1.00804	0.94615	0.92912	0.93231	0.98281	5.629
88 2-Chlorotoluene	0.89304	0.85652	0.80933	0.75950	0.72849	0.72799	0.79581	8.664
89 1,3,5-Trimethylbenzene	3.18752	3.11866	3.04777	2.76867	2.69806	2.73435	2.92584	7.390
90 4-Chlorotoluene	0.85134	0.91157	0.92399	0.81070	0.80233	0.80156	0.85025	6.534
91 tert-Butylbenzene	3.73906	3.58309	3.45556	3.18780	3.08691	3.11712	3.36159	8.046
92 1,2,4-Trimethylbenzene	2.61815	2.57132	2.52299	2.40767	2.37321	2.37721	2.47843	4.288
93 sec-Butylbenzene	1.06931	0.96982	1.00964	0.92420	0.88922	0.89778	0.95999	7.317
94 m-Dichlorobenzene	1.59736	1.48215	1.44866	1.42211	1.41067	1.45569	1.46944	4.600
95 4-Isopropyltoluene	3.64367	3.46245	3.49940	3.34318	3.35133	3.38884	3.44815	3.306
97 p-dichlorobenzene	1.77331	1.73109	1.74806	1.70919	1.69994	1.68810	1.72495	1.859

DOT RE

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STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 28-AUG-2000 11:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/091200.b/H-20ml-h2o.m
Cal Date : 12-Sep-2000 18:28 hoffmanm
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD
98 n-Butylbenzene	2.49365	2.47863	2.70696	2.68519	2.85096	3.01280	2.70470	7.619
99 o-Dichlorobenzene	1.22245	1.13242	1.14359	1.12621	1.07767	1.06509	1.12790	4.965
100 1,2-Dibromo-3-chloropropane	0.07004	0.06926	0.06731	0.06743	0.06448	0.06311	0.06694	4.009
101 1,2,4-Trichlorobenzene	0.54215	0.54734	0.59903	0.63871	0.68529	0.70226	0.61913	10.991
102 Hexachlorobutadiene	1.21405	1.22167	1.21367	1.14775	1.07380	1.07429	1.15754	6.047
103 Napthalene	0.38877	0.39645	0.43439	0.45004	0.50922	0.52910	0.45133	12.772
104 1,2,3-Trichlorobenzene	0.44001	0.42978	0.48131	0.48970	0.50146	0.51283	0.47585	7.066
$ 40 Dibromofluoromethane	0.34909	0.36892	0.36401	0.36236	0.35770	0.36337	0.36091	1.888
$ 44 1,2-Dichloroethane-d4	0.14451	0.14211	0.14049	0.14222	0.13529	0.13758	0.14037	2.409
$ 61 Toluene-d8	4.32983	4.25628	4.34158	4.33424	4.43565	4.39467	4.34871	1.411
$ 82 Bromofluorobenzene	1.59400	1.73927	1.73314	1.71618	1.71078	1.77566	1.71150	3.619

Report Date : 07-Sep-2000 16:58 Page 1

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/090600.b/J5030-8260B-soil.m
Cal Date : 06-Sep-2000 14:51 appelhad
Curve Type : Average

Calibration File Names:
Level 1: /chem/J.i/060600a.b/j3741.d
Level 2: /chem/J.i/060600a.b/j3742.d
Level 3: /chem/J.i/060600a.b/j3743.d
Level 4: /chem/J.i/060600a.b/j3744.d
Level 5: /chem/J.i/060600a.b/j3745.d
Level 6: /chem/J.i/060600a.b/j3746.d

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD	
M	1 1,2-Dichloroethene (total)	0.33903	0.32437	0.32860	0.30106	0.28483	0.28390	0.31030	7.612	
M	2 Xylene (total)	5.30544	4.94331	4.52358	3.95463	3.62403	3.51221	4.31053	16.956	
	3 dichlorodifluoromethane	0.31999	0.30680	0.30844	0.27847	0.26853	0.27407	0.29272	7.367	
	4 Chloromethane	0.24196	0.22358	0.22617	0.20998	0.20081	0.20682	0.21822	6.969	
	5 Vinyl Chloride	0.23394	0.23108	0.23636	0.21955	0.21191	0.21788	0.22512	4.431	
	112 Ethylene Oxide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<- Do not TC
	6 Bromomethane	0.24810	0.24028	0.23676	0.21604	0.20499	0.19505	0.22354	9.532	
	7 Chloroethane	0.16325	0.16153	0.16164	0.15392	0.14786	0.14534	0.15559	4.963	
	8 Dichlorofluoromethane	0.17682	0.19102	0.23298	0.27103	0.30491	0.34321	0.25333	25.706	
	9 Trichlorofluoromethane	0.30769	0.34838	0.36712	0.37827	0.37254	0.39937	0.36223	8.672	
	11 Ethyl Ether	0.22209	0.22085	0.21147	0.19628	0.19833	0.19656	0.20793	5.668	
	113 Propylene Oxide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<- Do not TC
	12 Acrolein	0.03789	0.03719	0.03700	0.03413	0.03192	0.03352	0.03528	6.824	
	13 1,1-Dichloroethene	0.29006	0.27542	0.27714	0.25202	0.24375	0.24845	0.26447	7.127	
	15 Trichlorotrifluoroethane	0.43742	0.40135	0.37809	0.38028	0.35385	0.35876	0.38496	8.001	
	10 Ethanol	0.00297	0.00196	0.00206	0.00198	0.00188	0.00200	0.00214	19.081	Do not TC
	14 Acetone	+++++	0.06483	0.06885	0.06209	0.05988	0.06247	0.06362	5.356	
	16 Iodomethane	0.50024	0.48846	0.49593	0.45664	0.44249	0.44422	0.47133	5.627	
	17 Carbon Disulfide	0.99744	0.90372	0.85998	0.85628	0.78211	0.78983	0.86489	9.201	
	19 Allyl Chloride	0.56930	0.50207	0.47068	0.46339	0.43284	0.43467	0.47882	10.687	
	18 Acetonitrile	0.01876	0.01760	0.01859	0.01763	0.01694	0.01845	0.01799	3.959	~~Do not TC~~ K 6/8/00
	20 Methylene Chloride	0.30194	0.28018	0.27163	0.24863	0.23848	0.23986	0.26345	9.644	
	21 tert-Butyl alcohol	0.02853	0.02432	0.02656	0.02410	0.02283	0.02431	0.02513	8.220	Do not TC
	22 Acrylonitrile	0.06844	0.06223	0.06517	0.05929	0.05686	0.05881	0.06180	7.067	
	24 Methyl t-butyl ether	0.82321	0.76226	0.74812	0.69087	0.67806	0.67314	0.72928	8.116	

Data File: /chem/J.i/060600a.b/j3747.d
Report Date: 06/07/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j3747.d
Analysis Type: SOIL

Injection Date: 07-JUN-2000 04:40
Lab Sample ID: Sec. Source
Method File: /chem/J.i/060600a.b/J5030-8260B-soil.

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
85	1,2-Dichloroethene (total)	100.0000	101.9386	1.9	50.0	
83	Xylene (total)	150.0000	145.2971	3.1	50.0	
64	dichlorodifluoromethane	50.0000	65.4753	31.0	50.0	
1	Chloromethane	50.0000	54.6389	9.3	50.0	
4	Vinyl Chloride	50.0000	56.6492	13.3	20.0	
2	Bromomethane	50.0000	54.1584	8.3	50.0	
5	Chloroethane	50.0000	53.8404	7.7	50.0	
11	Trichlorofluoromethane	50.0000	56.3980	12.8	50.0	
3	Ethanol	2500.0000	0.0000	100.0	50.0	<- ot
8	Acrolein	500.0000	0.0000	100.0	50.0	<- ot
7	Acetone	100.0000	93.9954	6.0	50.0	
12	1,1-Dichloroethene	50.0000	52.9585	5.9	20.0	
21	Iodomethane	50.0000	0.0000	100.0	50.0	<- ot
68	Acetonitrile	500.0000	0.0000	100.0	50.0	<- ot
6	Methylene Chloride	50.0000	50.5340	1.1	50.0	
86	tert-Butyl alcohol	1000.0000	0.0000	100.0	50.0	<- ot
9	Acrylonitrile	500.0000	0.0000	100.0	50.0	<- ot
10	trans-1,2-Dichloroethene	50.0000	52.1687	4.3	50.0	
15	1,1-Dichloroethane	50.0000	54.6927	9.4	50.0	
84	Isopropyl ether	250.0000	0.0000	100.0	50.0	<- ot
69	Chloroprene	50.0000	0.0000	100.0	50.0	<- ot
10	cis-1,2-Dichloroethene	50.0000	49.7700	0.5	50.0	
20	2-Butanone	100.0000	100.6118	0.6	50.0	
93	2,2-Dichloropropane	50.0000	49.7855	0.4	50.0	
70	Propionitrile	500.0000	0.0000	100.0	50.0	<- ot
72	Methacrylonitrile	500.0000	0.0000	100.0	50.0	<- ot
13	Bromochloromethane	50.0000	51.6989	3.4	50.0	
17	Chloroform	50.0000	50.8685	1.7	20.0	
22	1,1,1-Trichloroethane	50.0000	50.6784	1.4	50.0	
94	1,1-Dichloropropene	50.0000	47.7186	4.6	50.0	
23	Carbon Tetrachloride	50.0000	50.9319	1.9	50.0	
71	Isobutanol	1000.0000	0.0000	100.0	50.0	<- ot
16	1,2-Dichloroethane	50.0000	51.2265	2.5	50.0	
30	Benzene	50.0000	50.6410	1.3	50.0	
90	Fluorobenzene	50.0000	50.0000	0.0	50.0	
88	n-Butanol	1000.0000	0.0000	100.0	50.0	<- ot
29	Trichloroethene	50.0000	50.6262	1.3	50.0	
26	1,2-Dichloropropane	50.0000	51.3815	2.8	20.0	
34	Dibromomethane	50.0000	50.4438	0.9	50.0	

All stds @ 100%D not spiked.

OK DAL-1

LCS soil => Not applicable to site samples

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Data File: /chem/J.i/060600a.b/j3747.d
Report Date: 06/07/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j3747.d
Analysis Type: SOIL

Injection Date: 07-JUN-2000 04:40
Lab Sample ID: Sec. Source
Method File: /chem/J.i/060600a.b/J5030-8260B-soil.

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
57	1,4-Dioxane	2500.0000	0.0000	100.0	50.0	<- ok
25	Bromodichloromethane	50.0000	50.6847	1.4	50.0	
28	cis-1,3-Dichloropropene	50.0000	51.6066	3.2	50.0	
38	4-Methyl-2-pentanone	100.0000	112.3444	12.3	50.0	
45	Toluene	50.0000	50.4580	0.9	20.0	
31	trans-1,3-Dichloropropene	50.0000	53.6603	7.3	50.0	
32	1,1,2-Trichloroethane	50.0000	49.8948	0.2	50.0	
109	1,3-Dichloropropane	50.0000	50.2046	0.4	50.0	
42	Tetrachloroethene	50.0000	48.1172	3.8	50.0	
43	2-Hexanone	100.0000	102.1353	2.1	50.0	
36	Dibromochloromethane	50.0000	51.5140	3.0	50.0	
58	1,2-Dibromoethane	50.0000	52.0286	4.1	50.0	
92	1-Chlorohexane	50.0000	46.3224	7.4	50.0	
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
46	Chlorobenzene	50.0000	49.1576	1.7	50.0	
74	1,1,1,2-Tetrachloroethane	50.0000	52.5424	5.1	50.0	
47	Ethylbenzene	50.0000	49.1378	1.7	20.0	
0	m and p-Xylene	100.0000	95.9554	4.0	50.0	
0	o-Xylene	50.0000	49.3417	1.3	50.0	
49	Styrene	50.0000	50.4909	1.0	50.0	
37	Bromoform	50.0000	52.2487	4.5	50.0	
79	Isopropyl benzene	50.0000	47.4629	5.1	50.0	
76	Cyclohexanone	1000.0000	0.0000	100.0	50.0	<- ok
40	1,1,2,2-Tetrachloroethane	50.0000	52.5867	5.2	50.0	
95	Bromobenzene	50.0000	50.8109	1.6	50.0	
50	1,2,3-Trichloropropane	50.0000	53.7926	7.6	50.0	
96	n-Propylbenzene	50.0000	47.4545	5.1	50.0	
97	2-Chlorotoluene	50.0000	48.1458	3.7	50.0	
98	1,3,5-Trimethylbenzene	50.0000	48.8880	2.2	50.0	
99	4-Chlorotoluene	50.0000	48.2139	3.6	50.0	
100	tert-Butylbenzene	50.0000	49.2061	1.6	50.0	
101	1,2,4-Trimethylbenzene	50.0000	48.0559	3.9	50.0	
102	sec-Butylbenzene	50.0000	46.4764	7.0	50.0	
61	m-Dichlorobenzene	50.0000	46.9431	6.1	50.0	
103	4-Isopropyltoluene	50.0000	44.6384	10.7	50.0	
91	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0	
62	p-dichlorobenzene	50.0000	45.3736	9.3	50.0	
104	n-Butylbenzene	50.0000	44.6417	10.7	50.0	
63	o-Dichlorobenzene	50.0000	47.4767	5.0	50.0	

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/090600.b/J5030-8260B-soil.m
Cal Date : 06-Sep-2000 14:51 appelhad
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD	
23 trans-1,2-Dichloroethene	0.32913	0.31463	0.32036	0.29247	0.27667	0.27835	0.30194	7.442	
25 Hexane	2.64101	2.47004	2.13758	2.23907	2.03321	2.04445	2.26089	10.881	
26 1,1-Dichloroethane	0.51280	0.49714	0.49976	0.45697	0.43749	0.43328	0.47291	7.312	
27 Vinyl acetate	0.71666	0.72568	0.67479	0.65971	0.66675	0.66208	0.68428	4.264	
28 Isopropyl ether	0.31574	0.30499	0.30322	0.27822	0.26797	0.25948	0.28827	7.909	
29 Chloroprene	0.44901	0.45997	0.45647	0.41623	0.39624	0.39193	0.42831	7.175	
30 2-Butanone	0.14135	0.12129	0.13287	0.11760	0.11484	0.12089	0.12481	8.152	
31 cis-1,2-Dichloroethene	0.34893	0.33410	0.33683	0.30966	0.29299	0.28945	0.31866	7.786	
32 2,2-Dichloropropane	0.42808	0.41954	0.40452	0.36852	0.35027	0.34379	0.38579	9.420	
34 Ethyl Acetate	0.39240	0.32285	0.29358	0.28903	0.28740	0.29152	0.31280	13.158	
33 Propionitrile	0.02493	0.02295	0.02366	0.02205	0.02088	0.02217	0.02277	6.194	
35 Methacrylonitrile	0.15654	0.15034	0.15503	0.13984	0.13148	0.13075	0.14400	8.030	
36 Bromochloromethane	0.15971	0.15733	0.15506	0.14512	0.13936	0.13866	0.14921	6.253	
38 Tetrahydrofuran	0.08477	0.08892	0.07194	0.07297	0.07411	0.07433	0.07784	9.184	
37 Chloroform	0.57467	0.54528	0.54088	0.49517	0.47115	0.46005	0.51454	8.898	
40 1,1,1-Trichloroethane	0.54637	0.52773	0.52541	0.47677	0.45254	0.45041	0.49654	8.422	
115 Cyclohexane	0.60810	0.55812	0.50434	0.51391	0.46128	0.46775	0.51892	10.787	
41 1,1-Dichloropropene	0.46166	0.46052	0.44997	0.41108	0.39006	0.38433	0.42627	8.320	
42 Carbon Tetrachloride	0.43038	0.41954	0.42298	0.38632	0.37133	0.37065	0.40020	6.801	
43 Isobutanol	0.00910	0.00845	0.00872	0.00862	0.00816	0.00852	0.00860	3.632	
45 1,2-Dichloroethane	0.32729	0.32779	0.32039	0.29517	0.28175	0.27969	0.30534	7.368	
46 Benzene	0.98483	0.94243	0.93053	0.85764	0.81067	0.78889	0.88583	8.867	
48 n-Butanol	0.00806	0.00661	0.00784	0.00698	0.00670	0.00742	0.00727	8.313	N.A. TC
49 Trichloroethene	0.34486	0.34121	0.33592	0.30996	0.29973	0.29167	0.32056	7.159	
50 1,2-Dichloropropane	0.33005	0.32860	0.33288	0.30033	0.28939	0.28519	0.31107	7.041	
51 Methyl Methacrylate	0.30610	0.30671	0.29131	0.28101	0.27964	0.28248	0.29121	4.278	
52 Dibromomethane	0.24842	0.23556	0.23321	0.21535	0.20943	0.20519	0.22453	7.594	
53 1,4-Dioxane	0.00295	0.00332	0.00301	0.00263	0.00257	0.00270	0.00286	9.897	
54 Bromodichloromethane	0.51859	0.50673	0.50007	0.45929	0.43553	0.42630	0.47442	8.277	
55 2-nitropropane	0.29412	0.33069	0.28729	0.30337	0.29747	0.30340	0.30272	4.950	
56 2-Chloroethyl vinyl ether	+++++	0.01349	0.01365	0.01430	0.01542	0.01809	0.01499	12.630	N.A. TC
57 cis-1,3-Dichloropropene	0.50103	0.49469	0.48277	0.44800	0.43355	0.42288	0.46382	7.177	
58 4-Methyl-2-pentanone	1.47607	1.41042	1.47961	1.36431	1.37953	1.39457	1.41742	3.476	

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/090600.b/J5030-8260B-soil.m
Cal Date : 06-Sep-2000 14:51 appelhad
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
60 Toluene	5.75509	5.43013	5.28995	4.60108	4.53413	4.23786	4.97471	12.036
61 trans-1,3-Dichloropropene	1.99614	1.92875	1.85652	1.62388	1.65660	1.61323	1.77919	9.476
62 Ethyl methacrylate	1.78076	1.80444	1.66427	1.61070	1.58218	1.60012	1.67375	5.756
63 1,1,2-Trichloroethane	1.51388	1.40257	1.45360	1.20942	1.23342	1.19871	1.33527	10.339
64 1,3-Dichloropropane	2.39285	2.23455	2.23842	1.95956	1.96857	1.90277	2.11612	9.389
65 Tetrachloroethene	1.90878	1.73846	1.70150	1.48745	1.45771	1.38924	1.61386	12.424
66 2-Hexanone	0.80776	0.85993	0.91198	0.84445	0.87630	0.90541	0.86764	4.508
67 Dibromochloromethane	1.89895	1.78961	1.74603	1.58647	1.60620	1.54878	1.69601	8.092
68 1,2-Dibromoethane	1.79032	1.66741	1.69155	1.52468	1.54206	1.50458	1.62010	7.030
69 1-Chlorohexane	2.72430	2.54984	2.39233	2.18492	2.18048	2.08777	2.35327	10.521
71 Chlorobenzene	3.71669	3.48705	3.37897	3.04004	3.03233	2.86390	3.25316	10.018
72 1,1,1,2-Tetrachloroethane	1.66806	1.60788	1.59176	1.39909	1.41845	1.35822	1.50724	8.647
73 Ethylbenzene	1.91392	1.85409	1.80845	1.66234	1.66132	1.57913	1.74654	7.500
74 m and p-Xylene	2.59501	2.43517	2.37040	2.13863	2.14244	2.00523	2.28115	9.721
75 o-Xylene	2.42829	2.33065	2.27569	2.03996	2.05218	1.96537	2.18202	8.586
76 Styrene	3.69050	3.59063	3.58021	3.27122	3.32782	3.14098	3.43356	6.318
77 Bromoform	1.66346	1.52468	1.58502	1.42689	1.44138	1.40595	1.50790	6.751
78 Isopropyl benzene	7.12816	6.89003	6.80369	6.06081	5.90761	5.42880	6.36985	10.481
79 Cyclohexanone	0.08853	0.07974	0.08614	0.07512	0.07943	0.08118	0.08169	5.971
81 1,1,2,2-Tetrachloroethane	1.47587	1.33694	1.26061	1.10540	1.01925	1.01877	1.20281	15.462
84 t-1,4-Dichloro-2-butene	0.21910	0.22796	0.20345	0.22051	0.21373	0.21604	0.21680	3.757
82 Bromobenzene	1.22132	1.14863	1.09295	0.96061	0.89449	0.86360	1.03027	14.100
83 1,2,3-Trichloropropane	0.37644	0.36598	0.35527	0.30596	0.28818	0.29354	0.33089	11.891
85 n-Propylbenzene	1.06046	0.99021	0.92528	0.83511	0.76283	0.74554	0.88657	14.297
86 2-Chlorotoluene	0.94366	0.87748	0.83067	0.74153	0.68464	0.66010	0.78968	14.242
87 1,3,5-Trimethylbenzene	3.73877	3.51244	3.29409	2.87939	2.59168	2.42741	3.07396	17.036
88 4-Chlorotoluene	0.92016	0.86566	0.81443	0.71523	0.66680	0.64904	0.77188	14.419
89 tert-Butylbenzene	3.81219	3.53866	3.33409	2.90602	2.60805	2.44973	3.10812	17.365
90 1,2,4-Trimethylbenzene	3.43504	3.09986	2.97327	2.65626	2.41381	2.26286	2.80685	15.783
91 sec-Butylbenzene	5.24880	4.89545	4.60292	4.15291	3.72668	3.43697	4.34395	16.049
92 m-Dichlorobenzene	1.72446	1.63462	1.59832	1.45560	1.25827	1.21015	1.48024	14.179
93 4-Isopropyltoluene	3.54319	3.31940	3.20015	2.85363	2.62596	2.40408	2.99107	14.597
95 p-dichlorobenzene	1.87396	1.70670	1.58057	1.45145	1.44296	1.36860	1.57071	12.145

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/090600.b/J5030-8260B-soil.m
Cal Date : 06-Sep-2000 14:51 appelhad
Curve Type : Average

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	96 n-Butylbenzene	2.86654	2.74580	2.73545	2.58029	2.39085	2.21899	2.58965	9.448
	97 o-Dichlorobenzene	1.60418	1.51643	1.42828	1.30708	1.21647	1.16070	1.37219	12.664
	98 1,2-Dibromo-3-chloropropane	0.25836	0.24974	0.26472	0.25236	0.24113	0.24898	0.25255	3.231
	99 1,2,4-Trichlorobenzene	0.63782	0.63916	0.73821	0.74138	0.76234	0.71749	0.70607	7.682
	100 Hexachlorobutadiene	0.76277	0.70572	0.76212	0.68816	0.64636	0.56295	0.68801	11.025
	101 Napthalene	0.57530	0.58119	0.73876	0.74163	0.84215	0.88466	0.72728	17.688
	102 1,2,3-Trichlorobenzene	0.54029	0.52785	0.65602	0.62524	0.65667	0.61104	0.60285	9.334
$	39 Dibromofluoromethane	0.38525	0.37816	0.38497	0.37214	0.36774	0.37040	0.37644	2.003
$	44 1,2-Dichloroethane-d4	0.23351	0.22806	0.22888	0.22663	0.22354	0.22393	0.22742	1.615
$	59 Toluene-d8	4.12460	4.06575	4.05889	4.01006	3.96914	3.91560	4.02400	1.861
$	80 Bromofluorobenzene	1.45182	1.46720	1.45068	1.45425	1.42106	1.39547	1.44008	1.847

Data File: /chem/H.i/091200.b/h1619.d Page 1
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 09:52
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
83	Xylene (total)	30.0000	29.6783	1.1	50.0
85	1,2-Dichloroethene (total)	20.0000	20.9938	5.0	50.0
64	dichlorodifluoromethane	10.0000	7.2375	27.6	50.0
1	Chloromethane	10.0000	8.0991	19.0	50.0
4	Vinyl Chloride	10.0000	8.8458	11.5	20.0
2	Bromomethane	10.0000	10.3499	3.5	50.0
5	Chloroethane	10.0000	12.4575	24.6	50.0
11	Trichlorofluoromethane	10.0000	10.8907	8.9	50.0
3	Ethanol	500.0000	458.0346	8.4	50.0
8	Acrolein	100.0000	78.4454	21.6	50.0
12	1,1-Dichloroethene	10.0000	10.1365	1.4	20.0
7	Acetone	20.0000	17.4987	12.5	50.0
21	Iodomethane	10.0000	11.2347	12.3	50.0
68	Acetonitrile	100.0000	95.5746	4.4	50.0
6	Methylene Chloride	10.0000	10.6889	6.9	50.0
86	tert-Butyl alcohol	200.0000	229.7756	14.9	50.0
9	Acrylonitrile	100.0000	95.0909	4.9	50.0
0	trans-1,2-Dichloroethene	10.0000	11.3532	13.5	50.0
15	1,1-Dichloroethane	10.0000	9.7939	2.1	50.0
84	Isopropyl ether	50.0000	39.4640	21.1	50.0
69	Chloroprene	10.0000	8.6645	13.4	50.0
93	2,2-Dichloropropane	10.0000	10.1027	1.0	50.0
0	cis-1,2-Dichloroethene	10.0000	9.6406	3.6	50.0
20	2-Butanone	20.0000	15.2512	23.7	50.0
70	Propionitrile	100.0000	78.8913	21.1	50.0
72	Methacrylonitrile	100.0000	77.7033	22.3	50.0
13	Bromochloromethane	10.0000	9.7162	2.8	50.0
17	Chloroform	10.0000	9.9052	0.9	20.0
22	1,1,1-Trichloroethane	10.0000	10.2946	2.9	50.0
94	1,1-Dichloropropene	10.0000	9.6688	3.3	50.0
23	Carbon Tetrachloride	10.0000	10.3136	3.1	50.0
71	Isobutanol	200.0000	134.8090	32.6	50.0
30	Benzene	10.0000	9.2661	7.3	50.0
16	1,2-Dichloroethane	10.0000	9.4251	5.7	50.0
90	Fluorobenzene	10.0000	10.0000	0.0	50.0
88	n-Butanol	200.0000	182.6509	8.7	50.0
29	Trichloroethene	10.0000	10.2394	2.4	50.0
26	1,2-Dichloropropane	10.0000	9.0379	9.6	20.0
34	Dibromomethane	10.0000	9.3883	6.1	50.0

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Data File: /chem/H.i/091200.b/h1619.d
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 09:52
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
57	1,4-Dioxane	500.0000	455.1412	9.0	50.0
25	Bromodichloromethane	10.0000	9.4741	5.3	50.0
28	cis-1,3-Dichloropropene	10.0000	9.1570	8.4	50.0
38	4-Methyl-2-pentanone	20.0000	16.9708	15.1	50.0
45	Toluene	10.0000	9.7493	2.5	20.0
31	trans-1,3-Dichloropropene	10.0000	9.1232	8.8	50.0
32	1,1,2-Trichloroethane	10.0000	9.2808	7.2	50.0
42	Tetrachloroethene	10.0000	10.4975	5.0	50.0
109	1,3-Dichloropropane	10.0000	8.9546	10.5	50.0
43	2-Hexanone	20.0000	15.2739	23.6	50.0
36	Dibromochloromethane	10.0000	9.9094	0.9	50.0
58	1,2-Dibromoethane	10.0000	9.3785	6.2	50.0
92	1-Chlorohexane	10.0000	9.6424	3.6	50.0
39	Chlorobenzene-d5	10.0000	10.0000	0.0	50.0
46	Chlorobenzene	10.0000	9.9447	0.6	50.0
74	1,1,1,2-Tetrachloroethane	10.0000	9.8241	1.8	50.0
47	Ethylbenzene	10.0000	10.0628	0.6	20.0
0	m and p-Xylene	20.0000	20.1146	0.6	50.0
0	o-Xylene	10.0000	9.5637	4.4	50.0
49	Styrene	10.0000	7.2228	27.8	50.0
37	Bromoform	10.0000	9.6283	3.7	50.0
79	isopropyl benzene	10.0000	10.0802	0.8	50.0
76	Cyclohexanone	200.0000	156.2150	21.9	50.0
40	1,1,2,2-Tetrachloroethane	10.0000	9.1964	8.0	50.0
95	Bromobenzene	10.0000	9.3080	6.9	50.0
50	1,2,3-Trichloropropane	10.0000	8.4529	15.5	50.0
96	n-Propylbenzene	10.0000	9.8238	1.8	50.0
97	2-Chlorotoluene	10.0000	9.4788	5.2	50.0
98	1,3,5-Trimethylbenzene	10.0000	9.2845	7.2	50.0
99	4-Chlorotoluene	10.0000	9.5534	4.5	50.0
100	tert-Butylbenzene	10.0000	9.5439	4.6	50.0
101	1,2,4-Trimethylbenzene	10.0000	9.5118	4.9	50.0
102	sec-Butylbenzene	10.0000	10.1330	1.3	50.0
61	m-Dichlorobenzene	10.0000	9.5444	4.6	50.0
103	4-Isopropyltoluene	10.0000	9.7879	2.1	50.0
91	1,4-Dichlorobenzene-d4	10.0000	10.0000	0.0	50.0
62	p-dichlorobenzene	10.0000	9.8695	1.3	50.0
104	n-Butylbenzene	10.0000	10.1392	1.4	50.0
63	o-Dichlorobenzene	10.0000	9.6247	3.8	50.0

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CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 09:52
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
75 1,2-Dibromo-3-chloropropane	10.0000	8.4960	15.0	50.0
105 1,2,4-Trichlorobenzene	10.0000	9.8251	1.7	50.0
106 Hexachlorobutadiene	10.0000	10.9377	9.4	50.0
107 Napthalene	10.0000	8.4097	15.9	50.0
108 1,2,3-Trichlorobenzene	10.0000	9.3591	6.4	50.0

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STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 09:52
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	RRP	RF10	MIN RRF	%D	MAX %D	
M	1 1,2-Dichloroethene (total)	0.305	0.321	0.010	-5.4	50.0	
M	2 Xylene (total)	6.498	6.440	0.010	0.9	50.0	
	3 dichlorodifluoromethane	0.445	0.322	0.010	27.6	50.0	
	4 Chloromethane	0.237	0.192	0.100	19.0	50.0	
	5 Vinyl Chloride	0.298	0.263	0.020	11.5	20.0	
	7 Bromomethane	0.269	0.278	0.010	-3.5	50.0	
	8 Chloroethane	0.203	0.253	0.010	-24.6	50.0	
	10 Trichlorofluoromethane	0.650	0.708	0.010	-8.9	50.0	
	11 Ethanol	0.000	0.000	0.000	8.4	50.0	↓ GT TC
	13 Acrolein	0.008	0.006	0.001	21.6	50.0	
	14 1,1-Dichloroethene	0.325	0.330	0.020	-1.4	20.0	
	15 Acetone	0.017	0.015	0.001	12.5	50.0	
	17 Iodomethane	0.731	0.822	0.010	-12.3	50.0	
	19 Acetonitrile	0.003	0.003	0.000	4.4	50.0	
	21 Methylene Chloride	0.229	0.244	0.010	-6.9	50.0	
	22 tert-Butyl alcohol	0.004	0.004	0.001	-14.9	50.0	↓ GT TC
	23 Acrylonitrile	0.012	0.011	0.001	4.9	50.0	
	24 trans-1,2-Dichloroethene	0.321	0.364	0.010	-13.5	50.0	
	27 1,1-Dichloroethane	0.516	0.505	0.100	2.1	50.0	
	28 Chloroprene	0.460	0.398	0.010	13.4	50.0	
	30 Isopropyl ether	0.212	0.167	0.010	21.1	50.0	
	32 cis-1,2-Dichloroethene	0.289	0.279	0.010	3.6	50.0	
	31 2,2-Dichloropropane	0.504	0.509	0.010	-1.0	50.0	
	33 2-Butanone	0.021	0.016	0.010	23.7	50.0	
	34 Propionitrile	0.004	0.003	0.001	21.1	50.0	
	36 Methacrylonitrile	0.029	0.022	0.010	22.3	50.0	
	37 Bromochloromethane	0.110	0.107	0.010	2.8	50.0	
	38 Chloroform	0.521	0.516	0.020	0.9	20.0	
	41 1,1,1-Trichloroethane	0.557	0.573	0.010	-2.9	50.0	
	42 1,1-Dichloropropene	0.516	0.499	0.010	3.3	50.0	
	43 Carbon Tetrachloride	0.536	0.553	0.010	-3.1	50.0	
	45 Isobutanol	0.001	0.001	0.000	32.6	50.0	
	46 Benzene	0.943	0.874	0.010	7.3	50.0	
	47 1,2-Dichloroethane	0.161	0.152	0.010	5.7	50.0	
	49 n-Butanol	0.001	0.003	0.000	8.7	50.0	↓ GT TC

Data File: /chem/H.i/091200.b/h1619.d
Report Date: 12-Sep-2000 09:43

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 09:52
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D	
50 Trichloroethene	0.402	0.412	0.010	-2.4	50.0	
52 1,2-Dichloropropane	0.222	0.201	0.020	9.6	20.0	
53 Dibromomethane	0.097	0.091	0.010	6.1	50.0	
55 1,4-Dioxane	0.001	0.000	0.000	9.0	50.0	
56 Bromodichloromethane	0.347	0.329	0.010	5.3	50.0	
59 cis-1,3-Dichloropropene	1.664	1.524	0.010	8.4	50.0	
60 4-Methyl-2-pentanone	0.265	0.225	0.010	15.1	50.0	
62 Toluene	5.428	5.292	0.020	2.5	20.0	
63 trans-1,3-Dichloropropene	1.044	0.953	0.010	8.8	50.0	
65 1,1,2-Trichloroethane	0.562	0.521	0.010	7.2	50.0	
67 1,3-Dichloropropane	1.114	0.997	0.010	10.5	50.0	
66 Tetrachloroethene	2.203	2.312	0.010	-5.0	50.0	
68 2-Hexanone	0.169	0.129	0.010	23.6	50.0	
69 Dibromochloromethane	1.112	1.102	0.010	0.9	50.0	
70 1,2-Dibromoethane	0.651	0.611	0.010	6.2	50.0	
71 1-Chlorohexane	2.692	2.595	0.010	3.6	50.0	
73 Chlorobenzene	3.017	3.001	0.300	0.6	50.0	
74 1,1,1,2-Tetrachloroethane	1.490	1.463	0.010	1.8	50.0	
75 Ethylbenzene	1.718	1.729	0.010	-0.6	20.0	
76 m and p-Xylene	2.285	2.298	0.010	-0.6	50.0	
77 o-Xylene	1.928	1.844	0.010	4.4	50.0	
78 Styrene	2.714	1.961	0.010	27.8	50.0	
79 Bromoform	0.593	0.571	0.101	3.7	50.0	
80 isopropyl benzene	6.425	6.477	0.010	-0.8	50.0	
81 Cyclohexanone	0.024	0.019	0.001	21.9	50.0	pbt TC
83 1,1,2,2-Tetrachloroethane	0.570	0.524	0.300	8.0	50.0	
84 Bromobenzene	0.896	0.834	0.010	6.9	50.0	
85 1,2,3-Trichloropropane	0.093	0.078	0.010	15.5	50.0	
87 n-Propylbenzene	0.983	0.965	0.010	1.8	50.0	
88 2-Chlorotoluene	0.796	0.754	0.010	5.2	50.0	
89 1,3,5-Trimethylbenzene	2.926	2.716	0.010	7.2	50.0	
90 4-Chlorotoluene	0.850	0.812	0.010	4.5	50.0	
91 tert-Butylbenzene	3.362	3.208	0.010	4.6	50.0	
92 1,2,4-Trimethylbenzene	2.478	2.357	0.010	4.9	50.0	
93 sec-Butylbenzene	0.960	0.973	0.010	-1.3	50.0	

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STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 09:52
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D
94	m-Dichlorobenzene	1.469	1.402	0.010	4.6	50.0
95	4-Isopropyltoluene	3.448	3.375	0.010	2.1	50.0
97	p-dichlorobenzene	1.725	1.702	0.010	1.3	50.0
98	n-Butylbenzene	2.705	2.742	0.010	-1.4	50.0
99	o-Dichlorobenzene	1.128	1.086	0.010	3.8	50.0
100	1,2-Dibromo-3-chloropropane	0.067	0.057	0.010	15.0	50.0
101	1,2,4-Trichlorobenzene	0.619	0.608	0.010	1.7	50.0
102	Hexachlorobutadiene	1.158	1.266	0.010	-9.4	50.0
103	Napthalene	0.451	0.380	0.010	15.9	50.0
104	1,2,3-Trichlorobenzene	0.476	0.445	0.010	6.4	50.0

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Data File: /chem/H.i/091200.b/h1620.d
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1620.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 10:13
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
87	Dichlorofluoromethane	10.0000	10.3215	3.2	50.0	
77	Ethyl Ether	10.0000	7.7015	23.0	50.0	
65	Trichlorotrifluoroethane	10.0000	10.2616	2.6	50.0	
10	Carbon Disulfide	10.0000	9.1612	8.4	50.0	
67	Allyl Chloride	10.0000	8.1824	18.2	50.0	
53	Methyl t-butyl ether	10.0000	8.7584	12.4	50.0	
54	Hexane	10.0000	8.6271	13.7	50.0	
24	Vinyl acetate	10.0000	8.5049	15.0	50.0	
78	Ethyl Acetate	10.0000	6.5806	34.2	50.0	NOT TL
56	Tetrahydrofuran	10.0000	8.8373	11.6	50.0	
89	Dibromofluoromethane	10.0000	10.2522	2.5	50.0	
114	Cyclohexane	10.0000	8.8282	11.7	80.0	
303	1,2-Dichloroethane-d4	10.0000	10.0526	0.5	50.0	
90	Fluorobenzene	10.0000	10.0000	0.0	50.0	
73	Methyl Methacrylate	10.0000	7.4225	25.8	50.0	
82	2-nitropropane	10.0000	8.8942	11.1	50.0	
35	2-Chloroethyl vinyl ether	10.0000	11.9694	19.7	50.0	
301	Toluene-d8	10.0000	9.6692	3.3	50.0	
41	Ethyl methacrylate	10.0000	4.7087	52.9	50.0	<-
39	Chlorobenzene-d5	10.0000	10.0000	0.0	50.0	
302	Bromofluorobenzene	10.0000	9.5860	4.1	50.0	
60	t-1,4-Dichloro-2-butene	10.0000	7.9653	20.3	50.0	
91	1,4-Dichlorobenzene-d4	10.0000	10.0000	0.0	50.0	

Data File: /chem/H.i/091200.b/h1620.d
Report Date: 12-Sep-2000 11:37

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1620.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 10:13
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D	
$ 40 Dibromofluoromethane	0.361	0.370	0.010	-2.5	50.0	
$ 44 1,2-Dichloroethane-d4	0.140	0.141	0.010	-0.5	50.0	
$ 61 Toluene-d8	4.349	4.205	0.010	3.3	50.0	
$ 82 Bromofluorobenzene	1.712	1.641	0.010	4.1	50.0	
9 Dichlorofluoromethane	0.574	0.592	0.010	-3.2	50.0	
12 Ethyl Ether	0.102	0.078	0.010	23.0	50.0	
16 Trichlorotrifluoroethane	0.618	0.635	0.010	-2.6	50.0	
18 Carbon Disulfide	1.072	0.982	0.010	8.4	50.0	
20 Allyl Chloride	0.412	0.337	0.010	18.2	50.0	
25 Methyl t-butyl ether	0.322	0.282	0.010	12.4	50.0	
26 Hexane	2.609	2.251	0.010	13.7	50.0	
114 Cyclohexane	0.490	0.433	0.010	11.7	80.0	
29 Vinyl acetate	0.161	0.137	0.010	15.0	50.0	
35 Ethyl Acetate	0.058	0.038	0.010	34.2	50.0	poor TC
39 Tetrahydrofuran	0.012	0.019	0.003	11.6	50.0	poor TC
113 2-Chloroethyl vinyl ether	0.090	0.107	0.010	-19.7	50.0	
54 Methyl Methacrylate	0.058	0.043	0.010	25.8	50.0	
57 2-nitropropane	0.062	0.055	0.010	11.1	50.0	
64 Ethyl methacrylate	0.699	0.329	0.010	52.9	50.0	<-
86 t-1,4-Dichloro-2-butene	0.048	0.038	0.010	20.3	50.0	

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Data File: /chem/J.i/090600.b/j5028.d
Report Date: 09/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
85	1,2-Dichloroethene (total)	100.0000	101.8871	1.9	50.0
83	Xylene (total)	150.0000	149.8505	0.1	50.0
64	dichlorodifluoromethane	50.0000	51.3361	2.7	50.0
1	Chloromethane	50.0000	43.7872	12.4	50.0
4	Vinyl Chloride	50.0000	47.6567	4.7	20.0
2	Bromomethane	50.0000	48.1219	3.8	50.0
5	Chloroethane	50.0000	46.5835	6.8	50.0
11	Trichlorofluoromethane	50.0000	57.5746	15.1	50.0
3	Ethanol	2500.0000	2134.8397	14.6	50.0
8	Acrolein	500.0000	484.6033	3.1	50.0
12	1,1-Dichloroethene	50.0000	49.4296	1.1	20.0
7	Acetone	100.0000	138.4197	38.4	50.0
21	Iodomethane	50.0000	56.7127	13.4	50.0
68	Acetonitrile	500.0000	482.2790	3.5	50.0
6	Methylene Chloride	50.0000	50.4068	0.8	50.0
86	tert-Butyl alcohol	1000.0000	1105.3954	10.5	50.0
9	Acrylonitrile	500.0000	459.7919	8.0	50.0
0	trans-1,2-Dichloroethene	50.0000	50.3770	0.8	50.0
15	1,1-Dichloroethane	50.0000	51.4916	3.0	50.0
84	Isopropyl ether	250.0000	265.8951	6.4	50.0
69	Chloroprene	50.0000	50.9775	2.0	50.0
20	2-Butanone	100.0000	107.7590	7.8	50.0
0	cis-1,2-Dichloroethene	50.0000	51.5101	3.0	50.0
93	2,2-Dichloropropane	50.0000	51.2325	2.5	50.0
70	Propionitrile	500.0000	478.0795	4.4	50.0
72	Methacrylonitrile	500.0000	473.8584	5.2	50.0
13	Bromochloromethane	50.0000	53.8252	7.7	50.0
17	Chloroform	50.0000	51.1880	2.4	20.0
22	1,1,1-Trichloroethane	50.0000	51.7698	3.5	50.0
94	1,1-Dichloropropene	50.0000	49.5672	0.9	50.0
23	Carbon Tetrachloride	50.0000	51.8314	3.7	50.0
71	Isobutanol	1000.0000	988.6047	1.1	50.0
30	Benzene	50.0000	48.8716	2.3	50.0
16	1,2-Dichloroethane	50.0000	53.1992	6.4	50.0
90	Fluorobenzene	50.0000	50.0000	0.0	50.0
88	n-Butanol	1000.0000	1067.9807	6.8	50.0
29	Trichloroethene	50.0000	51.9805	4.0	50.0
26	1,2-Dichloropropane	50.0000	50.7755	1.6	20.0
34	Dibromomethane	50.0000	52.9480	5.9	50.0

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CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
57	1,4-Dioxane	2500.0000	2498.6646	0.1	50.0	
25	Bromodichloromethane	50.0000	53.4446	6.9	50.0	
28	cis-1,3-Dichloropropene	50.0000	54.1334	8.3	50.0	
38	4-Methyl-2-pentanone	100.0000	99.5549	0.4	50.0	
45	Toluene	50.0000	47.8522	4.3	20.0	
31	trans-1,3-Dichloropropene	50.0000	52.1458	4.3	50.0	
32	1,1,2-Trichloroethane	50.0000	50.0231	0.0	50.0	
109	1,3-Dichloropropane	50.0000	49.6869	0.6	50.0	
42	Tetrachloroethene	50.0000	51.5960	3.2	50.0	
43	2-Hexanone	100.0000	109.3148	9.3	50.0	
36	Dibromochloromethane	50.0000	52.4986	5.0	50.0	
58	1,2-Dibromoethane	50.0000	50.9770	2.0	50.0	
92	1-Chlorohexane	50.0000	50.1255	0.3	50.0	
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
46	Chlorobenzene	50.0000	50.1656	0.3	50.0	
74	1,1,1,2-Tetrachloroethane	50.0000	52.2930	4.6	50.0	
47	Ethylbenzene	50.0000	50.4244	0.8	20.0	
0	m and p-Xylene	100.0000	99.4388	0.6	50.0	
49	Styrene	50.0000	54.0087	8.0	50.0	
0	o-Xylene	50.0000	50.4117	0.8	50.0	
37	Bromoform	50.0000	57.6138	15.2	50.0	
79	isopropyl benzene	50.0000	50.9786	2.0	50.0	
76	Cyclohexanone	1000.0000	3007.8288	200.8	50.0	<- מחוץ לטווח
40	1,1,2,2-Tetrachloroethane	50.0000	42.1913	15.6	50.0	
95	Bromobenzene	50.0000	46.9485	6.1	50.0	
50	1,2,3-Trichloropropane	50.0000	44.8168	10.4	50.0	
96	n-Propylbenzene	50.0000	44.3024	11.4	50.0	
97	2-Chlorotoluene	50.0000	43.6133	12.8	50.0	
98	1,3,5-Trimethylbenzene	50.0000	43.7879	12.4	50.0	
99	4-Chlorotoluene	50.0000	45.3461	9.3	50.0	
100	tert-Butylbenzene	50.0000	42.3012	15.4	50.0	
101	1,2,4-Trimethylbenzene	50.0000	45.9312	8.1	50.0	
102	sec-Butylbenzene	50.0000	43.6425	12.7	50.0	
61	m-Dichlorobenzene	50.0000	48.8462	2.3	50.0	
103	4-Isopropyltoluene	50.0000	45.5156	9.0	50.0	
91	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0	
62	p-dichlorobenzene	50.0000	48.1529	3.7	50.0	
104	n-Butylbenzene	50.0000	49.7634	0.5	50.0	
63	o-Dichlorobenzene	50.0000	48.0748	3.9	50.0	

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CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
75	1,2-Dibromo-3-chloropropane	50.0000	51.8615	3.7	50.0	
105	1,2,4-Trichlorobenzene	50.0000	68.9817	38.0	50.0	not TL
106	Hexachlorobutadiene	50.0000	59.0862	18.2	50.0	
107	Napthalene	50.0000	74.8529	49.7	50.0	not TL
108	1,2,3-Trichlorobenzene	50.0000	67.6945	35.4	50.0	not TL

Data File: /chem/J.i/090600.b/j5028.d
Report Date: 06-Sep-2000 14:18

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
M	1 1,2-Dichloroethene (total)	0.310	0.316	0.010	-1.9	50.0	
M	2 Xylene (total)	4.311	3.568	0.010	17.2	50.0	
	3 dichlorodifluoromethane	0.293	0.301	0.010	-2.7	50.0	
	4 Chloromethane	0.218	0.191	0.100	12.4	50.0	
	5 Vinyl Chloride	0.225	0.215	0.020	4.7	20.0	
	6 Bromomethane	0.224	0.215	0.010	3.8	50.0	
	7 Chloroethane	0.156	0.145	0.010	6.8	50.0	
	9 Trichlorofluoromethane	0.362	0.417	0.010	-15.1	50.0	
	10 Ethanol	0.002	0.002	0.000	14.6	50.0	50-200
	12 Acrolein	0.035	0.034	0.005	3.1	50.0	
	13 1,1-Dichloroethene	0.264	0.261	0.020	1.1	20.0	
	14 Acetone	0.064	0.088	0.010	-38.4	50.0	
	16 Iodomethane	0.471	0.535	0.010	-13.4	50.0	
	18 Acetonitrile	0.018	0.017	0.001	3.5	50.0	
	20 Methylene Chloride	0.263	0.266	0.010	-0.8	50.0	
	21 tert-Butyl alcohol	0.025	0.028	0.001	-10.5	50.0	50-200
	22 Acrylonitrile	0.062	0.057	0.010	8.0	50.0	
	23 trans-1,2-Dichloroethene	0.302	0.304	0.010	-0.8	50.0	
	26 1,1-Dichloroethane	0.473	0.487	0.100	-3.0	50.0	
	28 Isopropyl ether	0.288	0.307	0.010	-6.4	50.0	
	29 Chloroprene	0.428	0.437	0.010	-2.0	50.0	
	30 2-Butanone	0.125	0.134	0.010	-7.8	50.0	
	31 cis-1,2-Dichloroethene	0.319	0.320	0.010	-3.0	50.0	
	32 2,2-Dichloropropane	0.386	0.395	0.010	-2.5	50.0	
	33 Propionitrile	0.023	0.022	0.001	4.4	50.0	
	35 Methacrylonitrile	0.144	0.136	0.010	5.2	50.0	
	36 Bromochloromethane	0.149	0.161	0.010	-7.7	50.0	
	37 Chloroform	0.515	0.527	0.020	-2.4	20.0	
	40 1,1,1-Trichloroethane	0.497	0.514	0.010	-3.5	50.0	
	41 1,1-Dichloropropene	0.426	0.423	0.010	0.9	50.0	
	42 Carbon Tetrachloride	0.400	0.415	0.010	-3.7	50.0	
	43 Isobutanol	0.009	0.008	0.000	1.1	50.0	
	46 Benzene	0.886	0.866	0.010	2.3	50.0	
	45 1,2-Dichloroethane	0.305	0.325	0.010	-6.4	50.0	
	48 n-Butanol	0.007	0.008	0.000	-6.8	50.0	50-200

Soil

Data File: /chem/J.i/090600.b/j5028.d
Report Date: 06-Sep-2000 14:18

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
49 Trichloroethene	0.321	0.333	0.010	-4.0	50.0
50 1,2-Dichloropropane	0.311	0.316	0.020	-1.6	20.0
53 1,4-Dioxane	0.003	0.003	0.000	0.1	50.0
52 Dibromomethane	0.225	0.238	0.010	-5.9	50.0
54 Bromodichloromethane	0.474	0.507	0.010	-6.9	50.0
57 cis-1,3-Dichloropropene	0.464	0.502	0.010	-8.3	50.0
58 4-Methyl-2-pentanone	1.417	1.411	0.010	0.4	50.0
60 Toluene	4.975	4.761	0.020	4.3	20.0
61 trans-1,3-Dichloropropene	1.779	1.856	0.010	-4.3	50.0
63 1,1,2-Trichloroethane	1.335	1.336	0.010	0.0	50.0
65 Tetrachloroethene	1.614	1.665	0.010	-3.2	50.0
64 1,3-Dichloropropane	2.116	2.103	0.010	0.6	50.0
66 2-Hexanone	0.868	0.948	0.010	-9.3	50.0
67 Dibromochloromethane	1.696	1.781	0.010	-5.0	50.0
68 1,2-Dibromoethane	1.620	1.652	0.010	-2.0	50.0
69 1-Chlorohexane	2.353	2.359	0.010	-0.3	50.0
71 Chlorobenzene	3.253	3.264	0.300	-0.3	50.0
72 1,1,1,2-Tetrachloroethane	1.507	1.576	0.010	-4.6	50.0
73 Ethylbenzene	1.747	1.761	0.010	-0.8	20.0
74 m and p-Xylene	2.281	2.268	0.010	0.6	50.0
75 o-Xylene	2.182	2.200	0.010	-0.8	50.0
76 Styrene	3.434	3.709	0.010	-8.0	50.0
77 Bromoform	1.508	1.738	0.101	-15.2	50.0
78 isopropyl benzene	6.370	6.495	0.010	-2.0	50.0
79 Cyclohexanone	0.082	0.246	0.005	-200.8	50.0 <- out of cc
81 1,1,2,2-Tetrachloroethane	1.203	1.015	0.300	15.6	50.0
82 Bromobenzene	1.030	0.967	0.010	6.1	50.0
83 1,2,3-Trichloropropane	0.331	0.297	0.010	10.4	50.0
85 n-Propylbenzene	0.887	0.786	0.010	11.4	50.0
86 2-Chlorotoluene	0.790	0.689	0.010	12.8	50.0
87 1,3,5-Trimethylbenzene	3.074	2.692	0.010	12.4	50.0
88 4-Chlorotoluene	0.772	0.700	0.010	9.3	50.0
89 tert-Butylbenzene	3.108	2.630	0.010	15.4	50.0
90 1,2,4-Trimethylbenzene	2.807	2.578	0.010	8.1	50.0
91 sec-Butylbenzene	4.344	3.792	0.010	12.7	50.0

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STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	RRF	RFS0	MIN RRF	%D	MAX %D	
92	m-Dichlorobenzene	1.480	1.446	0.010	2.3	50.0	
93	4-Isopropyltoluene	2.991	2.723	0.010	9.0	50.0	
95	p-dichlorobenzene	1.571	1.513	0.010	3.7	50.0	
96	n-Butylbenzene	2.590	2.577	0.010	0.5	50.0	
97	o-Dichlorobenzene	1.372	1.319	0.010	3.9	50.0	
98	1,2-Dibromo-3-chloropropane	0.253	0.262	0.010	-3.7	50.0	
99	1,2,4-Trichlorobenzene	0.706	0.974	0.010	-38.0	50.0	out rc
100	Hexachlorobutadiene	0.688	0.813	0.010	-18.2	50.0	
101	Napthalene	0.727	1.089	0.010	-49.7	50.0	out rc
102	1,2,3-Trichlorobenzene	0.603	0.816	0.010	-35.4	50.0	out rc

Data File: /chem/J.i/090600.b/j5029.d Page 1
Report Date: 09/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5029.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:53
Lab Sample ID: SVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
87	Dichlorofluoromethane	50.0000	54.0998	8.2	50.0	
77	Ethyl Ether	50.0000	47.7690	4.5	50.0	
65	Trichlorotrifluoroethane	50.0000	48.4874	3.0	50.0	
10	Carbon Disulfide	50.0000	45.9055	8.2	50.0	
67	Allyl Chloride	50.0000	44.9221	10.2	50.0	
53	Methyl t-butyl ether	50.0000	48.6253	2.7	50.0	
54	Hexane	50.0000	41.1345	17.7	50.0	
24	Vinyl acetate	50.0000	44.1779	11.6	50.0	
78	Ethyl Acetate	50.0000	41.0303	17.9	50.0	
56	Tetrahydrofuran	50.0000	38.9848	22.0	50.0	
89	Dibromofluoromethane	50.0000	51.0149	2.0	50.0	
115	Cyclohexane	50.0000	45.0365	9.9	80.0	
303	1,2-Dichloroethane-d4	50.0000	50.1718	0.3	50.0	
90	Fluorobenzene	50.0000	50.0000	0.0	50.0	
73	Methyl Methacrylate	50.0000	47.1343	5.7	50.0	
82	2-nitropropane	50.0000	44.2437	11.5	50.0	
35	2-Chloroethyl vinyl ether	50.0000	130.9723	161.9	50.0	<- NOTE
301	Toluene-d8	50.0000	46.4783	7.0	50.0	
41	Ethyl methacrylate	50.0000	47.7680	4.5	50.0	
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
302	Bromofluorobenzene	50.0000	44.6438	10.7	50.0	
60	t-1,4-Dichloro-2-butene	50.0000	43.6284	12.7	50.0	
91	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0	

Data File: /chem/J.i/090600.b/j5029.d
Report Date: 06-Sep-2000 14:44

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5029.d
Analysis Type: SOIL
Lab Sample ID: SVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:53
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$	39 Dibromofluoromethane	0.376	0.384	0.010	-2.0	50.0	
$	44 1,2-Dichloroethane-d4	0.227	0.228	0.010	-0.3	50.0	
$	59 Toluene-d8	4.024	3.741	0.010	7.0	50.0	
$	80 Bromofluorobenzene	1.440	1.286	0.010	10.7	50.0	
	8 Dichlorofluoromethane	0.253	0.274	0.010	-8.2	50.0	
	11 Ethyl Ether	0.208	0.199	0.010	4.5	50.0	
	15 Trichlorotrifluoroethane	0.385	0.373	0.010	3.0	50.0	
	17 Carbon Disulfide	0.865	0.794	0.010	8.2	50.0	
	19 Allyl Chloride	0.479	0.430	0.010	10.2	50.0	
	24 Methyl t-butyl ether	0.729	0.709	0.010	2.7	50.0	
	25 Hexane	2.261	1.860	0.010	17.7	50.0	
	27 Vinyl acetate	0.684	0.605	0.010	11.6	50.0	
	34 Ethyl Acetate	0.313	0.257	0.010	17.9	50.0	
	38 Tetrahydrofuran	0.078	0.061	0.010	22.0	50.0	
	115 Cyclohexane	0.519	0.467	0.010	9.9	80.0	
	56 2-Chloroethyl vinyl ether	0.015	0.039	0.002	-161.9	50.0	<- out of cc
	51 Methyl Methacrylate	0.291	0.275	0.010	5.7	50.0	
	55 2-nitropropane	0.303	0.268	0.010	11.5	50.0	
	62 Ethyl methacrylate	1.674	1.599	0.010	4.5	50.0	
	84 t-1,4-Dichloro-2-butene	0.217	0.189	0.010	12.7	50.0	

Report Date : 07-Jun-2000 13:28

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/060600a.b/J5030-8260B-soil.m
Cal Date : 07-Jun-2000 13:27 appelhad
Curve Type : Average

Calibration File Names:
Level 1: /chem/J.i/060600a.b/j3741.d
Level 2: /chem/J.i/060600a.b/j3742.d
Level 3: /chem/J.i/060600a.b/j3743.d
Level 4: /chem/J.i/060600a.b/j3744.d
Level 5: /chem/J.i/060600a.b/j3745.d
Level 6: /chem/J.i/060600a.b/j3746.d

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	___ RRF	% RSD	
M	1 1,2-Dichloroethene (total)	0.33903	0.32437	0.32860	0.30106	0.28483	0.28390	0.31030	7.612	
M	2 Xylene (total)	5.30544	4.94331	4.52358	3.95463	3.62403	3.51221	4.31053	16.956	
	3 dichlorodifluoromethane	0.31999	0.30680	0.30844	0.27847	0.26853	0.27407	0.29272	7.367	
	4 Chloromethane	0.24196	0.22358	0.22617	0.20998	0.20081	0.20682	0.21822	6.969	
	5 Vinyl Chloride	0.23394	0.23108	0.23636	0.21955	0.21191	0.21788	0.22512	4.431	
	6 Bromomethane	0.24810	0.24028	0.23676	0.21604	0.20499	0.19505	0.22354	9.532	
	7 Chloroethane	0.16325	0.16153	0.16164	0.15392	0.14786	0.14534	0.15559	4.963	
	9 Trichlorofluoromethane	0.30769	0.34838	0.36712	0.37827	0.37254	0.39937	0.36223	8.672	
	10 Ethanol	0.00297	0.00196	0.00206	0.00193	0.00188	0.00200	0.00214	19.081	LOW TC
	12 Acrolein	0.03789	0.03715	0.03700	0.03419	0.03192	0.03352	0.03528	6.824	
	13 1,1-Dichloroethene	0.29006	0.27542	0.27714	0.25202	0.24375	0.24845	0.26447	7.127	
	14 Acetone	+++++	0.06483	0.06885	0.06209	0.05988	0.06247	0.06362	5.356	
	16 Iodomethane	0.50024	0.48846	0.49593	0.45664	0.44249	0.44422	0.47133	5.627	
	18 Acetonitrile	0.01876	0.01760	0.01859	0.01763	0.01694	0.01845	0.01799	3.959	
	20 Methylene Chloride	0.30194	0.28018	0.27163	0.24863	0.23848	0.23986	0.26345	9.644	
	21 tert-Butyl alcohol	0.02853	0.02432	0.02656	0.02410	0.02283	0.02431	0.02511	8.220	LOW TC
	22 Acrylonitrile	0.06844	0.06223	0.06517	0.05929	0.05686	0.05881	0.06180	7.067	
	23 trans-1,2-Dichloroethene	0.32913	0.31463	0.32036	0.29247	0.27667	0.27835	0.30194	7.442	
	26 1,1-Dichloroethane	0.51280	0.49714	0.49976	0.45697	0.43749	0.43328	0.47291	7.312	
	28 Isopropyl ether	0.31574	0.30499	0.30322	0.27822	0.26797	0.25948	0.28827	7.909	
	29 Chloroprene	0.44901	0.45997	0.45647	0.41623	0.39624	0.39193	0.42831	7.175	
	30 2-Butanone	0.14135	0.12129	0.13287	0.11760	0.11484	0.12089	0.12481	8.152	
	31 cis-1,2-Dichloroethene	0.34893	0.33410	0.33683	0.30966	0.29299	0.28945	0.31866	7.786	
	32 2,2-Dichloropropane	0.42808	0.41954	0.40452	0.36852	0.35027	0.34379	0.38579	9.420	
	33 Propionitrile	0.02493	0.02299	0.02366	0.02205	0.02088	0.02217	0.02277	6.194	

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/060600a.b/J5030-8260B-soil.m
Cal Date : 07-Jun-2000 13:27 appelhad
Curve Type : Average

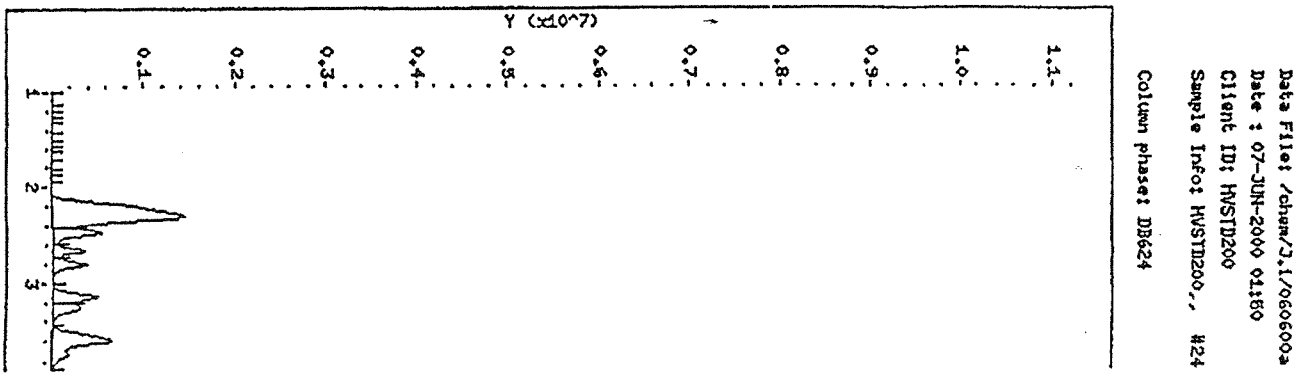
Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
35 Methacrylonitrile	0.15654	0.15034	0.15503	0.13984	0.13148	0.13075	0.14400	8.030
36 Bromochloromethane	0.15971	0.15733	0.15506	0.14512	0.13936	0.13866	0.14921	6.253
37 Chloroform	0.57467	0.54528	0.54088	0.49517	0.47115	0.46005	0.51454	8.898
40 1,1,1-Trichloroethane	0.54637	0.52773	0.52541	0.47677	0.45254	0.45041	0.49654	8.422
41 1,1-Dichloropropene	0.46166	0.46052	0.44997	0.41108	0.39006	0.38433	0.42627	8.320
42 Carbon Tetrachloride	0.43038	0.41954	0.42298	0.38632	0.37133	0.37065	0.40020	6.801
43 Isobutanol	0.00910	0.00845	0.00872	0.00862	0.00816	0.00852	0.00860	3.632
46 Benzene	0.98483	0.94243	0.93053	0.85764	0.81067	0.78889	0.88583	8.867
45 1,2-Dichloroethane	0.32729	0.32779	0.32039	0.29517	0.28175	0.27969	0.30534	7.368
48 n-Butanol	0.00606	0.00661	0.00784	0.00698	0.00670	0.00742	0.00727	8.313
49 Trichloroethene	0.34486	0.34121	0.33592	0.30996	0.29973	0.29167	0.32056	7.159
50 1,2-Dichloropropane	0.33005	0.32860	0.33288	0.30033	0.28939	0.28519	0.31107	7.041
53 1,4-Dioxane	0.00295	0.00332	0.00301	0.00263	0.00257	0.00270	0.00286	9.897
52 Dibromomethane	0.24842	0.23556	0.23321	0.21535	0.20943	0.20519	0.22453	7.594
54 Bromodichloromethane	0.51859	0.50673	0.50007	0.45929	0.43553	0.42630	0.47442	8.277
57 cis-1,3-Dichloropropene	0.50103	0.49469	0.48277	0.44800	0.43355	0.42288	0.46382	7.177
58 4-Methyl-2-pentanone	1.47607	1.41042	1.47961	1.36431	1.37953	1.39457	1.41742	3.476
60 Toluene	5.75509	5.43013	5.28995	4.60108	4.53413	4.23786	4.97471	12.036
61 trans-1,3-Dichloropropene	1.99614	1.92875	1.85652	1.62388	1.65660	1.61323	1.77919	9.476
63 1,1,2-Trichloroethane	1.51388	1.40257	1.45360	1.20942	1.23342	1.19871	1.33527	10.339
65 Tetrachloroethene	1.90878	1.73846	1.70150	1.48745	1.45771	1.38924	1.61386	12.424
64 1,3-Dichloropropane	2.39285	2.23455	2.23842	1.95956	1.96857	1.90277	2.11612	9.389
66 2-Hexanone	0.80778	0.85993	0.91198	0.84445	0.87630	0.90541	0.86764	4.508
67 Dibromochloromethane	1.89895	1.78961	1.74603	1.58647	1.60620	1.54878	1.69601	8.092
68 1,2-Dibromoethane	1.79032	1.66741	1.69155	1.52468	1.54206	1.50458	1.62010	7.030
69 1-Chlorohexane	2.72430	2.54984	2.39233	2.18492	2.18048	2.08777	2.35327	10.521
71 Chlorobenzene	3.71669	3.48705	3.37897	3.04004	3.03233	2.86390	3.25316	10.018
72 1,1,1,2-Tetrachloroethane	1.66806	1.60788	1.59176	1.39909	1.41845	1.35822	1.50724	8.647
73 Ethylbenzene	1.91392	1.85409	1.80845	1.66234	1.66132	1.57913	1.74654	7.500
74 m and p-Xylene	2.59501	2.43517	2.37040	2.13863	2.14244	2.00523	2.28115	9.721
75 o-Xylene	2.42829	2.33065	2.27569	2.03996	2.05218	1.96537	2.18202	8.586
76 Styrene	3.69050	3.59063	3.58021	3.27122	3.32782	3.14098	3.43356	6.318
77 Bromoform	1.66346	1.52468	1.58502	1.42689	1.44138	1.40595	1.50790	6.751

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 06-JUN-2000 23:48
End Cal Date : 07-JUN-2000 04:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/J.i/060600a.b/J5030-8260B-soil.m
Cal Date : 07-Jun-2000 13:27 appelhad
Curve Type : Average

	Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
78	isopropyl benzene	7.12816	6.89003	6.80369	6.06081	5.90761	5.42880	6.36985	10.481
79	Cyclohexanone	0.08853	0.07974	0.08614	0.07512	0.07943	0.08118	0.08169	5.971
81	1,1,2,2-Tetrachloroethane	1.47587	1.33694	1.26061	1.10540	1.01925	1.01877	1.20281	15.462
82	Bromobenzene	1.22132	1.14863	1.09295	0.96061	0.89449	0.86360	1.03027	14.100
83	1,2,3-Trichloropropane	0.37644	0.36598	0.35527	0.30596	0.28818	0.29354	0.33089	11.891
85	n-Propylbenzene	1.06046	0.99021	0.92528	0.83511	0.76283	0.74554	0.88657	14.297
86	2-Chlorotoluene	0.94366	0.87748	0.83067	0.74153	0.68464	0.66010	0.78968	14.242
87	1,3,5-Trimethylbenzene	3.73877	3.51244	3.29409	2.87939	2.59168	2.42741	3.07396	17.036
88	4-Chlorotoluene	0.92016	0.86566	0.81443	0.71523	0.66680	0.64904	0.77188	14.419
89	tert-Butylbenzene	3.81219	3.53866	3.33409	2.90602	2.60805	2.44973	3.10812	17.365
90	1,2,4-Trimethylbenzene	3.43504	3.09986	2.97327	2.65626	2.41381	2.26286	2.80685	15.783
91	sec-Butylbenzene	5.24880	4.89545	4.60292	4.15291	3.72668	3.43697	4.34395	16.049
92	m-Dichlorobenzene	1.72446	1.63462	1.59832	1.45560	1.25827	1.21015	1.48024	14.179
93	4-Isopropyltoluene	3.54319	3.31940	3.20015	2.85363	2.62596	2.40408	2.99107	14.597
95	p-dichlorobenzene	1.87396	1.70670	1.58057	1.45145	1.44296	1.36860	1.57071	12.145
96	n-Butylbenzene	2.86654	2.74580	2.73545	2.58029	2.39085	2.21899	2.58965	9.448
97	o-Dichlorobenzene	1.60418	1.51643	1.42828	1.30708	1.21647	1.16070	1.37219	12.664
98	1,2-Dibromo-3-chloropropane	0.25836	0.24974	0.26472	0.25236	0.24113	0.24898	0.25255	3.231
99	1,2,4-Trichlorobenzene	0.63782	0.63916	0.73821	0.74138	0.76234	0.71749	0.70607	7.682
100	Hexachlorobutadiene	0.76277	0.70572	0.76212	0.68816	0.64636	0.56295	0.68801	11.025
101	Napthalene	0.57530	0.58119	0.73876	0.74163	0.84215	0.88466	0.72728	17.688
102	1,2,3-Trichlorobenzene	0.54029	0.52785	0.65602	0.62524	0.65667	0.61104	0.60285	9.334



Data File: /chem/J.i/090600.b/j5029.d
Report Date: 09/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5029.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:53
Lab Sample ID: SVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
87	Dichlorofluoromethane	50.0000	54.0998	8.2	50.0	
77	Ethyl Ether	50.0000	47.7690	4.5	50.0	
65	Trichlorotrifluoroethane	50.0000	48.4874	3.0	50.0	
10	Carbon Disulfide	50.0000	45.9055	8.2	50.0	
67	Allyl Chloride	50.0000	44.9221	10.2	50.0	
53	Methyl t-butyl ether	50.0000	48.6253	2.7	50.0	
54	Hexane	50.0000	41.1345	17.7	50.0	
24	Vinyl acetate	50.0000	44.1779	11.6	50.0	
78	Ethyl Acetate	50.0000	41.0303	17.9	50.0	
56	Tetrahydrofuran	50.0000	38.9848	22.0	50.0	
89	Dibromofluoromethane	50.0000	51.0149	2.0	50.0	
115	Cyclohexane	50.0000	45.0365	9.9	80.0	
303	1,2-Dichloroethane-d4	50.0000	50.1718	0.3	50.0	
90	Fluorobenzene	50.0000	50.0000	0.0	50.0	
73	Methyl Methacrylate	50.0000	47.1343	5.7	50.0	
82	2-nitropropane	50.0000	44.2437	11.5	50.0	
35	2-Chloroethyl vinyl ether	50.0000	130.9723	161.9	50.0	<- DOT TC
301	Toluene-d8	50.0000	46.4783	7.0	50.0	
41	Ethyl methacrylate	50.0000	47.7680	4.5	50.0	
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
302	Bromofluorobenzene	50.0000	44.6438	10.7	50.0	
60	t-1,4-Dichloro-2-butene	50.0000	43.6284	12.7	50.0	
91	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0	

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Soil CCV

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5029.d
Analysis Type: SOIL
Lab Sample ID: SVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:53
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$ 39 Dibromofluoromethane	0.376	0.384	0.010	-2.0	50.0	
$ 44 1,2-Dichloroethane-d4	0.227	0.228	0.010	-0.3	50.0	
$ 59 Toluene-d8	4.024	3.741	0.010	7.0	50.0	
$ 80 Bromofluorobenzene	1.440	1.286	0.010	10.7	50.0	
8 Dichlorofluoromethane	0.253	0.274	0.010	-8.2	50.0	
11 Ethyl Ether	0.208	0.199	0.010	4.5	50.0	
15 Trichlorotrifluoroethane	0.385	0.373	0.010	3.0	50.0	
17 Carbon Disulfide	0.865	0.794	0.010	8.2	50.0	
19 Allyl Chloride	0.479	0.430	0.010	10.2	50.0	
24 Methyl t-butyl ether	0.729	0.709	0.010	2.7	50.0	
25 Hexane	2.261	1.860	0.010	17.7	50.0	
27 Vinyl acetate	0.684	0.605	0.010	11.6	50.0	
34 Ethyl Acetate	0.313	0.257	0.010	17.9	50.0	
38 Tetrahydrofuran	0.078	0.061	0.010	22.0	50.0	
115 Cyclohexane	0.519	0.467	0.010	9.9	80.0	
56 2-Chloroethyl vinyl ether	0.015	0.039	0.002	-161.9	50.0	<- DATTC
51 Methyl Methacrylate	0.291	0.275	0.010	5.7	50.0	
55 2-nitropropane	0.303	0.268	0.010	11.5	50.0	
62 Ethyl methacrylate	1.674	1.599	0.010	4.5	50.0	
84 t-1,4-Dichloro-2-butene	0.217	0.189	0.010	12.7	50.0	

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CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL

Injection Date: 06-SEP-2000 14:29
Lab Sample ID: MVSTD050
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
75 1,2-Dibromo-3-chloropropane	50.0000	51.8615	3.7	50.0	
105 1,2,4-Trichlorobenzene	50.0000	68.9817	38.0	50.0	OUT
106 Hexachlorobutadiene	50.0000	59.0862	18.2	50.0	
107 Napthalene	50.0000	74.8529	49.7	50.0	OUT
108 1,2,3-Trichlorobenzene	50.0000	67.6945	35.4	50.0	OUT

Data File: /chem/J.i/090600.b/j5028.d
Report Date: 06-Sep-2000 14:18

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
M	1 1,2-Dichloroethene (total)	0.310	0.316	0.010	-1.9	50.0	
M	2 Xylene (total)	4.311	3.568	0.010	17.2	50.0	
	3 dichlorodifluoromethane	0.293	0.301	0.010	-2.7	50.0	
	4 Chloromethane	0.218	0.191	0.100	12.4	50.0	
	5 Vinyl Chloride	0.225	0.215	0.020	4.7	20.0	
	6 Bromomethane	0.224	0.215	0.010	3.8	50.0	
	7 Chloroethane	0.156	0.145	0.010	6.8	50.0	
	9 Trichlorofluoromethane	0.362	0.417	0.010	-15.1	50.0	
	10 Ethanol	0.002	0.002	0.000	14.6	50.0	NOTR
	12 Acrolein	0.035	0.034	0.005	3.1	50.0	
	13 1,1-Dichloroethene	0.264	0.261	0.020	1.1	20.0	
	14 Acetone	0.064	0.088	0.010	-38.4	50.0	
	16 Iodomethane	0.471	0.535	0.010	-13.4	50.0	
	18 Acetonitrile	0.018	0.017	0.001	3.5	50.0	
	20 Methylene Chloride	0.263	0.266	0.010	-0.8	50.0	
	21 tert-Butyl alcohol	0.025	0.028	0.001	-10.5	50.0	NOTR
	22 Acrylonitrile	0.062	0.057	0.010	8.0	50.0	
	23 trans-1,2-Dichloroethene	0.302	0.304	0.010	-0.8	50.0	
	26 1,1-Dichloroethane	0.473	0.487	0.100	-3.0	50.0	
	28 Isopropyl ether	0.288	0.307	0.010	-6.4	50.0	
	29 Chloroprene	0.428	0.437	0.010	-2.0	50.0	
	30 2-Butanone	0.125	0.134	0.010	-7.8	50.0	
	31 cis-1,2-Dichloroethene	0.319	0.328	0.010	-3.0	50.0	
	32 2,2-Dichloropropane	0.386	0.395	0.010	-2.5	50.0	
	33 Propionitrile	0.023	0.022	0.001	4.4	50.0	
	35 Methacrylonitrile	0.144	0.136	0.010	5.2	50.0	
	36 Bromochloromethane	0.149	0.161	0.010	-7.7	50.0	
	37 Chloroform	0.515	0.527	0.020	-2.4	20.0	
	40 1,1,1-Trichloroethane	0.497	0.514	0.010	-3.5	50.0	
	41 1,1-Dichloropropene	0.426	0.423	0.010	0.9	50.0	
	42 Carbon Tetrachloride	0.400	0.415	0.010	-3.7	50.0	
	43 Isobutanol	0.009	0.008	0.000	1.1	50.0	
	46 Benzene	0.886	0.866	0.010	2.3	50.0	
	45 1,2-Dichloroethane	0.305	0.325	0.010	-6.4	50.0	
	48 n-Butanol	0.007	0.008	0.000	-6.8	50.0	NOTR

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STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 16-AUG-2000 12:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/081600.b/H-20ml-h2o.m
Cal Date : 16-Aug-2000 13:15 hoffmanm
Curve Type : Average

Calibration File Names:
Level 1: /chem/H.i/081600.b/h1049.d
Level 2: /chem/H.i/081600.b/h1050.d
Level 3: /chem/H.i/081500.b/h1043.d
Level 4: /chem/H.i/081500.b/h1044.d
Level 5: /chem/H.i/081500.b/h1045.d
Level 6: /chem/H.i/081500.b/h1046.d

	Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD	
M	1 1,2-Dichloroethene (total)	0.32511	0.29995	0.30223	0.30399	0.29951	0.29852	0.30488	3.315	
M	2 Xylene (total)	6.57829	6.62597	6.49529	6.46531	6.47987	6.34490	6.49827	1.503	
	3 dichlorodifluoromethane	0.48710	0.42699	0.45270	0.45393	0.42706	0.42118	0.44483	5.620	
	4 Chloromethane	0.24965	0.24755	0.23329	0.23727	0.22995	0.22140	0.23652	4.541	
	5 Vinyl Chloride	0.32408	0.29858	0.29815	0.29700	0.28872	0.28059	0.29785	4.913	
	7 Bromomethane	0.27220	0.29101	0.27253	0.26931	0.26072	0.24826	0.26901	5.272	
	8 Chloroethane	0.21866	0.20281	0.20642	0.20272	0.19601	0.19265	0.20321	4.471	
	10 Trichlorofluoromethane	0.69855	0.67166	0.64569	0.64789	0.63147	0.60683	0.65035	4.890	
	11 Ethanol	+++++	0.00029	0.00033	0.00034	0.00035	0.00035	0.00033	7.712	poor fit
	13 Acrolein	0.00765	0.00781	0.00750	0.00797	0.00805	0.00792	0.00782	2.629	
	14 1,1-Dichloroethene	0.34618	0.32716	0.32114	0.32808	0.31852	0.31001	0.32518	3.751	
	15 Acetone	+++++	0.02196	0.01654	0.01549	0.01619	0.01564	0.01716	15.815	
	17 Iodomethane	0.76558	0.73554	0.72891	0.73615	0.73361	0.68782	0.73127	3.415	
	19 Acetonitrile	0.00411	0.00239	0.00260	0.00278	0.00297	0.00300	0.00298	20.140	
	21 Methylene Chloride	0.24463	0.23351	0.22574	0.23215	0.21962	0.21652	0.22869	4.495	
	22 tert-Butyl alcohol	0.00380	0.00368	0.00371	0.00395	0.00390	0.00377	0.00380	2.800	poor fit
	23 Acrylonitrile	0.01276	0.01044	0.01070	0.01146	0.01198	0.01243	0.01163	8.026	
	24 trans-1,2-Dichloroethene	0.34328	0.31280	0.32109	0.32283	0.31401	0.30990	0.32065	3.789	
	27 1,1-Dichloroethane	0.51824	0.50638	0.49833	0.51168	0.51903	0.54208	0.51596	2.898	
	28 Chloroprene	0.45637	0.43977	0.44203	0.45439	0.47115	0.49574	0.45991	4.539	
	30 Isopropyl ether	0.19962	0.19833	0.20168	0.21629	0.22514	0.23185	0.21215	6.771	
	32 cis-1,2-Dichloroethene	0.30695	0.28710	0.28338	0.28514	0.28501	0.28714	0.28912	3.060	
	31 2,2-Dichloropropane	0.55043	0.52682	0.50510	0.50280	0.47111	0.46503	0.50355	6.453	
	33 2-Butanone	+++++	0.02295	0.01825	0.02072	0.02202	0.02252	0.02130	8.836	
	34 Propionitrile	0.00404	0.00395	0.00373	0.00432	0.00398	0.00431	0.00406	5.643	

Aqueous ICAL

STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 16-AUG-2000 12:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/081600.b/H-20ml-h2o.m
Cal Date : 16-Aug-2000 13:15 hoffmanm
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD
36 Methacrylonitrile	0.02604	0.02741	0.02759	0.02931	0.03125	0.03212	0.02895	8.196
37 Bromochloromethane	0.10866	0.10817	0.10716	0.11259	0.11199	0.11053	0.10985	1.997
38 Chloroform	0.51976	0.51424	0.51279	0.53611	0.52088	0.52134	0.52085	1.590
41 1,1,1-Trichloroethane	0.58241	0.56643	0.55475	0.56153	0.53728	0.53839	0.55680	3.106
42 1,1-Dichloropropene	0.52635	0.50994	0.50971	0.51575	0.51283	0.52158	0.51602	1.299
43 Carbon Tetrachloride	0.53661	0.54005	0.53119	0.53975	0.53234	0.53601	0.53599	0.685
45 Isobutanol	+++++	0.00086	0.00104	0.00134	0.00145	0.00138	0.00121	20.638
46 Benzene	0.96249	0.93339	0.92625	0.94483	0.94249	0.94753	0.94283	1.322
47 1,2-Dichloroethane	0.16419	0.15636	0.15552	0.16280	0.16183	0.16385	0.16076	2.385
49 n-Butanol	+++++	0.00069	0.00089	0.00102	0.00106	0.00106	0.00095	16.730
50 Trichloroethene	0.41516	0.39885	0.40074	0.40609	0.39610	0.39496	0.40198	1.881
52 1,2-Dichloropropane	0.22395	0.21694	0.22012	0.22694	0.22198	0.22456	0.22241	1.594
53 Dibromomethane	0.09622	0.09973	0.09350	0.10198	0.09724	0.09598	0.09744	3.081
55 1,4-Dioxane	0.00051	0.00049	0.00054	0.00058	0.00058	0.00057	0.00054	7.109
56 Bromodichloromethane	0.35258	0.34181	0.33818	0.35282	0.34852	0.34653	0.34674	1.690
59 cis-1,3-Dichloropropene	1.71161	1.72120	1.68114	1.71137	1.62599	1.53283	1.66402	4.394
60 4-Methyl-2-pentanone	0.25977	0.23835	0.26780	0.29021	0.27420	0.25781	0.26469	6.580
62 Toluene	5.87524	5.60605	5.49127	5.45965	5.20290	4.93219	5.42788	6.016
63 trans-1,3-Dichloropropene	1.06877	1.11739	1.03288	1.07663	1.01762	0.95153	1.04414	5.491
65 1,1,2-Trichloroethane	0.57187	0.56634	0.56821	0.58903	0.55017	0.52467	0.56171	3.915
67 1,3-Dichloropropane	1.15226	1.12982	1.10937	1.14605	1.09476	1.05024	1.11375	3.407
66 Tetrachloroethene	2.34397	2.32108	2.24893	2.21777	2.09308	1.99037	2.20253	6.206
68 2-Hexanone	0.16530	0.17238	0.16156	0.17021	0.17654	0.16769	0.16895	3.136
69 Dibromochloromethane	1.15031	1.14604	1.10954	1.14581	1.08861	1.02955	1.11165	4.242
70 1,2-Dibromoethane	0.70136	0.64415	0.65148	0.66678	0.64196	0.60163	0.65123	5.024
71 1-Chlorohexane	2.75829	2.76007	2.71269	2.68331	2.63766	2.59817	2.69170	2.424
73 Chlorobenzene	3.11605	3.03983	3.02417	3.06066	2.98325	2.88029	3.01738	2.656
74 1,1,1,2-Tetrachloroethane	1.56754	1.51428	1.49324	1.51287	1.43759	1.41173	1.48954	3.799
75 Ethylbenzene	1.78852	1.76849	1.70791	1.73092	1.68308	1.63166	1.71843	3.339
76 m and p-Xylene	2.30498	2.30410	2.29352	2.27496	2.28810	2.24443	2.28502	0.997
77 o-Xylene	1.96832	2.01776	1.90825	1.91539	1.90368	1.85604	1.92824	2.934
78 Styrene	2.64270	2.65207	2.69290	2.80174	2.78035	2.71709	2.71447	2.414
79 Bromoform	0.59395	0.58504	0.60088	0.61805	0.59741	0.56493	0.59338	2.977

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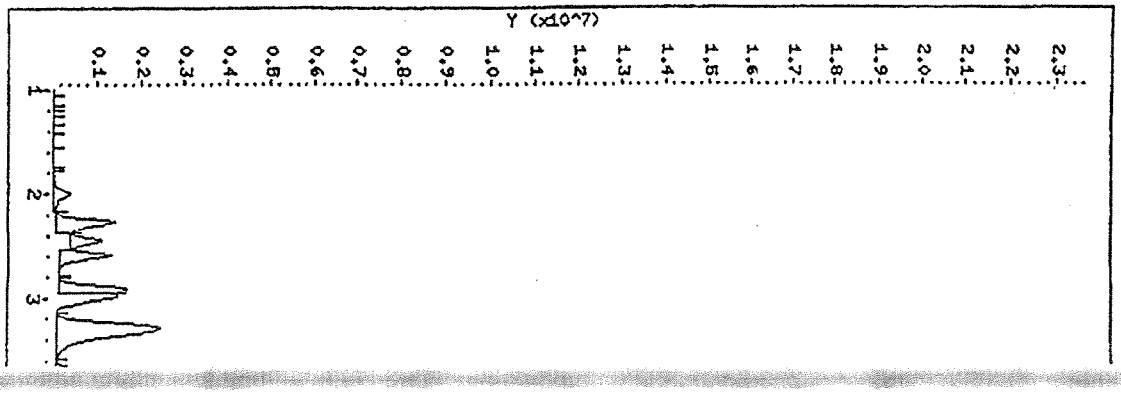
STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 16-AUG-2000 12:51
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/081600.b/H-20ml-h2o.m
Cal Date : 16-Aug-2000 13:15 hoffmanm
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD	
80 isopropyl benzene	6.63113	6.54625	6.54906	6.48033	6.29300	6.05162	6.42523	3.356	
81 Cyclohexanone	0.02406	0.02401	0.02359	0.02419	0.02432	0.02340	0.02393	1.493	NOT TL
83 1,1,2,2-Tetrachloroethane	0.57921	0.59581	0.56467	0.53382	0.57960	0.56457	0.56961	3.690	
84 Bromobenzene	0.96735	0.94750	0.91166	0.89185	0.83740	0.82257	0.89639	6.472	
85 1,2,3-Trichloropropane	0.11150	0.09706	0.09461	0.08678	0.08317	0.08248	0.09260	11.894	
87 n-Propylbenzene	1.06520	1.01602	1.00804	0.94615	0.92912	0.93231	0.98281	5.629	
88 2-Chlorotoluene	0.89304	0.85652	0.80933	0.75950	0.72849	0.72799	0.79581	8.664	
89 1,3,5-Trimethylbenzene	3.18752	3.11866	3.04777	2.76867	2.69806	2.73435	2.92584	7.390	
90 4-Chlorotoluene	0.85134	0.91157	0.92399	0.81070	0.80233	0.80156	0.85025	6.534	
91 tert-Butylbenzene	3.73906	3.58309	3.45556	3.18780	3.08691	3.11712	3.36159	8.046	
92 1,2,4-Trimethylbenzene	2.61815	2.57132	2.52299	2.40767	2.37121	2.37721	2.47843	4.288	
93 sec-Butylbenzene	1.06931	0.96982	1.00964	0.92420	0.88922	0.89778	0.95999	7.317	
94 m-Dichlorobenzene	1.59736	1.48215	1.44866	1.42211	1.41067	1.45569	1.46944	4.600	
95 4-Isopropyltoluene	3.64367	3.46245	3.49940	3.34318	3.35133	3.38884	3.44815	3.306	
97 p-dichlorobenzene	1.77331	1.73109	1.74806	1.70919	1.69994	1.68810	1.72495	1.859	
98 n-Butylbenzene	2.49365	2.47863	2.70696	2.68519	2.85096	3.01280	2.70470	7.619	
99 o-Dichlorobenzene	1.22245	1.13242	1.14359	1.12621	1.07767	1.06509	1.12790	4.965	
100 1,2-Dibromo-3-chloropropane	0.07004	0.06926	0.06731	0.06743	0.06448	0.06311	0.06694	4.009	
101 1,2,4-Trichlorobenzene	0.54215	0.54734	0.59903	0.63871	0.68529	0.70226	0.61913	10.991	
102 Hexachlorobutadiene	1.21405	1.22167	1.21367	1.14775	1.07380	1.07429	1.15754	6.047	
103 Napthalene	0.38877	0.39645	0.43439	0.45004	0.50922	0.52910	0.45133	12.772	
104 1,2,3-Trichlorobenzene	0.44001	0.42978	0.48131	0.48970	0.50146	0.51283	0.47585	7.066	



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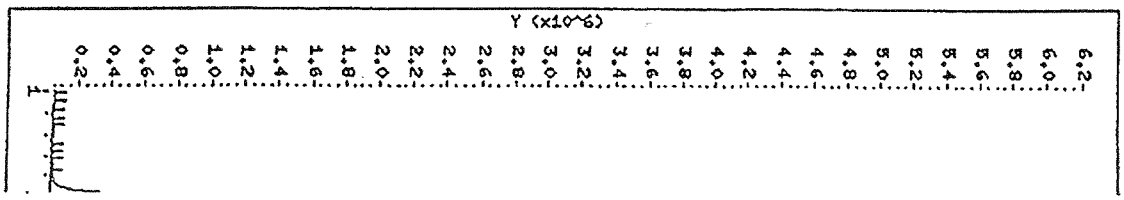
STL Denver

INITIAL CALIBRATION DATA

Start Cal Date : 23-JUN-2000 14:58
End Cal Date : 15-AUG-2000 21:47
Quant Method : ISTD
Origin : Disabled
Target Version : 3.40
Integrator : HP RTE
Method file : /chem/H.i/081500.b/H-20ml-h2o.m
Cal Date : 16-Aug-2000 09:44 hoffmanm
Curve Type : Average

Calibration File Names:
Level 1: /chem/H.i/062300c.b/h8696.d
Level 2: /chem/H.i/062300c.b/h8697.d
Level 3: /chem/H.i/081500.b/h1043.d
Level 4: /chem/H.i/081500.b/h1044.d
Level 5: /chem/H.i/081500.b/h1045.d
Level 6: /chem/H.i/081500.b/h1046.d

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	30.000 Level 5	60.000 Level 6	RRF	% RSD	
9 Dichlorofluoromethane	0.57305	0.52079	0.56317	0.53730	0.63068	0.61691	0.57365	7.538	
12 Ethyl Ether	0.13487	0.10275	0.09216	0.09337	0.09352	0.09377	0.10174	16.399	
16 Trichlorotrifluoroethane	0.71224	0.60685	0.58584	0.57555	0.64295	0.58655	0.61833	8.389	
18 Carbon Disulfide	1.22266	1.03136	0.98261	0.97705	1.19032	1.02798	1.07200	9.985	
20 Allyl Chloride	0.45369	0.39108	0.37631	0.36753	0.48424	0.40102	0.41231	11.255	
25 Methyl t-butyl ether	0.37186	0.34576	0.30284	0.30121	0.31895	0.29407	0.32245	9.446	
26 Hexane	3.00653	2.60877	2.50080	2.46890	2.41210	2.65709	2.60903	8.229	
114 Cyclohexane	0.56264	0.48490	0.46803	0.45569	0.48282	0.48721	0.49022	7.645	
29 Vinyl acetate	0.19103	0.16698	0.12639	0.13496	0.17273	0.17536	0.16124	15.584	
35 Ethyl Acetate	0.06867	0.07668	0.05104	0.05161	0.04907	0.04994	0.05783	20.414	
39 Tetrahydrofuran	+++++	0.01552	0.01116	0.01042	0.01100	0.01120	0.01186	17.435	
113 2-Chloroethyl vinyl ether	0.11850	0.09662	0.08764	0.07912	0.07561	0.07972	0.08954	17.947	
54 Methyl Methacrylate	0.06246	0.05824	0.05991	0.05386	0.05591	0.05941	0.05830	5.232	
57 2-nitropropane	+++++	0.06091	0.05757	0.06478	0.06408	0.06265	0.06200	4.652	
64 Ethyl methacrylate	0.89381	0.82120	0.70718	0.56848	0.58646	0.61505	0.69870	19.170	
86 t-1,4-Dichloro-2-butene	0.05493	0.05385	0.04934	0.04337	0.04484	0.04283	0.04819	11.060	
$ 40 Dibromofluoromethane	0.34909	0.36892	0.36401	0.36236	0.35770	0.36337	0.36091	1.888	
$ 44 1,2-Dichloroethane-d4	0.14451	0.14211	0.14049	0.14222	0.13529	0.13758	0.14037	2.409	
$ 61 Toluene-d8	4.32983	4.25628	4.34158	4.33424	4.43565	4.39467	4.34871	1.411	
$ 82 Bromofluorobenzene	1.59400	1.73927	1.73314	1.71628	1.71078	1.77566	1.71150	3.619	



Data File: /chem/H.i/091200.b/h1619.d Page 1
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 09:52
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
83 Xylene (total)	30.0000	29.6783	1.1	50.0
85 1,2-Dichloroethene (total)	20.0000	20.9938	5.0	50.0
64 dichlorodifluoromethane	10.0000	7.2375	27.6	50.0
1 Chloromethane	10.0000	8.0991	19.0	50.0
4 Vinyl Chloride	10.0000	8.8458	11.5	20.0
2 Bromomethane	10.0000	10.3499	3.5	50.0
5 Chloroethane	10.0000	12.4575	24.6	50.0
11 Trichlorofluoromethane	10.0000	10.8907	8.9	50.0
3 Ethanol	500.0000	458.0346	8.4	50.0
8 Acrolein	100.0000	78.4454	21.6	50.0
12 1,1-Dichloroethene	10.0000	10.1365	1.4	20.0
7 Acetone	20.0000	17.4987	12.5	50.0
21 Iodomethane	10.0000	11.2347	12.3	50.0
68 Acetonitrile	100.0000	95.5746	4.4	50.0
6 Methylene Chloride	10.0000	10.6889	6.9	50.0
86 tert-Butyl alcohol	200.0000	229.7756	14.9	50.0
9 Acrylonitrile	100.0000	95.0909	4.9	50.0
0 trans-1,2-Dichloroethene	10.0000	11.3532	13.5	50.0
15 1,1-Dichloroethane	10.0000	9.7939	2.1	50.0
84 Isopropyl ether	50.0000	39.4640	21.1	50.0
69 Chloroprene	10.0000	8.6645	13.4	50.0
93 2,2-Dichloropropane	10.0000	10.1027	1.0	50.0
0 cis-1,2-Dichloroethene	10.0000	9.6406	3.6	50.0
20 2-Butanone	20.0000	15.2512	23.7	50.0
70 Propionitrile	100.0000	78.8913	21.1	50.0
72 Methacrylonitrile	100.0000	77.7033	22.3	50.0
13 Bromochloromethane	10.0000	9.7162	2.8	50.0
17 Chloroform	10.0000	9.9052	0.9	20.0
22 1,1,1-Trichloroethane	10.0000	10.2946	2.9	50.0
94 1,1-Dichloropropene	10.0000	9.6688	3.3	50.0
23 Carbon Tetrachloride	10.0000	10.3136	3.1	50.0
71 Isobutanol	200.0000	134.8090	32.6	50.0
30 Benzene	10.0000	9.2661	7.3	50.0
16 1,2-Dichloroethane	10.0000	9.4251	5.7	50.0
90 Fluorobenzene	10.0000	10.0000	0.0	50.0
88 n-Butanol	200.0000	182.6509	8.7	50.0
29 Trichloroethene	10.0000	10.2394	2.4	50.0
26 1,2-Dichloropropane	10.0000	9.0379	9.6	20.0
34 Dibromomethane	10.0000	9.3883	6.1	50.0

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Data File: /chem/H.i/091200.b/h1619.d Page
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 09:52
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
57	1,4-Dioxane	500.0000	455.1412	9.0	50.0
25	Bromodichloromethane	10.0000	9.4741	5.3	50.0
28	cis-1,3-Dichloropropene	10.0000	9.1570	8.4	50.0
38	4-Methyl-2-pentanone	20.0000	16.9708	15.1	50.0
45	Toluene	10.0000	9.7493	2.5	20.0
31	trans-1,3-Dichloropropene	10.0000	9.1232	8.8	50.0
32	1,1,2-Trichloroethane	10.0000	9.2808	7.2	50.0
42	Tetrachloroethene	10.0000	10.4975	5.0	50.0
109	1,3-Dichloropropane	10.0000	8.9546	10.5	50.0
43	2-Hexanone	20.0000	15.2739	23.6	50.0
36	Dibromochloromethane	10.0000	9.9094	0.9	50.0
58	1,2-Dibromoethane	10.0000	9.3785	6.2	50.0
92	1-Chlorohexane	10.0000	9.6424	3.6	50.0
39	Chlorobenzene-d5	10.0000	10.0000	0.0	50.0
46	Chlorobenzene	10.0000	9.9447	0.6	50.0
74	1,1,1,2-Tetrachloroethane	10.0000	9.8241	1.8	50.0
47	Ethylbenzene	10.0000	10.0628	0.6	20.0
0	m and p-Xylene	20.0000	20.1146	0.6	50.0
0	o-Xylene	10.0000	9.5637	4.4	50.0
49	Styrene	10.0000	7.2228	27.8	50.0
37	Bromoform	10.0000	9.6283	3.7	50.0
79	Isopropyl benzene	10.0000	10.0802	0.8	50.0
76	Cyclohexanone	200.0000	156.2150	21.9	50.0
40	1,1,2,2-Tetrachloroethane	10.0000	9.1964	8.0	50.0
95	Bromobenzene	10.0000	9.3080	6.9	50.0
50	1,2,3-Trichloropropane	10.0000	8.4529	15.5	50.0
96	n-Propylbenzene	10.0000	9.8238	1.8	50.0
97	2-Chlorotoluene	10.0000	9.4788	5.2	50.0
98	1,3,5-Trimethylbenzene	10.0000	9.2845	7.2	50.0
99	4-Chlorotoluene	10.0000	9.5534	4.5	50.0
100	tert-Butylbenzene	10.0000	9.5439	4.6	50.0
101	1,2,4-Trimethylbenzene	10.0000	9.5118	4.9	50.0
102	sec-Butylbenzene	10.0000	10.1330	1.3	50.0
61	m-Dichlorobenzene	10.0000	9.5444	4.6	50.0
103	4-Isopropyltoluene	10.0000	9.7879	2.1	50.0
91	1,4-Dichlorobenzene-d4	10.0000	10.0000	0.0	50.0
62	p-dichlorobenzene	10.0000	9.8695	1.3	50.0
104	n-Butylbenzene	10.0000	10.1392	1.4	50.0
63	o-Dichlorobenzene	10.0000	9.6247	3.8	50.0

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STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 09:52
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D	
M	1 1,2-Dichloroethene (total)	0.305	0.321	0.010	-5.4	50.0	
M	2 Xylene (total)	6.498	6.440	0.010	0.9	50.0	
	3 dichlorodifluoromethane	0.445	0.322	0.010	27.6	50.0	
	4 Chloromethane	0.237	0.192	0.100	19.0	50.0	
	5 Vinyl Chloride	0.298	0.263	0.020	11.5	20.0	
	7 Bromomethane	0.269	0.278	0.010	-3.5	50.0	
	8 Chloroethane	0.203	0.253	0.010	-24.6	50.0	
	10 Trichlorofluoromethane	0.650	0.708	0.010	-8.9	50.0	
	11 Ethanol	0.000	0.000	0.000	8.4	50.0	not TC
	13 Acrolein	0.008	0.006	0.001	21.6	50.0	
	14 1,1-Dichloroethene	0.325	0.330	0.020	-1.4	20.0	
	15 Acetone	0.017	0.015	0.001	12.5	50.0	
	17 Iodomethane	0.731	0.822	0.010	-12.3	50.0	
	19 Acetonitrile	0.003	0.003	0.000	4.4	50.0	
	21 Methylene Chloride	0.229	0.244	0.010	-6.9	50.0	
	22 tert-Butyl alcohol	0.004	0.006	0.001	-14.9	50.0	not TC
	23 Acrylonitrile	0.012	0.011	0.001	4.9	50.0	
	24 trans-1,2-Dichloroethene	0.321	0.364	0.010	-13.5	50.0	
	27 1,1-Dichloroethane	0.516	0.505	0.100	2.1	50.0	
	28 Chloroprene	0.460	0.398	0.010	13.4	50.0	
	30 Isopropyl ether	0.212	0.167	0.010	21.1	50.0	
	32 cis-1,2-Dichloroethene	0.289	0.279	0.010	3.6	50.0	
	31 2,2-Dichloropropane	0.504	0.509	0.010	-1.0	50.0	
	33 2-Butanone	0.021	0.016	0.010	23.7	50.0	
	34 Propionitrile	0.004	0.003	0.001	21.1	50.0	
	36 Methacrylonitrile	0.029	0.022	0.010	22.3	50.0	
	37 Bromochloromethane	0.110	0.107	0.010	2.8	50.0	
	38 Chloroform	0.521	0.516	0.020	0.9	20.0	
	41 1,1,1-Trichloroethane	0.557	0.573	0.010	-2.9	50.0	
	42 1,1-Dichloropropene	0.516	0.499	0.010	3.3	50.0	
	43 Carbon Tetrachloride	0.536	0.553	0.010	-3.1	50.0	
	45 Isobutanol	0.001	0.001	0.000	32.6	50.0	
	46 Benzene	0.943	0.874	0.010	7.3	50.0	
	47 1,2-Dichloroethane	0.161	0.152	0.010	5.7	50.0	
	49 n-Butanol	0.001	0.001	0.000	8.7	50.0	not TC

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Data File: /chem/H.i/091200.b/h1619.d
Report Date: 12-Sep-2000 09:43

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1619.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 09:52
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D	
50 Trichloroethene	0.402	0.412	0.010	-2.4	50.0	
52 1,2-Dichloropropane	0.222	0.201	0.020	9.6	20.0	
53 Dibromomethane	0.097	0.091	0.010	6.1	50.0	
55 1,4-Dioxane	0.001	0.000	0.000	9.0	50.0	
56 Bromodichloromethane	0.347	0.329	0.010	5.3	50.0	
59 cis-1,3-Dichloropropene	1.664	1.524	0.010	8.4	50.0	
60 4-Methyl-2-pentanone	0.265	0.225	0.010	15.1	50.0	
62 Toluene	5.428	5.292	0.020	2.5	20.0	
63 trans-1,3-Dichloropropene	1.044	0.953	0.010	8.8	50.0	
65 1,1,2-Trichloroethane	0.562	0.521	0.010	7.2	50.0	
67 1,3-Dichloropropane	1.114	0.997	0.010	10.5	50.0	
66 Tetrachloroethene	2.203	2.312	0.010	-5.0	50.0	
68 2-Hexanone	0.169	0.129	0.010	23.6	50.0	
69 Dibromochloromethane	1.112	1.102	0.010	0.9	50.0	
70 1,2-Dibromoethane	0.651	0.611	0.010	6.2	50.0	
71 1-Chlorohexane	2.692	2.595	0.010	3.6	50.0	
73 Chlorobenzene	3.017	3.001	0.300	0.6	50.0	
74 1,1,1,2-Tetrachloroethane	1.490	1.463	0.010	1.8	50.0	
75 Ethylbenzene	1.718	1.729	0.010	-0.6	20.0	
76 m and p-Xylene	2.285	2.298	0.010	-0.6	50.0	
77 o-Xylene	1.928	1.844	0.010	4.4	50.0	
78 Styrene	2.714	1.961	0.010	27.8	50.0	
79 Bromoform	0.593	0.571	0.101	3.7	50.0	
80 isopropyl benzene	6.425	6.477	0.010	-0.8	50.0	
81 Cyclohexanone	0.024	0.019	0.001	21.9	50.0	pot ☎
83 1,1,2,2-Tetrachloroethane	0.570	0.524	0.300	8.0	50.0	
84 Bromobenzene	0.896	0.834	0.010	6.9	50.0	
85 1,2,3-Trichloropropane	0.093	0.078	0.010	15.5	50.0	
87 n-Propylbenzene	0.983	0.965	0.010	1.8	50.0	
88 2-Chlorotoluene	0.796	0.754	0.010	5.2	50.0	
89 1,3,5-Trimethylbenzene	2.926	2.716	0.010	7.2	50.0	
90 4-Chlorotoluene	0.850	0.812	0.010	4.5	50.0	
91 tert-Butylbenzene	3.362	3.208	0.010	4.6	50.0	
92 1,2,4-Trimethylbenzene	2.478	2.357	0.010	4.9	50.0	
93 sec-Butylbenzene	0.960	0.973	0.010	-1.3	50.0	

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Data File: /chem/H.i/091200.b/h1620.d
Report Date: 09/12/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: H.i
Lab File ID: h1620.d
Analysis Type: WATER

Injection Date: 12-SEP-2000 10:13
Lab Sample ID: VSTD010
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
87	Dichlorofluoromethane	10.0000	10.3215	3.2	50.0	
77	Ethyl Ether	10.0000	7.7015	23.0	50.0	
65	Trichlorotrifluoroethane	10.0000	10.2616	2.6	50.0	
10	Carbon Disulfide	10.0000	9.1612	8.4	50.0	
67	Allyl Chloride	10.0000	8.1824	18.2	50.0	
53	Methyl t-butyl ether	10.0000	8.7584	12.4	50.0	
54	Hexane	10.0000	8.6271	13.7	50.0	
24	Vinyl acetate	10.0000	8.5049	15.0	50.0	
78	Ethyl Acetate	10.0000	6.5806	34.2	50.0	DBT TC
56	Tetrahydrofuran	10.0000	8.8373	11.6	50.0	
89	Dibromofluoromethane	10.0000	10.2522	2.5	50.0	
114	Cyclohexane	10.0000	8.8282	11.7	80.0	
303	1,2-Dichloroethane-d4	10.0000	10.0526	0.5	50.0	
90	Fluorobenzene	10.0000	10.0000	0.0	50.0	
73	Methyl Methacrylate	10.0000	7.4225	25.8	50.0	
82	2-nitropropane	10.0000	8.8942	11.1	50.0	
35	2-Chloroethyl vinyl ether	10.0000	11.9694	19.7	50.0	
301	Toluene-d8	10.0000	9.6692	3.3	50.0	
41	Ethyl methacrylate	10.0000	4.7087	52.9	50.0	<-
39	Chlorobenzene-d5	10.0000	10.0000	0.0	50.0	
302	Bromofluorobenzene	10.0000	9.5860	4.1	50.0	
60	t-1,4-Dichloro-2-butene	10.0000	7.9653	20.3	50.0	
91	1,4-Dichlorobenzene-d4	10.0000	10.0000	0.0	50.0	

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STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: H.i
Lab File ID: h1620.d
Analysis Type: WATER
Lab Sample ID: VSTD010
Quant Type: ISTD

Injection Date: 12-SEP-2000 10:13
Init. Calibration Date(s): 06/23/0 08/28/0
Init. Calibration Times: 14:58 11:51
Method File: /chem/H.i/091200.b/H-20ml-h2o.m

COMPOUND	RRF	RF10	MIN RRF	%D	MAX %D	
$ 40 Dibromofluoromethane	0.361	0.370	0.010	-2.5	50.0	
$ 44 1,2-Dichloroethane-d4	0.140	0.141	0.010	-0.5	50.0	
$ 61 Toluene-d8	4.349	4.205	0.010	3.3	50.0	
$ 82 Bromofluorobenzene	1.712	1.641	0.010	4.1	50.0	
9 Dichlorofluoromethane	0.574	0.592	0.010	-3.2	50.0	
12 Ethyl Ether	0.102	0.078	0.010	23.0	50.0	
16 Trichlorotrifluoroethane	0.618	0.635	0.010	-2.6	50.0	
18 Carbon Disulfide	1.072	0.982	0.010	8.4	50.0	
20 Allyl Chloride	0.412	0.337	0.010	18.2	50.0	
25 Methyl t-butyl ether	0.322	0.282	0.010	12.4	50.0	
26 Hexane	2.609	2.251	0.010	13.7	50.0	
114 Cyclohexane	0.490	0.433	0.010	11.7	80.0	
29 Vinyl acetate	0.161	0.137	0.010	15.0	50.0	
35 Ethyl Acetate	0.058	0.038	0.010	34.2	50.0	NOT TC
39 Tetrahydrofuran	0.012	0.010	0.003	11.6	50.0	NOT TC
113 2-Chloroethyl vinyl ether	0.090	0.107	0.010	-19.7	50.0	
54 Methyl Methacrylate	0.058	0.043	0.010	25.8	50.0	
57 2-nitropropane	0.062	0.055	0.010	11.1	50.0	
64 Ethyl methacrylate	0.699	0.329	0.010	52.9	50.0	<-
86 t-1,4-Dichloro-2-butene	0.048	0.038	0.010	20.3	50.0	

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6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: _

Instrument ID: 722 Calibration Date(s): 09/08/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =F09080C1.D RRF2 =F09080C2.D
RRF3 =F09080C3.D RRF4 =F09080C4.D RRF5 =F09080C5.D

COMPOUND		RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD
Phenol	*	2.027	1.879	1.913	1.904	1.859	1.916	3.4*
bis(2-Chloroethyl)ether		1.546	1.441	1.488	1.473	1.449	1.479	2.8
2-Chlorophenol		1.478	1.380	1.417	1.399	1.380	1.411	2.9
1,3-Dichlorobenzene		1.605	1.519	1.558	1.514	1.486	1.536	3.0
1,4-Dichlorobenzene	*	1.631	1.546	1.581	1.538	1.505	1.560	3.1*
1,2-Dichlorobenzene		1.506	1.418	1.455	1.416	1.370	1.433	3.5
2-Methylphenol		1.284	1.200	1.225	1.257	1.214	1.236	2.8
2,2'-oxybis(1-Chloropropane		1.739	1.577	1.598	1.560	1.478	1.590	6.0
4-Methylphenol		1.343	1.224	1.268	1.339	1.307	1.296	3.9
Hexachloroethane		0.609	0.576	0.593	0.578	0.565	0.584	2.9
Nitrobenzene		0.362	0.362	0.382	0.379	0.378	0.373	2.6
Isophorone		0.684	0.644	0.668	0.677	0.669	0.668	2.2
2-Nitrophenol	*	0.130	0.151	0.166	0.176	0.186	0.162	13.6*
2,4-Dimethylphenol		0.358	0.338	0.350	0.351	0.349	0.349	2.0
bis(2-Chloroethoxy)methane		0.456	0.426	0.441	0.438	0.435	0.439	2.5
N-Nitroso-di-n-propylamine	#	0.987	0.932	0.958	0.990	0.989	0.971	2.6#
2,4-Dichlorophenol	*	0.279	0.272	0.282	0.284	0.285	0.280	1.9*
1,2,4-Trichlorobenzene		0.315	0.300	0.310	0.299	0.298	0.304	2.5
Naphthalene		1.134	1.054	1.091	1.058	1.038	1.075	3.6
4-Chloroaniline		0.442	0.418	0.431	0.434	0.432	0.431	2.0
Hexachlorobutadiene	*	0.168	0.162	0.167	0.160	0.160	0.163	2.3*
4-Chloro-3-Methylphenol	*	0.285	0.282	0.297	0.313	0.316	0.299	5.2*
2-Methylnaphthalene		0.721	0.676	0.701	0.706	0.701	0.701	2.4
Hexachlorocyclopentadiene	#	0.315	0.316	0.356	0.350	0.359	0.339	6.4#
2,4,6-Trichlorophenol	*	0.344	0.330	0.361	0.362	0.364	0.352	4.3*
2,4,5-Trichlorophenol		0.362	0.354	0.392	0.386	0.400	0.379	5.2
2-Chloronaphthalene		1.240	1.111	1.183	1.136	1.111	1.156	4.8
2-Nitroaniline		0.247	0.287	0.327	0.351	0.365	0.315	15.3
Dimethylphthalate		1.335	1.253	1.348	1.345	1.354	1.327	3.2
Acenaphthylene		1.914	1.760	1.890	1.844	1.839	1.849	3.2
2,6-Dinitrotoluene		0.154	0.201	0.244	0.269	0.288	0.231	23.5
3-Nitroaniline		0.224	0.276	0.317	0.344	0.358	0.304	18.0
Acenaphthene	*	1.218	1.107	1.184	1.179	1.172	1.172	3.4*
2,4-Dinitrophenol	#	0.022	0.053	0.075	0.106	0.133	0.078	55.7#<-
4-Nitrophenol	#	0.135	0.168	0.195	0.204	0.209	0.182	16.7#
Dibenzofuran		1.690	1.542	1.651	1.621	1.619	1.625	3.3
2,4-Dinitrotoluene		0.179	0.269	0.331	0.371	0.398	0.310	28.3

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6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: _

Instrument ID: 722 Calibration Date(s): 09/08/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =F09080C1.D RRF2 =F09080C2.D
RRF3 =F09080C3.D RRF4 =F09080C4.D RRF5 =F09080C5.D

COMPOUND	RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD
Diethylphthalate	1.352	1.284	1.384	1.380	1.362	1.352	3.0
4-Chlorophenyl-phenylether	0.643	0.590	0.636	0.635	0.641	0.629	3.5
Fluorene	1.384	1.281	1.377	1.376	1.372	1.358	3.2
4-Nitroaniline	0.250	0.308	0.355	0.378	0.390	0.336	17.1
4,6-Dinitro-2-methylphenol	0.030	0.058	0.079	0.098	0.114	0.076	43.3
N-Nitrosodiphenylamine (1) *	0.594	0.551	0.567	0.558	0.561	0.566	2.9*
4-Bromophenyl-phenylether	0.209	0.191	0.201	0.196	0.200	0.199	3.3
Hexachlorobenzene	0.225	0.200	0.213	0.208	0.213	0.212	4.3
Pentachlorophenol #	0.077	0.103	0.124	0.130	0.140	0.115	21.7#
Phenanthrene	1.195	1.060	1.112	1.066	1.064	1.099	5.2
Anthracene	1.214	1.093	1.158	1.103	1.107	1.135	4.5
Carbazole	1.142	1.066	1.123	1.071	1.069	1.094	3.3
Di-n-Butylphthalate	1.429	1.343	1.402	1.313	1.275	1.352	4.7
Fluoranthene *	1.295	1.213	1.275	1.186	1.175	1.229	4.4*
Pyrene	1.146	1.063	1.115	1.117	1.112	1.111	2.7
Butylbenzylphthalate	0.618	0.589	0.618	0.607	0.594	0.605	2.2
3,3'-Dichlorobenzidine	0.444	0.423	0.467	0.451	0.456	0.448	3.7
Benzo(a)Anthracene	1.198	1.124	1.174	1.138	1.129	1.153	2.8
Chrysene	1.138	1.059	1.108	1.072	1.060	1.087	3.2
bis(2-ethylhexyl)Phthalate	0.898	0.840	0.872	0.837	0.815	0.852	3.8
Di-n-octylphthalate *	1.578	1.404	1.416	1.286	1.176	1.372	11.0*
Benzo(b)fluoranthene	1.258	1.137	1.228	1.138	1.193	1.191	4.5
Benzo(k)fluoranthene	1.357	1.097	1.055	1.038	0.862	1.082	16.5
Benzo(a)pyrene *	1.224	1.097	1.129	1.058	1.020	1.106	7.1*
Indeno(1,2,3-cd)pyrene	1.568	1.408	1.490	1.417	1.390	1.455	5.1
Dibenz(a,h)anthracene	1.390	1.223	1.275	1.182	1.159	1.246	7.4
Benzo(g,h,i)perylene	1.364	1.235	1.325	1.275	1.245	1.289	4.3
Pyridine	1.505	1.400	1.480	1.409	1.348	1.428	4.5
N-Nitrosodimethylamine	0.927	0.883	0.901	0.865	0.835	0.882	4.0
Aniline	1.998	1.857	1.940	1.886	1.839	1.904	3.4
Benzyl Alcohol	0.965	0.925	0.988	0.998	0.989	0.973	3.0
Benzoic Acid	0.078	0.151	0.168	0.179	0.198	0.155	30.0
2,3,4,6-Tetrachlorophenol	0.265	0.282	0.323	0.325	0.332	0.305	9.8
2,3,5,6-Tetrachlorophenol	0.251	0.268	0.313	0.325	0.336	0.299	12.4
1,2-Diphenylhydrazine	0.908	0.797	0.833	0.793	0.800	0.826	5.9

(1) Cannot be separated from Diphenylamine

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6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: STL PIT Case No.: SAS No.: SDG No.: -

Instrument ID: 721 Calibration Date(s): 08/24/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =D0824CC1.D RRF2 =D0824CCC.D
RRF3 =D0824CC2.D RRF4 =D0824CC3.D RRF5 =D0824CC4.D

COMPOUND		RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD
Phenol	*	1.524	1.593	1.523	1.485	1.480	1.521	3.0*
bis(2-Chloroethyl)ether		1.175	1.187	1.097	1.098	1.070	1.125	4.6
2-Chlorophenol		1.276	1.358	1.330	1.348	1.332	1.329	2.4
1,3-Dichlorobenzene		1.382	1.476	1.403	1.434	1.404	1.420	2.6
1,4-Dichlorobenzene	*	1.425	1.467	1.418	1.418	1.396	1.425	1.8*
1,2-Dichlorobenzene		1.334	1.399	1.347	1.380	1.360	1.364	1.9
2-Methylphenol		1.073	1.129	1.058	1.060	1.033	1.071	3.3
2,2'-oxybis(1-Chloropropane		1.449	1.433	1.241	1.215	1.125	1.293	11.0
4-Methylphenol		1.115	1.152	1.058	1.053	1.097	1.095	3.7
Hexachloroethane		0.636	0.669	0.662	0.665	0.655	0.657	2.0
Nitrobenzene		0.373	0.387	0.377	0.389	0.381	0.381	1.7
Isophorone		0.619	0.636	0.611	0.647	0.634	0.629	2.3
2-Nitrophenol	*	0.210	0.225	0.212	0.224	0.222	0.219	3.2*
2,4-Dimethylphenol		0.361	0.385	0.366	0.378	0.384	0.375	2.9
bis(2-Chloroethoxy)methane		0.377	0.400	0.384	0.393	0.385	0.388	2.3
N-Nitroso-di-n-propylamine	#	0.774	0.805	0.726	0.744	0.751	0.760	4.0#
2,4-Dichlorophenol	*	0.296	0.318	0.304	0.323	0.321	0.312	3.8*
1,2,4-Trichlorobenzene		0.348	0.373	0.360	0.378	0.378	0.367	3.5
Naphthalene		0.972	1.033	1.015	1.037	1.029	1.017	2.6
4-Chloroaniline		0.401	0.427	0.412	0.421	0.416	0.415	2.4
Hexachlorobutadiene	*	0.221	0.239	0.242	0.254	0.252	0.242	5.4*
4-Chloro-3-Methylphenol		0.297	0.316	0.310	0.320	0.309	0.310	2.7
2-Methylnaphthalene		0.640	0.657	0.640	0.665	0.661	0.653	1.8
Hexachlorocyclopentadiene	#	0.420	0.463	0.473	0.505	0.513	0.475	7.8#
2,4,6-Trichlorophenol	*	0.376	0.412	0.401	0.422	0.432	0.409	5.2*
2,4,5-Trichlorophenol		0.398	0.443	0.435	0.456	0.451	0.437	5.2
2-Chloronaphthalene		1.108	1.171	1.135	1.191	1.183	1.158	3.0
2-Nitroaniline		0.346	0.369	0.359	0.366	0.361	0.360	2.4
Dimethylphthalate		1.325	1.404	1.351	1.417	1.405	1.380	2.9
Acenaphthylene		1.636	1.719	1.663	1.732	1.719	1.694	2.5
2,6-Dinitrotoluene		0.312	0.326	0.322	0.328	0.331	0.324	2.3
3-Nitroaniline		0.326	0.348	0.338	0.345	0.346	0.341	2.6
Acenaphthene	*	0.996	1.048	1.034	1.059	1.070	1.041	2.7*
2,4-Dinitrophenol	#	0.105	0.188	0.213	0.231	0.239	0.195	27.8#
4-Nitrophenol	#	0.229	0.267	0.265	0.266	0.266	0.259	6.5#
Dibenzofuran		1.559	1.663	1.627	1.671	1.664	1.637	2.8
2,4-Dinitrotoluene		0.418	0.451	0.454	0.478	0.456	0.451	4.8

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6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: STL PIT Case No.: SAS No.: SDG No.: -

Instrument ID: 721 Calibration Date(s): 08/24/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =D0824CC1.D RRF2 =D0824CCC.D
RRF3 =D0824CC2.D RRF4 =D0824CC3.D RRF5 =D0824CC4.D

COMPOUND	RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD
Diethylphthalate	1.377	1.472	1.455	1.486	1.478	1.454	3.0
4-Chlorophenyl-phenylether	0.601	0.649	0.652	0.679	0.686	0.653	5.1
Fluorene	1.209	1.290	1.274	1.312	1.297	1.276	3.2
4-Nitroaniline	0.304	0.338	0.342	0.344	0.339	0.333	4.9
4,6-Dinitro-2-methylphenol	0.110	0.150	0.153	0.166	0.165	0.149	15.4
N-Nitrosodiphenylamine (1) *	0.476	0.496	0.487	0.501	0.498	0.492	2.0*
4-Bromophenyl-phenylether	0.203	0.224	0.215	0.221	0.224	0.217	4.1
Hexachlorobenzene	0.261	0.288	0.280	0.291	0.293	0.283	4.7
Pentachlorophenol *	0.080	0.137	0.151	0.164	0.173	0.141	25.9*
Phenanthrene	0.912	0.983	0.947	0.978	0.972	0.958	3.1
Anthracene	0.943	0.987	0.939	0.955	0.956	0.956	2.0
Carbazole	0.807	0.855	0.824	0.815	0.831	0.826	2.2
Di-n-Butylphthalate	1.164	1.231	1.169	1.176	1.187	1.185	2.3
Fluoranthene *	0.904	0.972	0.929	0.929	0.933	0.933	2.6*
Pyrene	1.144	1.252	1.224	1.289	1.266	1.235	4.5
Butylbenzylphthalate	0.610	0.659	0.648	0.664	0.658	0.648	3.4
3,3'-Dichlorobenzidine	0.402	0.437	0.459	0.484	0.474	0.451	7.3
Benzo(a)Anthracene	1.018	1.078	1.076	1.107	1.103	1.076	3.3
Chrysene	0.894	0.963	0.967	1.018	1.017	0.972	5.2
bis(2-ethylhexyl)Phthalate	0.792	0.873	0.875	0.930	0.923	0.879	6.2
Di-n-octylphthalate *	1.692	1.869	1.820	1.924	1.877	1.836	4.8*
Benzo(b)fluoranthene	1.124	1.238	1.516	1.598	1.547	1.405	15.0
Benzo(k)fluoranthene	1.160	1.250	0.930	0.980	1.034	1.071	12.3
Benzo(a)pyrene *	1.029	1.120	1.090	1.145	1.144	1.106	4.4*
Indeno(1,2,3-cd)pyrene	0.891	1.052	1.076	1.162	1.289	1.094	13.4
Dibenz(a,h)anthracene	0.905	1.047	1.088	1.226	1.325	1.118	14.6
Benzo(g,h,i)perylene	0.882	1.037	1.059	1.184	1.306	1.094	14.6
Pyridine	0.391	0.437	0.432	0.442	0.430	0.426	4.8
N-Nitrosodimethylamine	0.250	0.270	0.264	0.274	0.270	0.266	3.5
Aniline	1.466	1.470	1.419	1.404	1.328	1.417	4.1
Benzyl Alcohol	0.842	0.884	0.829	0.848	0.835	0.848	2.5
Benzoic Acid	0.041	0.092	0.174	0.222	0.242	0.154	55.7 <-
1-Methylnaphthalene	0.586	0.602	0.591	0.610	0.599	0.598	1.6
2,3,4,6-Tetrachlorophenol	0.325	0.357	0.377	0.387	0.384	0.366	7.0
2,3,5,6-Tetrachlorophenol	0.314	0.367	0.385	0.411	0.407	0.377	10.4

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL-PITTSBURGH Contract:

Lab Code: STLPIT Case No.: SAS No.: SDG No.: CUH31024J

Instrument ID: 71 Calibration Date(s): 08/29/00 08/29/00

Calibration Time(s): 1008 1223

LAB FILE ID: RRF20 =S0830CC1 RRF50 =S0830CC2
RRF80 =S0830CC3 RRF120=S0830CC4 RRF160=S0830CC5

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	1.883	1.730	1.691	1.493	1.360	1.631	12.6
bis(2-Chloroethyl)ether	1.446	1.358	1.358	1.289	1.224	1.335	6.2
2-Chlorophenol	1.478	1.372	1.377	1.283	1.202	1.342	7.8
1,3-Dichlorobenzene	1.578	1.506	1.521	1.435	1.351	1.478	5.9
1,4-Dichlorobenzene	1.617	1.518	1.539	1.431	1.343	1.490	7.1
1,2-Dichlorobenzene	1.473	1.399	1.393	1.278	1.162	1.341	9.1
2-Methylphenol	1.246	1.146	1.188	1.146	1.129	1.171	4.0
2,2'-oxybis(1-Chloropropane)	1.786	1.698	1.715	1.618	1.580	1.679	4.9
4-Methylphenol	1.308	1.195	1.203	1.076	1.000	1.156	10.4
Hexachloroethane	0.545	0.536	0.538	0.515	0.499	0.527	3.6
Nitrobenzene	0.355	0.348	0.363	0.352	0.344	0.352	2.1
Isophorone	0.599	0.572	0.609	0.585	0.579	0.589	2.6
2-Nitrophenol	0.189	0.189	0.204	0.202	0.203	0.197	4.0
2,4-Dimethylphenol	0.319	0.301	0.320	0.313	0.309	0.312	2.5
bis(2-Chloroethoxy)methane	0.416	0.400	0.417	0.403	0.390	0.405	2.9
N-Nitroso-di-n-propylamine *	0.865	0.806	0.847	0.817	0.827	0.832	2.8*
2,4-Dichlorophenol	0.273	0.261	0.280	0.276	0.272	0.272	2.6
1,2,4-Trichlorobenzene	0.312	0.298	0.318	0.310	0.296	0.307	3.1
Naphthalene	1.099	1.056	1.082	1.032	0.964	1.047	5.0
4-Chloroaniline	0.414	0.394	0.417	0.400	0.397	0.404	2.6
Hexachlorobutadiene	0.154	0.151	0.162	0.160	0.152	0.156	3.2
4-Chloro-3-Methylphenol	0.238	0.229	0.250	0.244	0.251	0.242	3.8
2-Methylnaphthalene	0.665	0.633	0.681	0.657	0.637	0.655	3.0
Hexachlorocyclopentadiene *	0.354	0.354	0.408	0.429	0.425	0.394	9.5*
2,4,6-Trichlorophenol	0.375	0.356	0.396	0.402	0.405	0.387	5.4
2,4,5-Trichlorophenol	0.389	0.361	0.405	0.409	0.412	0.395	5.3
2-Chloronaphthalene	1.351	1.269	1.335	1.278	1.143	1.275	6.4
2-Nitroaniline	0.268	0.276	0.305	0.305	0.314	0.294	6.9
Dimethylphthalate	1.204	1.144	1.269	1.264	1.272	1.231	4.6
Acenaphthylene	1.866	1.803	1.958	1.947	1.917	1.898	3.4
2,6-Dinitrotoluene	0.245	0.249	0.288	0.288	0.297	0.273	8.9
3-Nitroaniline	0.285	0.292	0.327	0.326	0.342	0.314	7.8
Acenaphthene	1.180	1.129	1.224	1.220	1.213	1.193	3.3
2,4-Dinitrophenol *	0.056	0.104	0.136	0.157	0.178	0.126	37.7*
4-Nitrophenol *	0.089	0.103	0.111	0.118	0.129	0.110	13.9*
Dibenzofuran	1.587	1.502	1.635	1.618	1.611	1.591	3.3
2,4-Dinitrotoluene	0.281	0.292	0.334	0.339	0.359	0.321	10.3

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

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6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: COH3182A3

Instrument ID: 722 Calibration Date(s): 09/11/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =F09110A1.D RRF2 =F09110A2.D
RRF3 =F09110A3.D RRF4 =F09110A4.D RRF5 =F09110A5.D

COMPOUND	RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD	
m-Dinitrobenzene	0.137	0.178	0.193	0.211	0.213	0.186	16.7	
2,3,4,6-Tetrachlorophenol	0.260	0.283	0.272	0.283	0.285	0.277	3.9	
N-Nitrosomorpholine	0.316	0.303	0.308	0.316	0.310	0.311	1.8	
Ethyl methanesulfonate	0.974	0.952	0.957	0.984	0.965	0.966	1.3	
2-Picoline	1.470	1.452	1.414	1.439	1.389	1.433	2.2	
N-Nitrosomethylethylamine	0.668	0.675	0.674	0.699	0.684	0.680	1.8	
Methyl methanesulfonate	0.351	0.347	0.347	0.363	0.359	0.353	2.0	
N-Nitrosodiethylamine	0.671	0.672	0.673	0.695	0.676	0.677	1.5	
Pentachloroethane	0.487	0.480	0.467	0.472	0.457	0.473	2.5	
N-Nitrosopyrrolidine	0.723	0.713	0.729	0.756	0.744	0.733	2.3	
Acetophenone	1.814	1.744	1.728	1.772	1.703	1.752	2.4	
o-Toluidine	2.125	2.067	2.064	2.106	2.040	2.080	1.6	
N-Nitrosopiperidine	0.169	0.169	0.168	0.172	0.171	0.170	1.0	
O,O,O-Triethyl phosphorothi	0.161	0.159	0.152	0.154	0.154	0.156	2.5	
a,a-Dimethyl-phenethylamine	0.538	0.706	0.737	0.757	0.742	0.696	13.0	
2,6-Dichlorophenol	0.254	0.257	0.253	0.262	0.257	0.257	1.3	
Hexachloropropene	0.165	0.177	0.174	0.181	0.178	0.175	3.5	
N-Nitrosodi-n-butylamine	0.233	0.236	0.234	0.241	0.238	0.236	1.3	
p-Phenylene diamine	0.425	0.461	0.454	0.461	0.450	0.450	3.3	
Safrole	0.255	0.259	0.255	0.263	0.258	0.258	1.2	
1,2,4,5-Tetrachlorobenzene	0.474	0.475	0.462	0.470	0.461	0.468	1.5	
Isosafrole 1	0.485	0.500	0.489	0.501	0.493	0.494	1.4	<-
Isosafrole, Total	0.366	0.395	0.386	0.386	0.371	0.381	3.1	
1,4-Naphthoquinone	0.431	0.429	0.415	0.428	0.422	0.425	1.5	
Pentachlorobenzene	1.239	1.276	1.235	1.264	1.236	1.250	1.5	
1-Naphthylamine	1.287	1.303	1.265	1.276	1.240	1.274	1.9	
2-Naphthylamine	0.300	0.351	0.360	0.380	0.383	0.355	9.4	
5-Nitro-o-toluidine	0.556	0.543	0.523	0.521	0.521	0.533	3.0	
Diallate 1	0.328	0.323	0.313	0.312	0.313	0.318	2.3	
Diallate, Total	0.100	0.103	0.103	0.104	0.105	0.103	1.7	
Diallate 2	0.151	0.149	0.142	0.141	0.142	0.145	3.2	
Phorate	0.025	0.042	0.051	0.061	0.065	0.049	33.1	
1,3,5-Trinitrobenzene	0.352	0.371	0.364	0.374	0.370	0.366	2.4	
Phenacetin	0.280	0.284	0.265	0.248	0.235	0.262	7.9	
Dimethoate	0.069	0.070	0.072	0.073	0.073	0.071	2.6	
Pentachloronitrobenzene	0.828	0.829	0.802	0.811	0.790	0.812	2.0	
4-Aminobiphenyl								

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6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CCH320243

Instrument ID: 722 Calibration Date(s): 09/11/00

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF1 =F09110A1.D RRF2 =F09110A2.D
RRF3 =F09110A3.D RRF4 =F09110A4.D RRF5 =F09110A5.D

COMPOUND	RRF1	RRF2	RRF3	RRF4	RRF5	$\overline{RRF}$	% RSD
Pronamide	0.292	0.291	0.281	0.282	0.282	0.286	1.9
Dinoseb	0.079	0.109	0.132	0.149	0.156	0.125	25.1
Disulfoton	0.377	0.378	0.364	0.363	0.360	0.368	2.3
4-Nitroquinoline 1-oxide	0.039	0.069	0.080	0.090	0.093	0.074	29.5
Methapyrilene	0.445	0.438	0.400	0.358	0.321	0.392	13.5
Aramite 1	0.110	0.121	0.120	0.122	0.118	0.118	4.1
Aramite, Total	0.141	0.155	0.152	0.153	0.146	0.149	3.8
Aramite 2	0.172	0.189	0.183	0.184	0.175	0.181	3.9
p-Dimethylamino azobenzene	0.224	0.233	0.222	0.224	0.215	0.224	2.8
p-Chlorobenzilate	0.358	0.366	0.350	0.346	0.330	0.350	4.0
Famphur	0.185	0.087	0.041	0.016	0.006	0.067	109.2
3,3'-Dimethylbenzidine	0.722	0.679	0.622	0.615	0.595	0.647	8.1
2-Acetylaminofluorene	0.454	0.513	0.492	0.521	0.509	0.498	5.4
7,12-dimethylbenz[a]anthrac	0.493	0.480	0.456	0.448	0.432	0.462	5.3
3-Methylcholanthrene	0.687	0.656	0.622	0.611	0.589	0.633	6.1
Thionazin	0.153	0.152	0.149	0.149	0.148	0.150	1.6
Isodrin	0.128	0.124	0.115	0.112	0.110	0.118	6.6
Parathion	0.113	0.139	0.139	0.143	0.143	0.135	9.5
Methyl parathion	0.160	0.198	0.200	0.198	0.193	0.190	8.9

ok - see attached cal.

FORM VI SV-2 1/87 Rev.

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FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: C4731043

Instrument ID: 722 Calibration Date: 09/11/00 Time: 1152

Lab File ID: F09110C1 Init. Calib. Date(s): 09/08/00 09/08/00

Init. Calib. Times: 0621 0837

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Phenol	1.916	1.895	0.01	1.1	20.0	
bis(2-Chloroethyl)ether	1.479	1.447	0.01	2.2	50.0	
2-Chlorophenol	1.411	1.402	0.01	0.6	50.0	
1,3-Dichlorobenzene	1.536	1.503	0.01	2.1	50.0	
1,4-Dichlorobenzene	1.560	1.541	0.01	1.2	20.0	
1,2-Dichlorobenzene	1.433	1.419	0.01	1.0	50.0	
2-Methylphenol	1.236	1.220	0.01	1.3	50.0	
2,2'-oxybis(1-Chloropropane)	1.590	1.500	0.01	5.7	50.0	
4-Methylphenol	1.296	1.334	0.01	2.9	50.0	
Hexachloroethane	0.584	0.567	0.01	2.9	50.0	
Nitrobenzene	0.373	0.371	0.01	0.5	50.0	
Isophorone	0.668	0.646	0.01	3.3	50.0	
2-Nitrophenol	0.162	0.185	0.01	14.2	20.0	
2,4-Dimethylphenol	0.349	0.342	0.01	2.0	50.0	
bis(2-Chloroethoxy)methane	0.439	0.423	0.01	3.6	50.0	
N-Nitroso-di-n-propylamine	0.971	0.957	0.05	1.4	50.0	
2,4-Dichlorophenol	0.280	0.278	0.01	0.7	20.0	
1,2,4-Trichlorobenzene	0.304	0.297	0.01	2.3	50.0	
Naphthalene	1.075	1.047	0.01	2.6	50.0	
4-Chloroaniline	0.431	0.428	0.01	0.7	50.0	
Hexachlorobutadiene	0.163	0.161	0.01	1.2	20.0	
4-Chloro-3-Methylphenol	0.299	0.306	0.01	2.3	20.0	
2-Methylnaphthalene	0.701	0.696	0.01	0.7	50.0	
Hexachlorocyclopentadiene	0.339	0.303	0.05	10.6	50.0	
2,4,6-Trichlorophenol	0.352	0.339	0.01	3.7	20.0	
2,4,5-Trichlorophenol	0.379	0.359	0.01	5.3	50.0	
2-Chloronaphthalene	1.156	1.091	0.01	5.6	50.0	
2-Nitroaniline	0.315	0.330	0.01	4.8	50.0	
Dimethylphthalate	1.327	1.279	0.01	3.6	50.0	
Acenaphthylene	1.849	1.727	0.01	6.6	50.0	
2,6-Dinitrotoluene	0.231	0.279	0.01	20.8	50.0	
3-Nitroaniline	0.304	0.336	0.01	10.5	50.0	
Acenaphthene	1.172	1.105	0.01	5.7	20.0	
2,4-Dinitrophenol	0.078	0.118	0.05	51.3	50.0	<-
4-Nitrophenol	0.182	0.190	0.05	4.4	50.0	
Dibenzofuran	1.625	1.558	0.01	4.1	50.0	
2,4-Dinitrotoluene	0.310	0.386	0.01	24.5	50.0	

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FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CA4310243

Instrument ID: 722 Calibration Date: 09/11/00 Time: 1152

Lab File ID: F09110C1 Init. Calib. Date(s): 09/08/00 09/08/00

Init. Calib. Times: 0621 0837

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.352	1.312	0.01	3.0	50.0
4-Chlorophenyl-phenylether	0.629	0.615	0.01	2.2	50.0
Fluorene	1.358	1.307	0.01	3.8	50.0
4-Nitroaniline	0.336	0.366	0.01	8.9	50.0
4,6-Dinitro-2-methylphenol	0.076	0.109	0.01	43.4	50.0
N-Nitrosodiphenylamine	0.566	0.548	0.01	3.2	20.0
4-Bromophenyl-phenylether	0.199	0.189	0.01	5.0	50.0
Hexachlorobenzene	0.212	0.205	0.01	3.3	50.0
Pentachlorophenol	0.115	0.123	0.05	7.0	20.0
Phenanthrene	1.099	1.062	0.01	3.4	50.0
Anthracene	1.135	1.098	0.01	3.2	50.0
Carbazole	1.094	1.056	0.01	3.5	50.0
Di-n-Butylphthalate	1.352	1.293	0.01	4.4	50.0
Fluoranthene	1.229	1.202	0.01	2.2	20.0
Pyrene	1.111	1.066	0.01	4.0	50.0
Butylbenzylphthalate	0.605	0.569	0.01	6.0	50.0
3,3'-Dichlorobenzidine	0.448	0.426	0.01	4.9	50.0
Benzo(a)Anthracene	1.153	1.112	0.01	3.6	50.0
Chrysene	1.087	1.052	0.01	3.2	50.0
bis(2-ethylhexyl)Phthalate	0.852	0.799	0.01	6.2	50.0
Di-n-octylphthalate	1.372	1.137	0.01	17.1	20.0
Benzo(b)fluoranthene	1.191	1.064	0.01	10.7	50.0
Benzo(k)fluoranthene	1.082	1.018	0.01	5.9	50.0
Benzo(a)pyrene	1.106	1.061	0.01	4.1	20.0
Indeno(1,2,3-cd)pyrene	1.455	1.632	0.01	12.2	50.0
Dibenz(a,h)anthracene	1.246	1.412	0.01	13.3	50.0
Benzo(g,h,i)perylene	1.289	1.430	0.01	10.9	50.0
Pyridine	1.428	1.342	0.01	6.0	50.0
N-Nitrosodimethylamine	0.882	0.832	0.01	5.7	50.0
Aniline	1.904	1.855	0.01	2.6	50.0
Benzyl Alcohol	0.973	0.931	0.01	4.3	50.0
Benzoic Acid	0.155	0.162	0.01	4.5	50.0
2,3,4,6-Tetrachlorophenol	0.305	0.307	0.01	0.6	50.0
2,3,5,6-Tetrachlorophenol	0.299	0.300	0.01	0.3	50.0
1,2-Diphenylhydrazine	0.826	0.756	0.01	8.5	50.0
Benzidine	0.449	0.383	0.01	14.7	50.0
Methyl methanesulfonate	0.385	0.370	0.01	3.9	50.0

FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CUH31024J

Instrument ID: 722 Calibration Date: 09/12/00 Time: 0811

Lab File ID: F09120C1 Init. Calib. Date(s): 09/08/00 09/08/00

Init. Calib. Times: 0621 0837

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.916	1.861	0.01	2.9	20.0
bis(2-Chloroethyl)ether	1.479	1.431	0.01	3.2	50.0
2-Chlorophenol	1.411	1.397	0.01	1.0	50.0
1,3-Dichlorobenzene	1.536	1.509	0.01	1.8	50.0
1,4-Dichlorobenzene	1.560	1.530	0.01	1.9	20.0
1,2-Dichlorobenzene	1.433	1.416	0.01	1.2	50.0
2-Methylphenol	1.236	1.188	0.01	3.9	50.0
2,2'-oxybis(1-Chloropropane)	1.590	1.450	0.01	8.8	50.0
4-Methylphenol	1.296	1.259	0.01	2.8	50.0
Hexachloroethane	0.584	0.576	0.01	1.4	50.0
Nitrobenzene	0.373	0.377	0.01	1.1	50.0
Isophorone	0.668	0.621	0.01	7.0	50.0
2-Nitrophenol	0.162	0.187	0.01	15.4	20.0
2,4-Dimethylphenol	0.349	0.335	0.01	4.0	50.0
bis(2-Chloroethoxy)methane	0.439	0.419	0.01	4.6	50.0
N-Nitroso-di-n-propylamine	0.971	0.887	0.05	8.6	50.0
2,4-Dichlorophenol	0.280	0.273	0.01	2.5	20.0
1,2,4-Trichlorobenzene	0.304	0.304	0.01	0.0	50.0
Naphthalene	1.075	1.049	0.01	2.4	50.0
4-Chloroaniline	0.431	0.410	0.01	4.9	50.0
Hexachlorobutadiene	0.163	0.167	0.01	2.4	20.0
4-Chloro-3-Methylphenol	0.299	0.276	0.01	7.7	20.0
2-Methylnaphthalene	0.701	0.676	0.01	3.6	50.0
Hexachlorocyclopentadiene	0.339	0.358	0.05	5.6	50.0
2,4,6-Trichlorophenol	0.352	0.348	0.01	1.1	20.0
2,4,5-Trichlorophenol	0.379	0.367	0.01	3.2	50.0
2-Chloronaphthalene	1.156	1.129	0.01	2.3	50.0
2-Nitroaniline	0.315	0.317	0.01	0.6	50.0
Dimethylphthalate	1.327	1.210	0.01	8.8	50.0
Acenaphthylene	1.849	1.727	0.01	6.6	50.0
2,6-Dinitrotoluene	0.231	0.259	0.01	12.1	50.0
3-Nitroaniline	0.304	0.312	0.01	2.6	50.0
Acenaphthene	1.172	1.103	0.01	5.9	20.0
2,4-Dinitrophenol	0.078	0.103	0.05	32.0	50.0
4-Nitrophenol	0.182	0.165	0.05	9.3	50.0
Dibenzofuran	1.625	1.515	0.01	6.8	50.0
2,4-Dinitrotoluene	0.310	0.341	0.01	10.0	50.0

FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CCF312243

Instrument ID: 722 Calibration Date: 09/12/00 Time: 0811

Lab File ID: F09120C1 Init. Calib. Date(s): 09/08/00 09/08/00

Init. Calib. Times: 0621 0837

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.352	1.189	0.01	12.0	50.0
4-Chlorophenyl-phenylether	0.629	0.588	0.01	6.5	50.0
Fluorene	1.358	1.238	0.01	8.8	50.0
4-Nitroaniline	0.336	0.322	0.01	4.2	50.0
4,6-Dinitro-2-methylphenol	0.076	0.100	0.01	31.6	50.0
N-Nitrosodiphenylamine	0.566	0.552	0.01	2.5	20.0
4-Bromophenyl-phenylether	0.199	0.195	0.01	2.0	50.0
Hexachlorobenzene	0.212	0.204	0.01	3.8	50.0
Pentachlorophenol	0.115	0.106	0.05	7.8	20.0
Phenanthrene	1.099	1.050	0.01	4.4	50.0
Anthracene	1.135	1.084	0.01	4.5	50.0
Carbazole	1.094	1.025	0.01	6.3	50.0
Di-n-Butylphthalate	1.352	1.276	0.01	5.6	50.0
Fluoranthene	1.229	1.161	0.01	5.5	20.0
Pyrene	1.111	1.063	0.01	4.3	50.0
Butylbenzylphthalate	0.605	0.582	0.01	3.8	50.0
3,3'-Dichlorobenzidine	0.448	0.430	0.01	4.0	50.0
Benzo(a)Anthracene	1.153	1.121	0.01	2.8	50.0
Chrysene	1.087	1.046	0.01	3.8	50.0
bis(2-ethylhexyl)Phthalate	0.852	0.830	0.01	2.6	50.0
Di-n-octylphthalate	1.372	1.376	0.01	0.3	20.0
Benzo(b)fluoranthene	1.191	1.114	0.01	6.5	50.0
Benzo(k)fluoranthene	1.082	1.096	0.01	1.3	50.0
Benzo(a)pyrene	1.106	1.086	0.01	1.8	20.0
Indeno(1,2,3-cd)pyrene	1.455	1.377	0.01	5.4	50.0
Dibenz(a,h)anthracene	1.246	1.188	0.01	4.6	50.0
Benzo(g,h,i)perylene	1.289	1.208	0.01	6.3	50.0
Pyridine	1.428	1.292	0.01	9.5	50.0
N-Nitrosodimethylamine	0.882	0.813	0.01	7.8	50.0
Aniline	1.904	1.821	0.01	4.4	50.0
Benzyl Alcohol	0.973	0.923	0.01	5.1	50.0
Benzoic Acid	0.155	0.150	0.01	3.2	50.0
2,3,4,6-Tetrachlorophenol	0.305	0.277	0.01	9.2	50.0
2,3,5,6-Tetrachlorophenol	0.299	0.271	0.01	9.4	50.0
1,2-Diphenylhydrazine	0.826	0.794	0.01	3.9	50.0
Benzidine	0.449	0.404	0.01	10.0	50.0
Methyl methanesulfonate	0.385	0.354	0.01	8.0	50.0

FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CUH3/0243

Instrument ID: 722 Calibration Date: 09/12/00 Time: 0845

Lab File ID: F09120C2 Init. Calib. Date(s): 09/11/00 09/11/00

Init. Calib. Times: 0846 1103

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
m-Dinitrobenzene	0.186	0.182	0.01	2.2	50.0	
2,3,4,6-Tetrachlorophenol	0.277	0.249	0.01	10.1	50.0	
N-Nitrosomorpholine	0.311	0.281	0.01	9.6	50.0	
Ethyl methanesulfonate	0.966	0.911	0.01	5.7	50.0	
2-Picoline	1.433	1.438	0.01	0.3	50.0	
N-Nitrosomethylethylamine	0.680	0.674	0.01	0.9	50.0	
Methyl methanesulfonate	0.353	0.334	0.01	5.4	50.0	
N-Nitrosodiethylamine	0.677	0.658	0.01	2.8	50.0	
Pentachloroethane	0.473	0.475	0.01	0.4	50.0	
N-Nitrosopyrrolidine	0.733	0.648	0.01	11.6	50.0	
Acetophenone	1.752	1.654	0.01	5.6	50.0	
o-Toluidine	2.080	1.944	0.01	6.5	50.0	
N-Nitrosopiperidine	0.170	0.162	0.01	4.7	50.0	
O,O,O-Triethyl phosphorothio	0.156	0.155	0.01	0.6	50.0	
a,a-Dimethyl-phenethylamine	0.696	0.513	0.01	26.3	50.0	
2,6-Dichlorophenol	0.257	0.250	0.01	2.7	50.0	
Hexachloropropene	0.175	0.191	0.01	9.1	50.0	
N-Nitrosodi-n-butylamine	0.236	0.217	0.01	8.0	50.0	
p-Phenylene diamine	0.450	0.362	0.01	19.6	50.0	
Safrole	0.258	0.247	0.01	4.3	50.0	
1,2,4,5-Tetrachlorobenzene	0.468	0.521	0.01	11.3	50.0	
Isosafrole 1	0.494	0.518	0.01	4.8	50.0	
Isosafrole, Total		0.259	0.01		50.0	<-
1,4-Naphthoquinone	0.381	0.373	0.01	2.1	50.0	
Pentachlorobenzene	0.425	0.427	0.01	0.5	50.0	
1-Naphthylamine	1.250	1.130	0.01	9.6	50.0	
2-Naphthylamine	1.274	1.152	0.01	9.6	50.0	
5-Nitro-o-toluidine	0.355	0.321	0.01	9.6	50.0	
Diallate 1	0.533	0.563	0.01	5.6	50.0	
Diallate, Total	0.318	0.335	0.01	5.3	50.0	
Diallate 2	0.103	0.108	0.01	4.8	50.0	
Phorate	0.145	0.151	0.01	4.1	50.0	
1,3,5-Trinitrobenzene	0.049	0.049	0.01	0.0	50.0	
Phenacetin	0.366	0.365	0.01	0.3	50.0	
Dimethoate	0.262	0.272	0.01	3.8	50.0	
Pentachloronitrobenzene	0.071	0.073	0.01	2.8	50.0	
4-Aminobiphenyl	0.812	0.807	0.01	0.6	50.0	

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FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CCH310243

Instrument ID: 722 Calibration Date: 09/12/00 Time: 0845

Lab File ID: F09120C2 Init. Calib. Date(s): 09/11/00 09/11/00

Init. Calib. Times: 0846 1103

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Pronamide	0.286	0.284	0.01	0.7	50.0	
Dinoseb	0.125	0.117	0.01	6.4	50.0	
Disulfoton	0.368	0.374	0.01	1.6	50.0	
4-Nitroquinoline 1-oxide	0.074	0.075	0.01	1.4	50.0	
Methapyrilene	0.392	0.425	0.01	8.4	50.0	
Aramite 1	0.118	0.121	0.01	2.5	50.0	
Aramite, Total	0.149	0.154	0.01	3.4	50.0	
Aramite 2	0.181	0.187	0.01	3.3	50.0	
p-Dimethylamino azobenzene	0.224	0.228	0.01	1.8	50.0	
p-Chlorobenzilate	0.350	0.362	0.01	3.4	50.0	
Famphur	0.067	0.112	0.01	67.2	50.0	<- ok on subsequent CCV
3,3'-Dimethylbenzidine	0.647	0.724	0.01	11.9	50.0	
2-Acetylaminofluorene	0.498	0.540	0.01	8.4	50.0	
7,12-dimethylbenz[a]anthrace	0.462	0.536	0.01	16.0	50.0	
3-Methylcholanthrene	0.633	0.651	0.01	2.8	50.0	
Thionazin	0.150	0.155	0.01	3.3	50.0	
Isodrin	0.118	0.119	0.01	0.8	50.0	
Parathion	0.135	0.140	0.01	3.7	50.0	
Methyl parathion	0.190	0.212	0.01	11.6	50.0	

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FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: CUH31624J

Instrument ID: 722 Calibration Date: 09/12/00 Time: 0919

Lab File ID: F09120C3 Init. Calib. Date(s): 09/11/00 09/11/00

Init. Calib. Times: 0555 0812

GC Column: HP5-MS ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Famphur	0.361	0.410	0.01	13.6	50.0
Benzenethiol	1.159	0.859	0.01	25.9	50.0
1-Methylnaphthalene	0.548	0.558	0.01	1.8	50.0
Kepone	0.079	0.083	0.01	5.1	50.0
6-Methylchrysene	0.787	0.809	0.01	2.8	50.0
Dibenz(a,h)acridine	1.363	1.189	0.01	12.8	50.0

DOT TC

FORM VII SV

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

SW846 8270C SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEE

Lab Code: QESPIT QESSDG:

Lot #: C0H310243

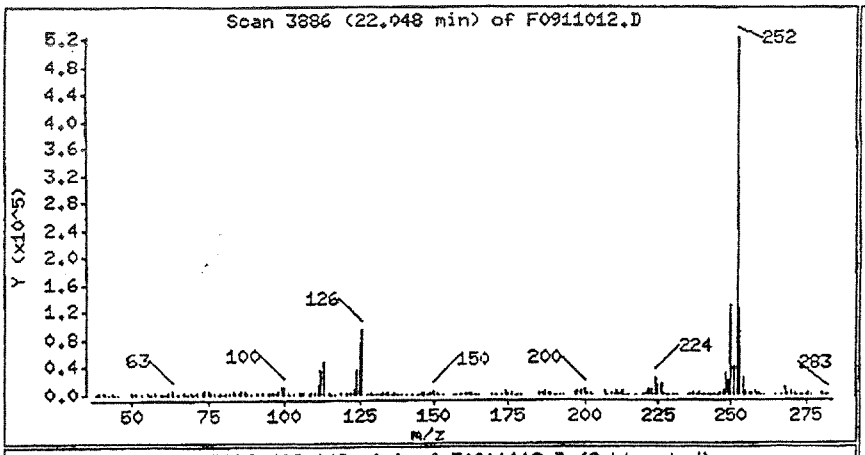
	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	INTRA-LAB QC	42	56	35 *	56	18	67	01
02	S44-SS01-0.0-0.5	56	68	67	58	52	72	00
03	S44-SS02-0.0-0.5	56	58	49	60	42	74	00
04	S44-SS03-0.0-0.5	64	59	59	53	53	74	00
05	S44-SS03-0.0-0.5 RE-1 DL	56	58	58	60	50	66	00
06	S44-SS04-0.0-0.5	54	63	68	48	51	67	00
07	S44-SS05-0.0-0.5 RE-1	55	62	66	56	51	74	00
08	S44-SS02-0.0-0.5 D RE-1	50	50	44	57	39	76	00
09	METHOD BLK. DJT3V101	61	57	63	60	56	68	00
10	METHOD BLK. DK0EH101	50	56	63	60	46	51	00
11	LCS DJT3V102	74	75	74	63	48	76	00
12	LCS DK0EH102	58	63	68	57	55	60	00
13	LAB MS/MSD D	57	69	54	55	30	75	00
14	S44-SS05-0.0-0.5 D	59	63	68	62	55	81	00
15	LAB MS/MSD S	59	72	56	59	32	77	00
16	S44-SS05-0.0-0.5 S	54	59	62	58	51	74	00

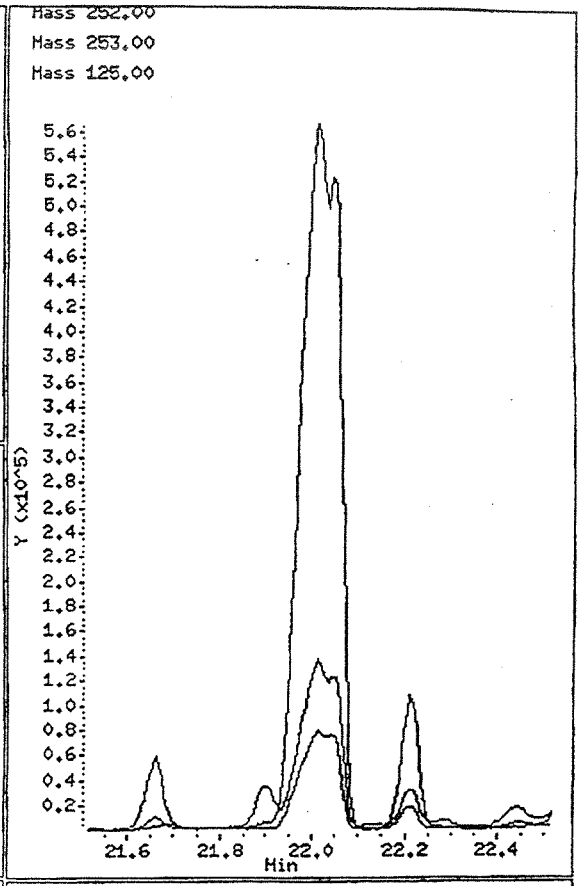
SURROGATES		QC LIMITS
SRG01	= Phenol-d5	(25-115)
SRG02	= 2-Fluorobiphenyl	(43-110)
SRG03	= Nitrobenzene-d5	(42-110)
SRG04	= Terphenyl-d14	(37-137)
SRG05	= 2-Fluorophenol	(11-116)
SRG06	= 2,4,6-Tribromophenol	(35-116)

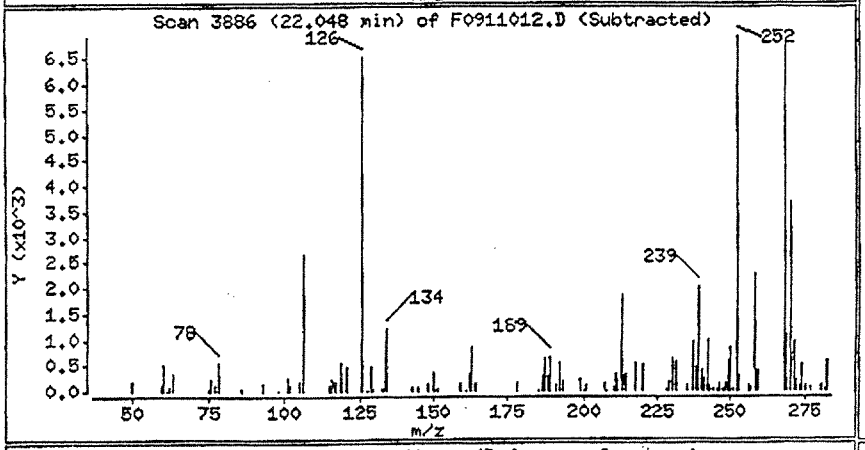
\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

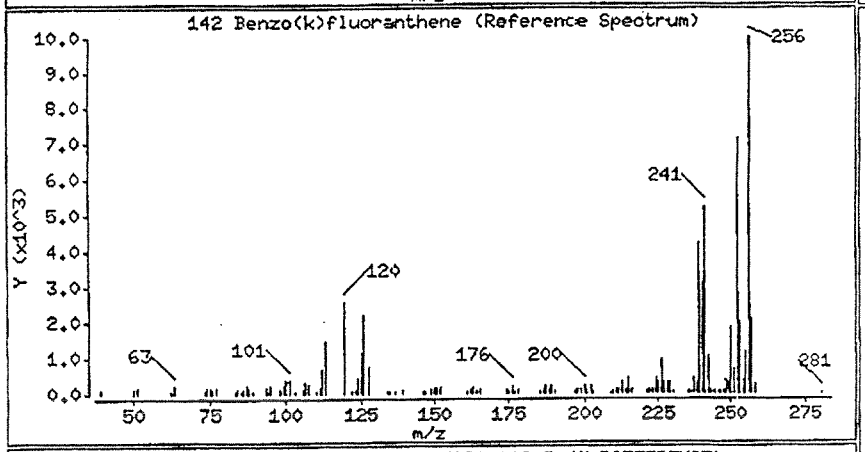
FORM II

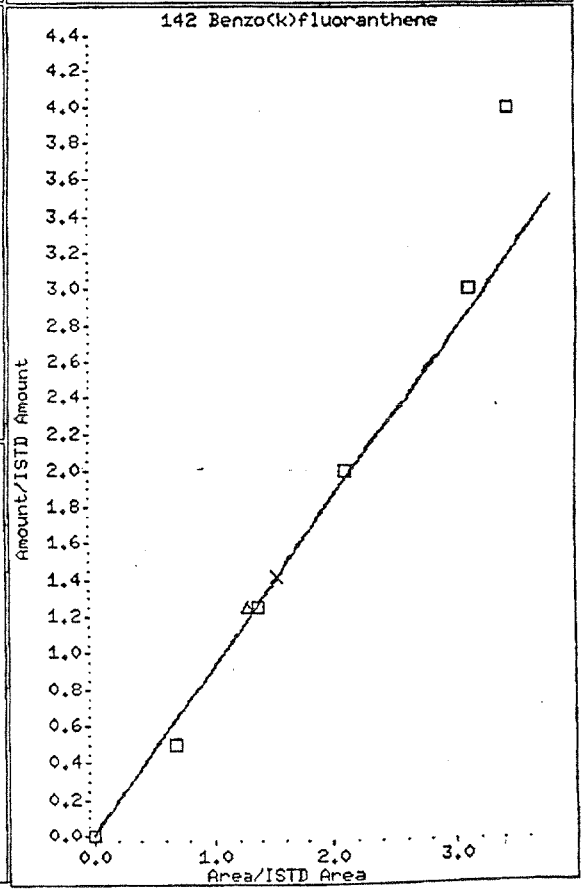
142 Benzo(k)flucranthene

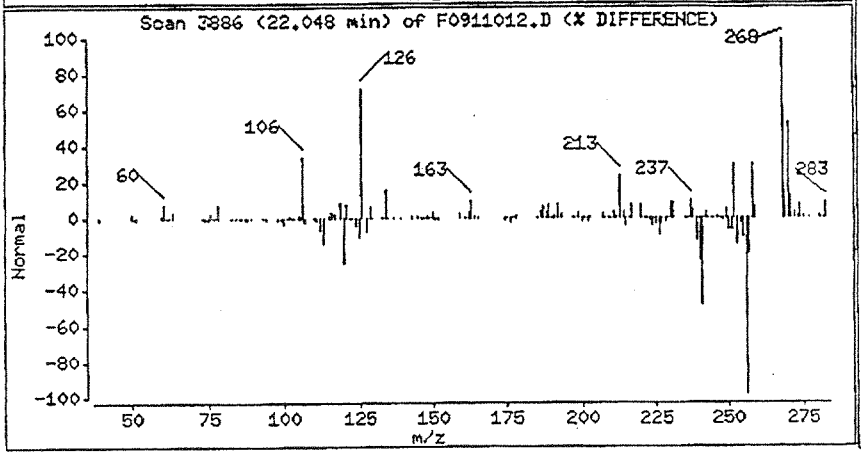




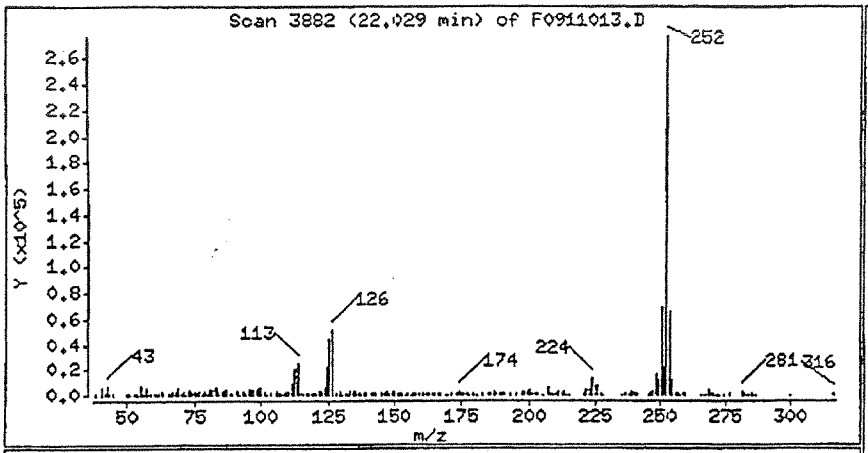


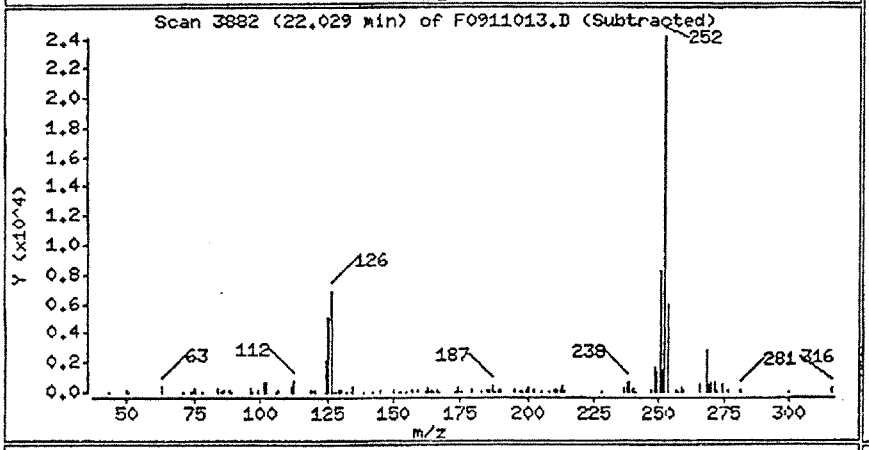


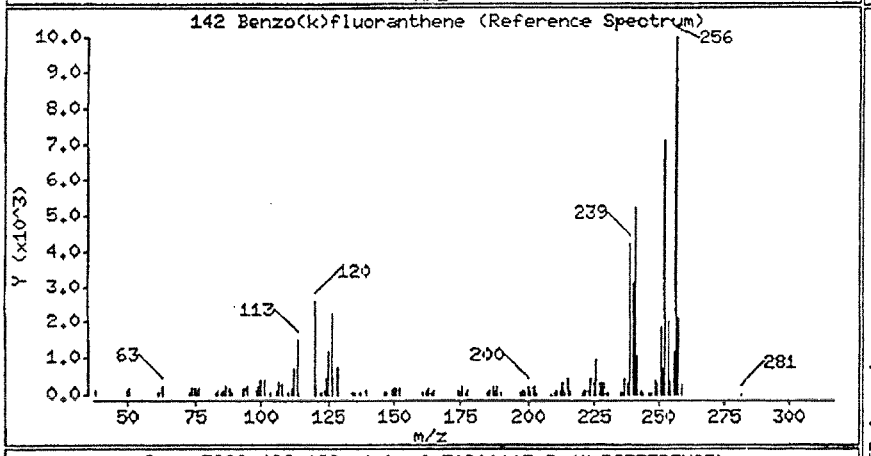


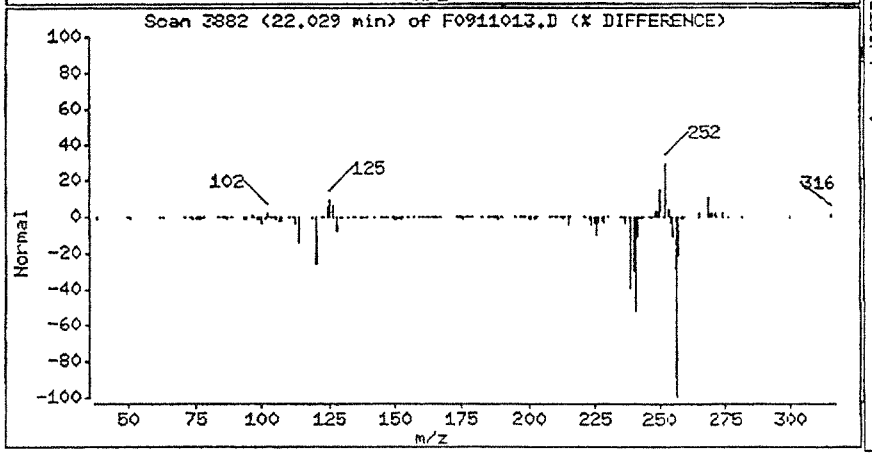


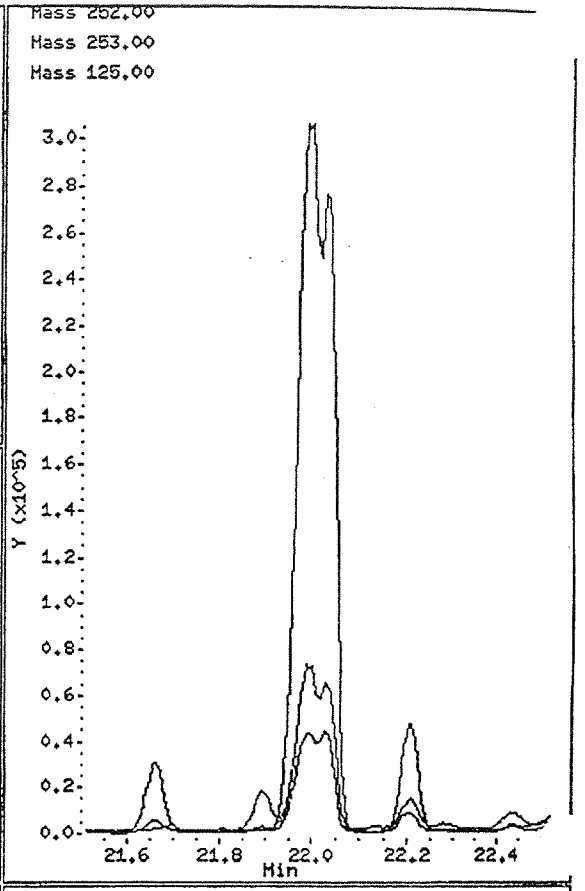
142 Benzo(k)fluoranthene

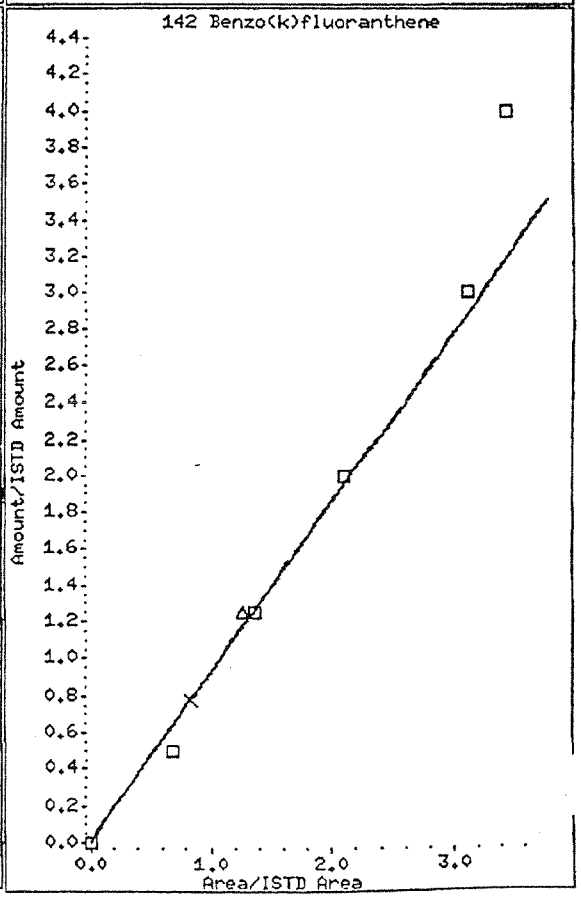




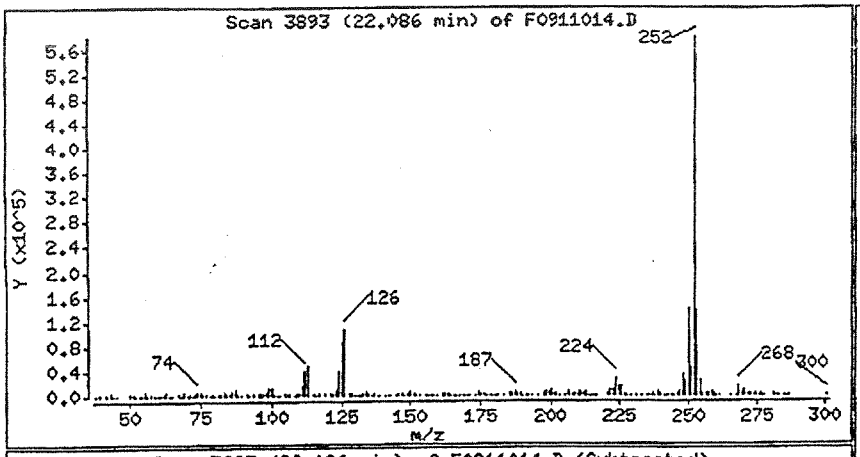


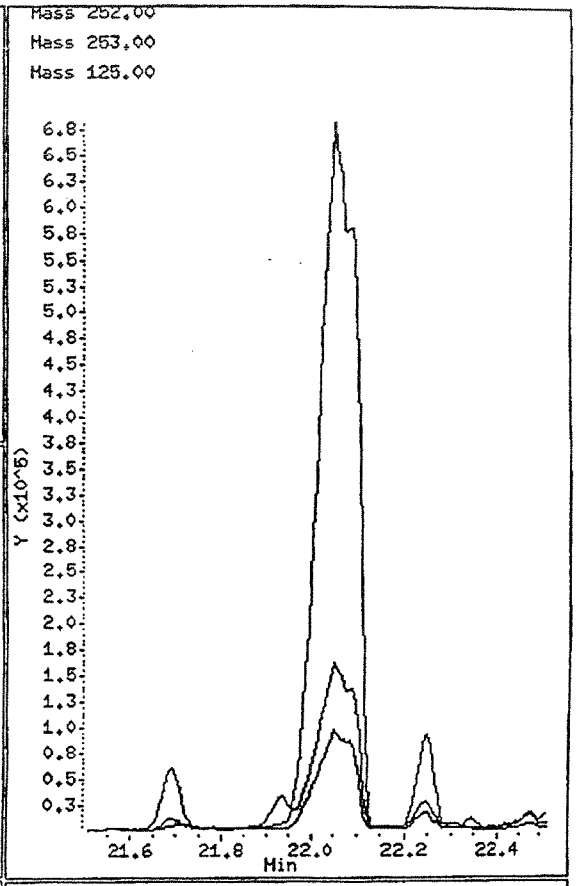


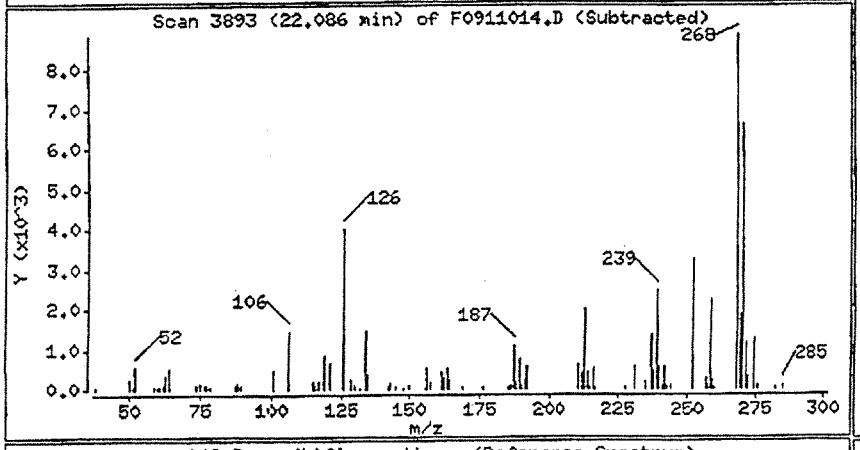


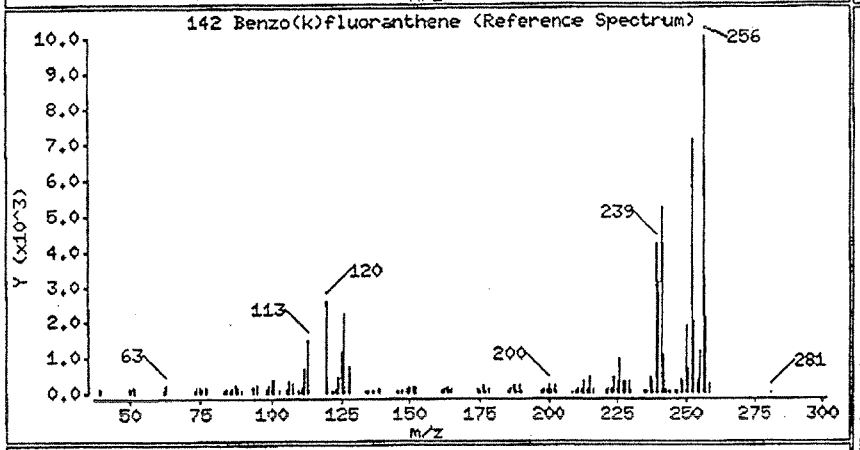


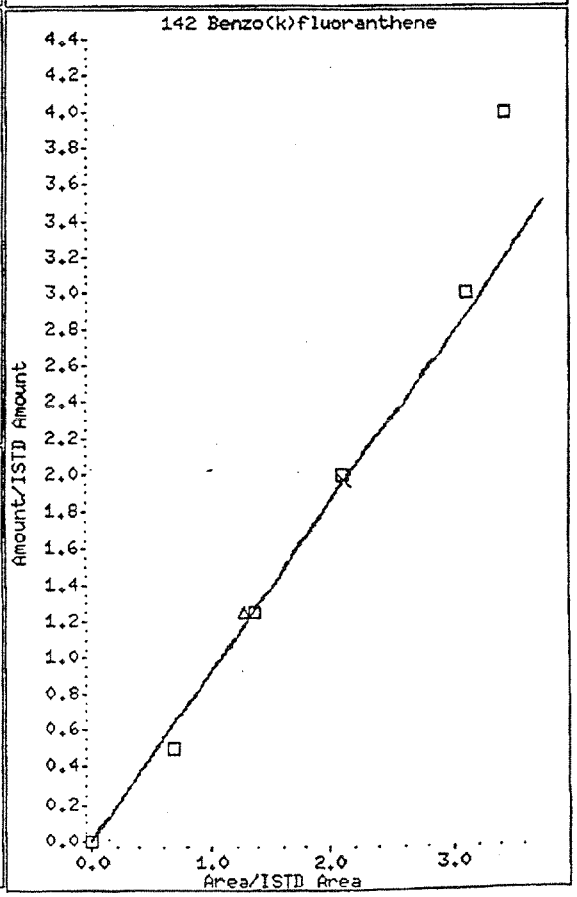
142 Benzo(k)fluoranthene

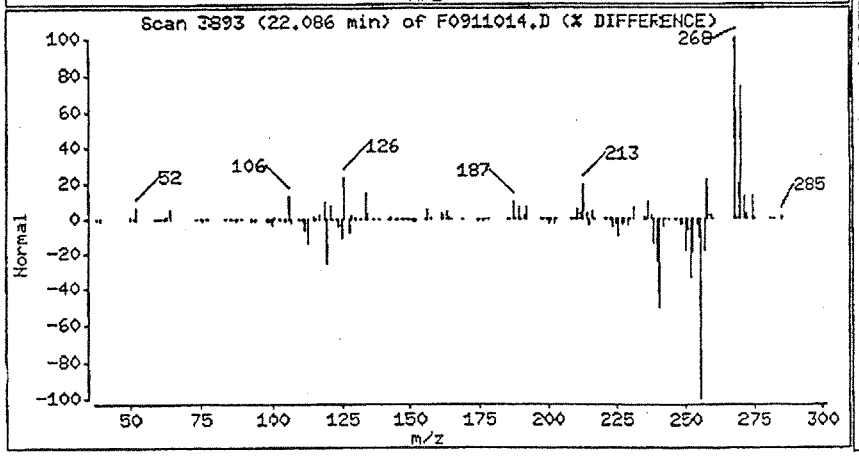




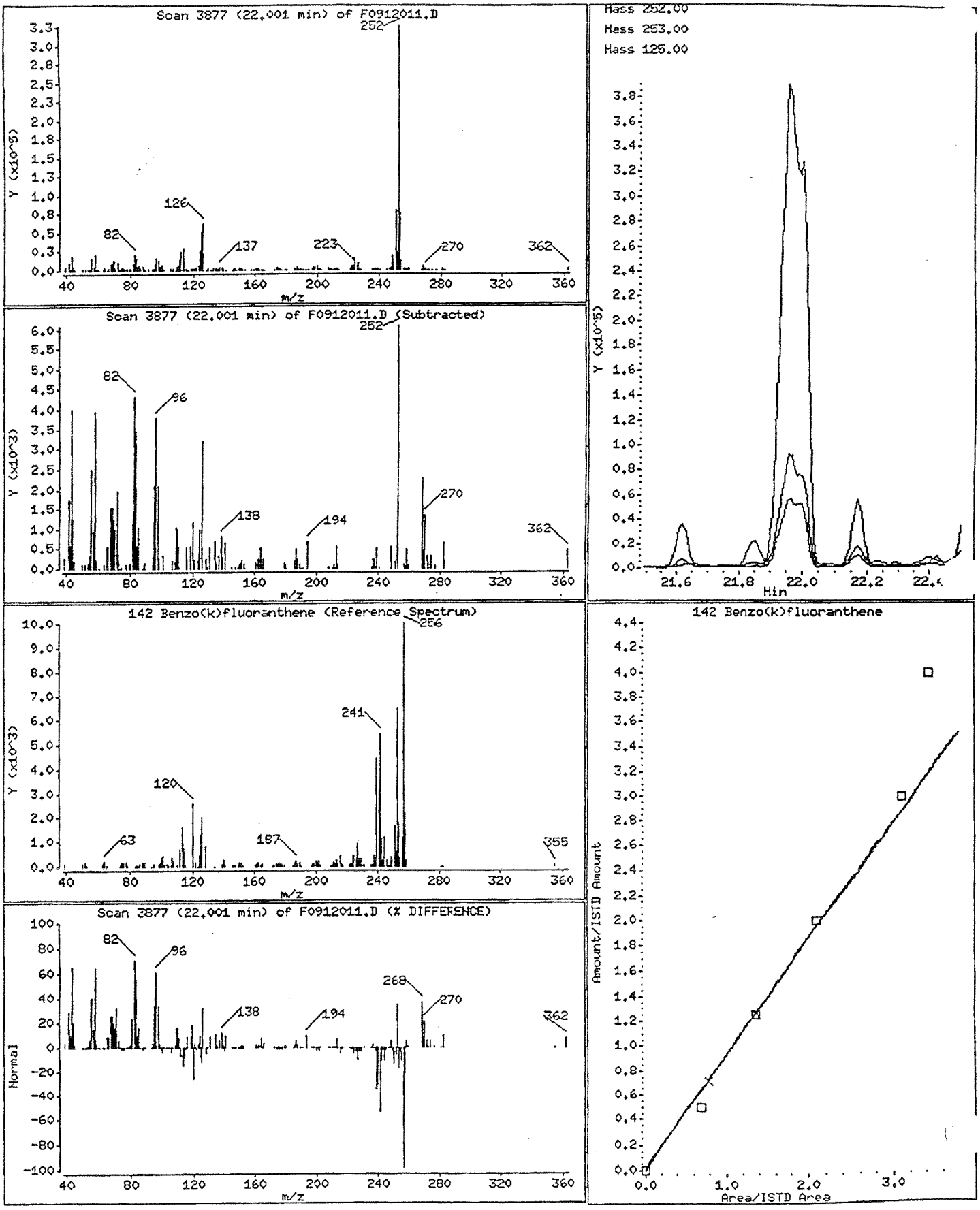




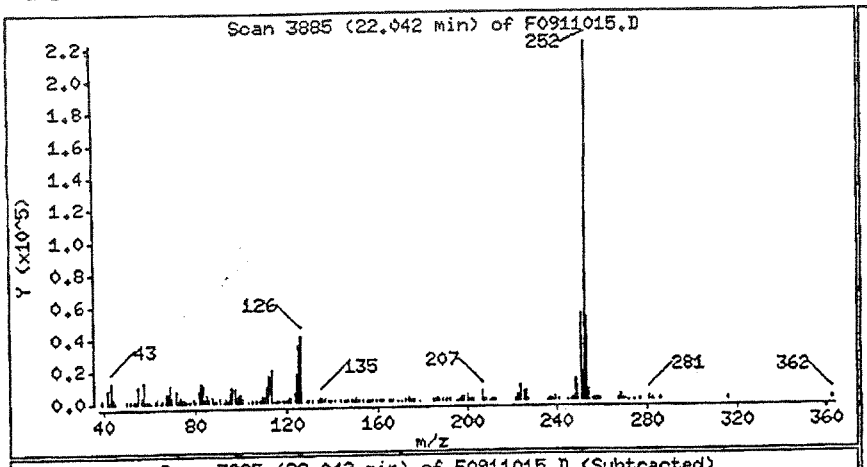


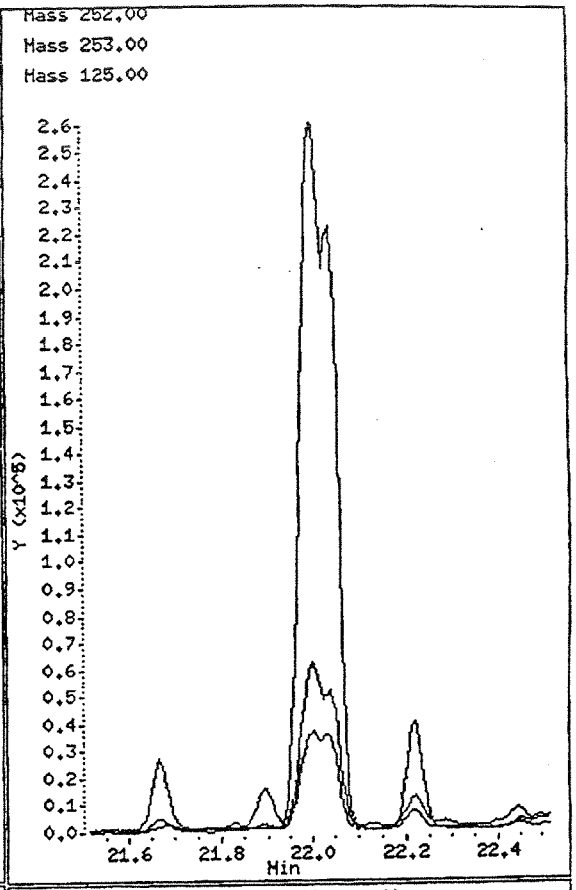


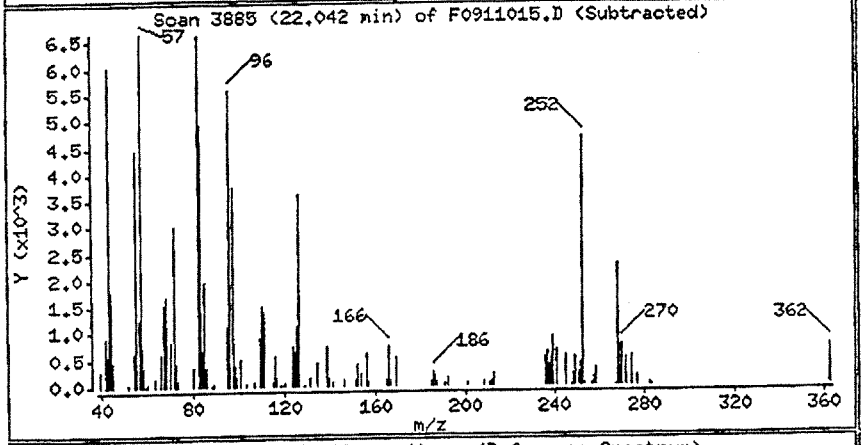
142 Benzo(k)fluoranthene

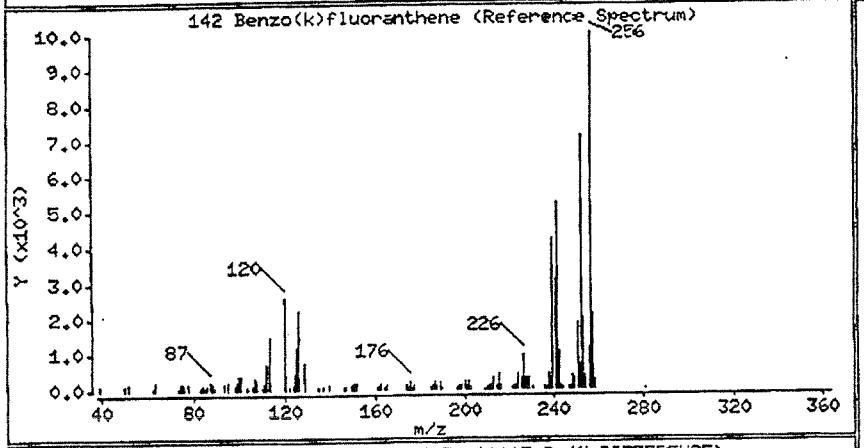


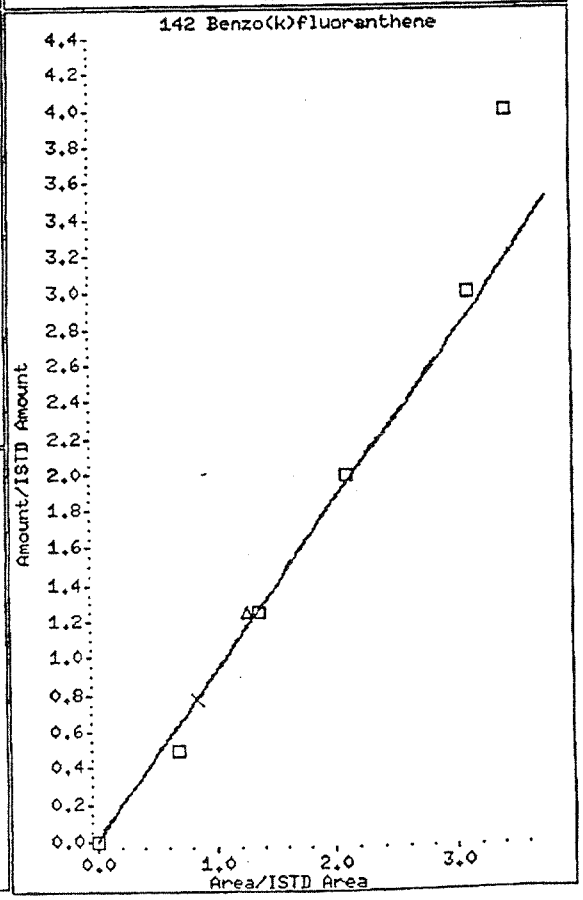
142 Benzo(k)flucranthene

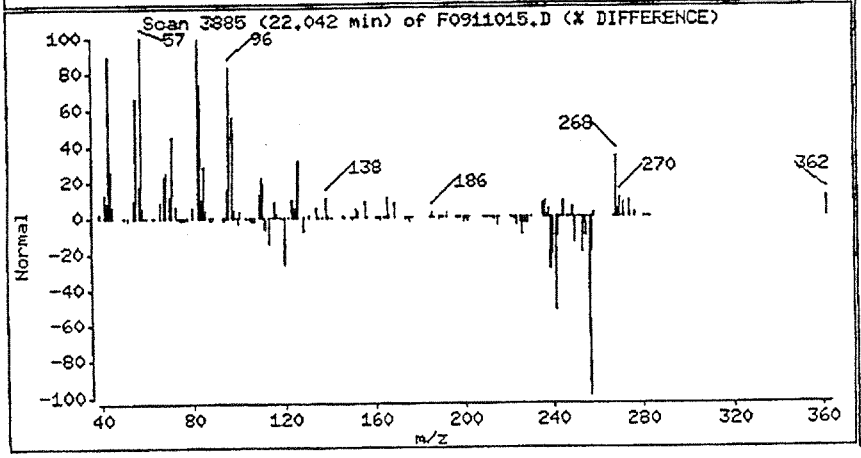




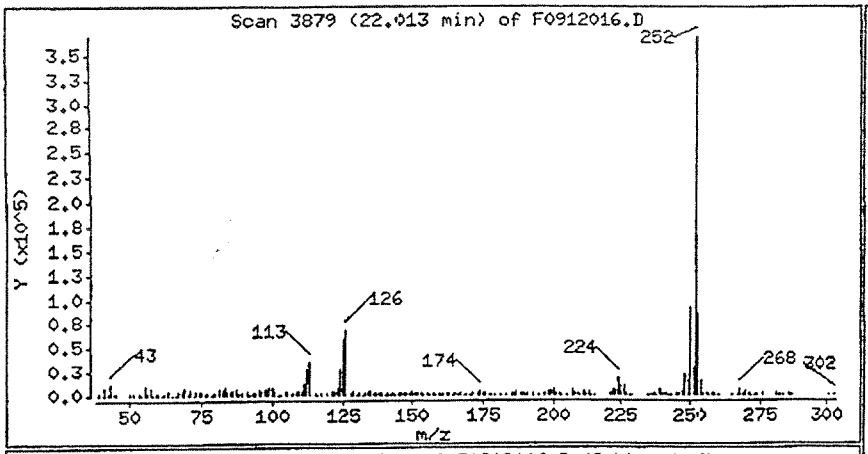


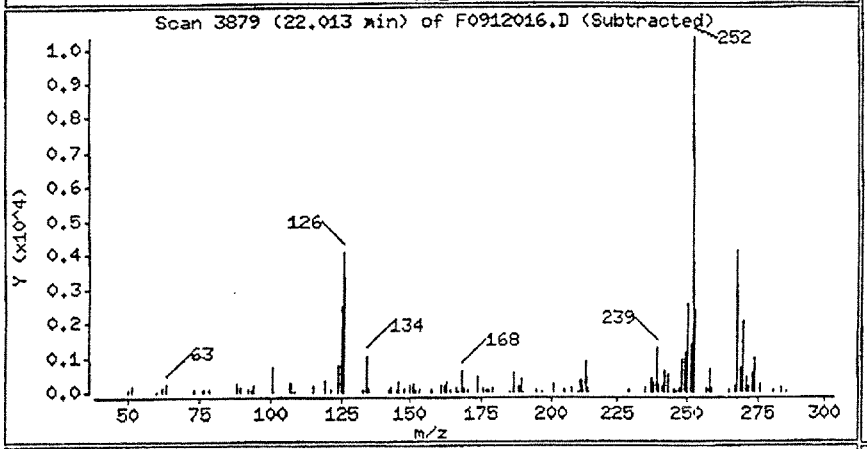


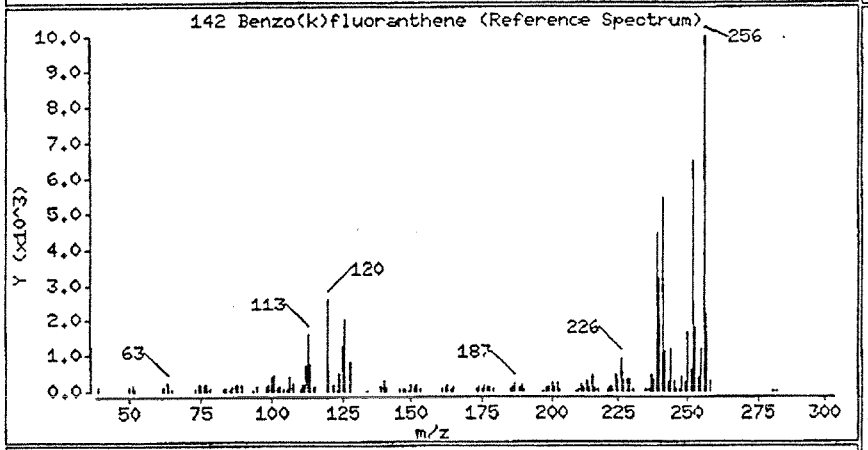


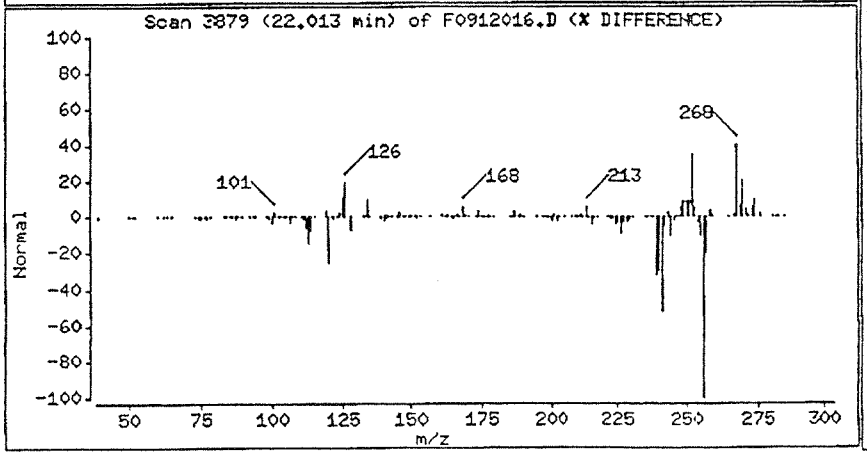


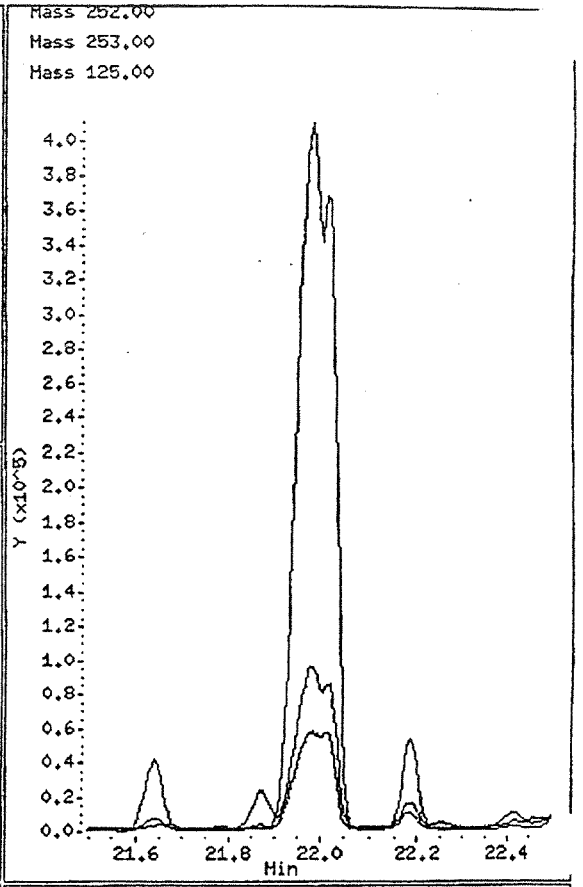
142 Benzo(k)fluoranthene

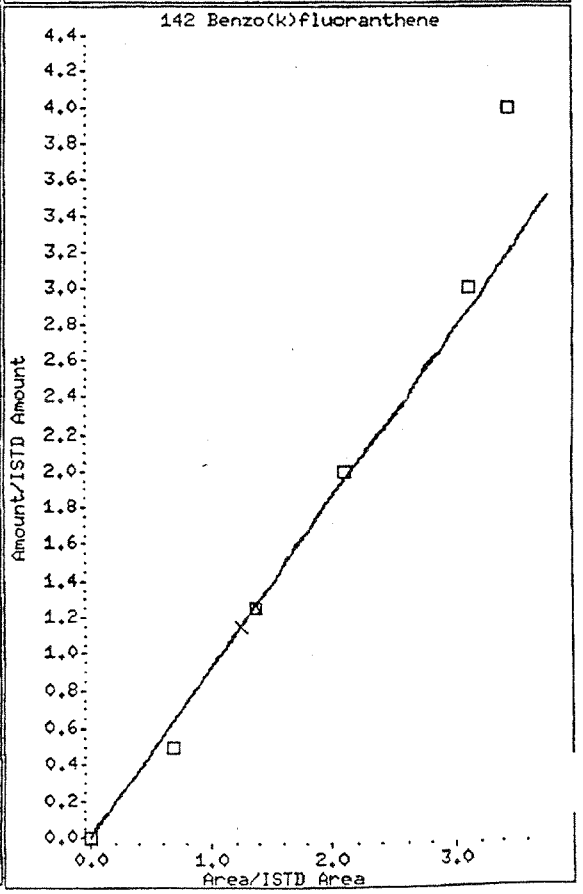




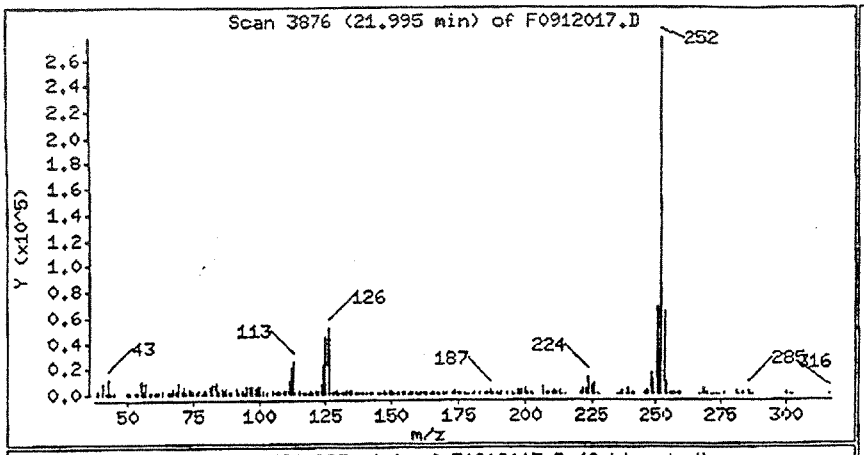


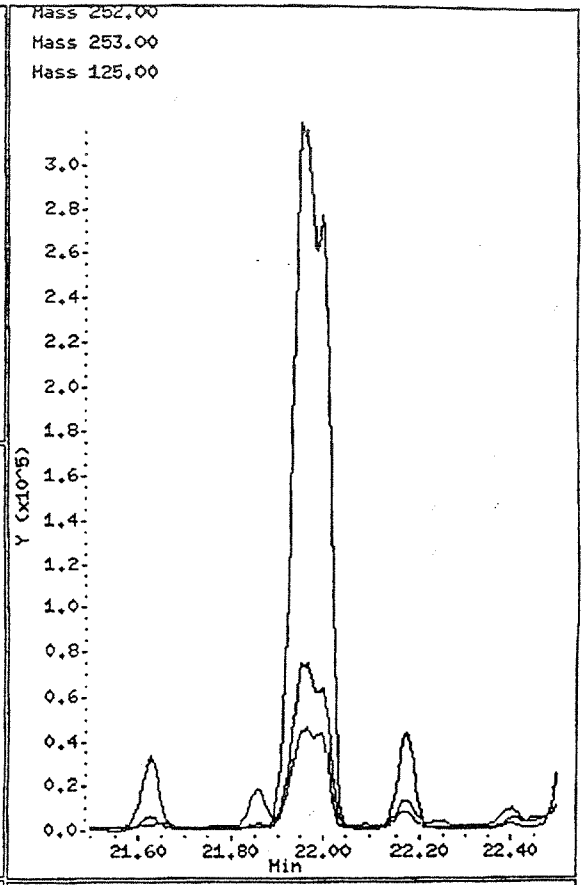


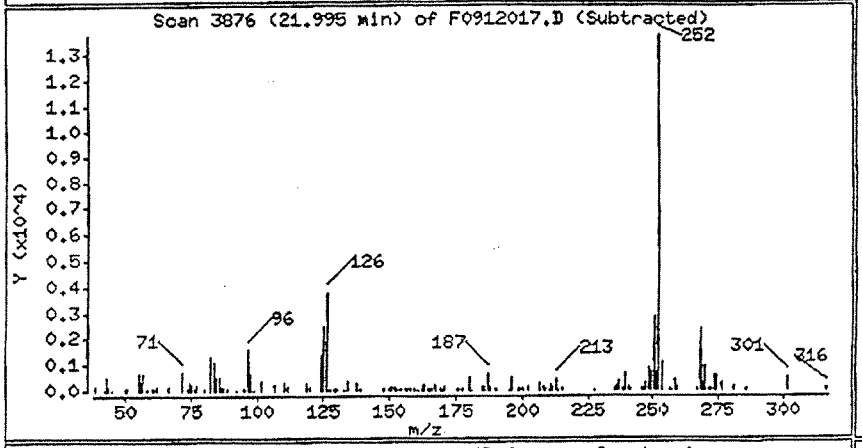


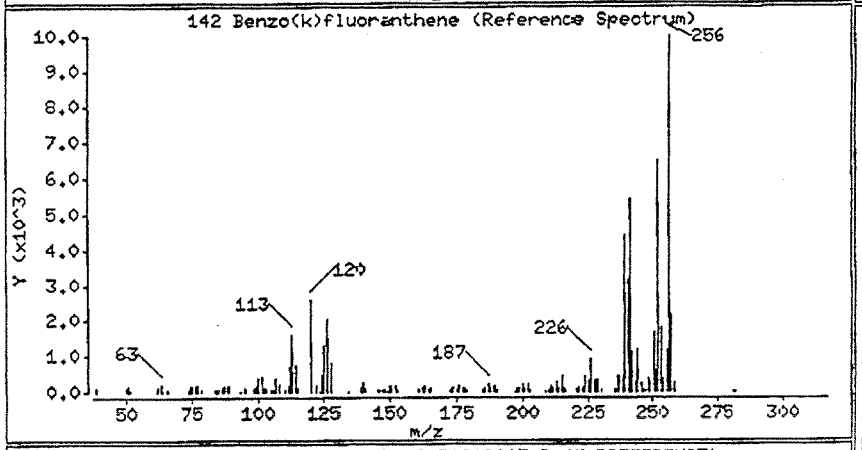


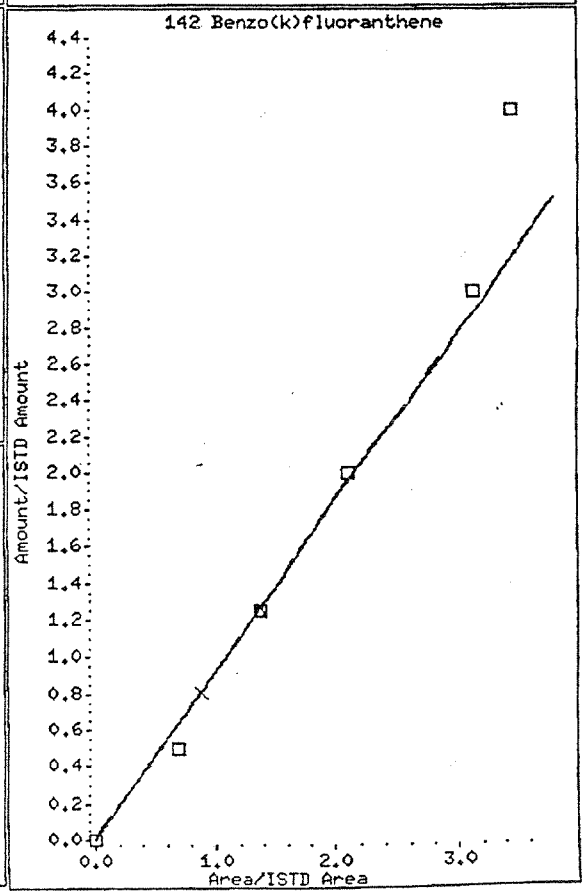
142 Benzo(k)flucranthene

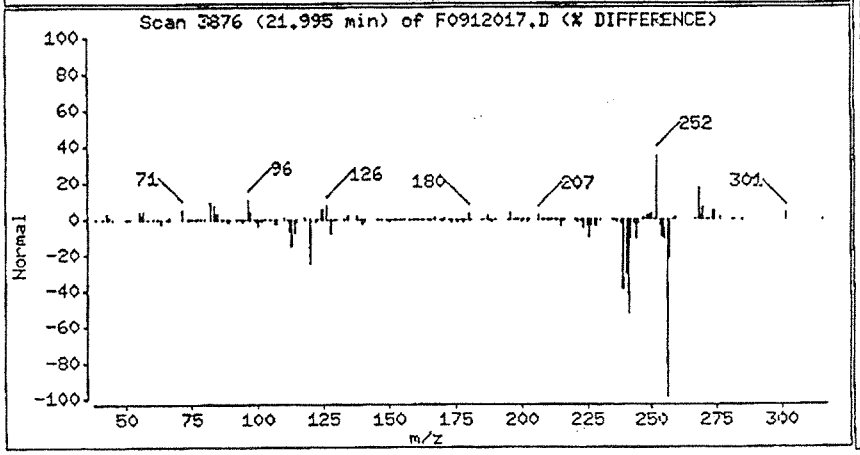












20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/H.i/091200.b/h1631.d
Report Date: 12-Sep-2000 14:37

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
13 Acrolein	56.00	Compound Not Detected.					
14 1,1-Dichloroethene	96.00	Compound Not Detected.					
15 Acetone	43.00	Compound Not Detected.					
17 Iodomethane	142.00	Compound Not Detected.					
19 Acetonitrile	41.00	Compound Not Detected.					
21 Methylene Chloride	84.00	Compound Not Detected.					
22 tert-Butyl alcohol	59.00	Compound Not Detected.					
23 Acrylonitrile	53.00	Compound Not Detected.					
24 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
27 1,1-Dichloroethane	63.00	Compound Not Detected.					
29 Vinyl acetate	43.00	Compound Not Detected.					
28 Chloroprene	53.00	Compound Not Detected.					
30 Isopropyl ether	87.00	Compound Not Detected.					
32 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
31 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 2-Butanone	43.00	Compound Not Detected.					
34 Propionitrile	54.00	Compound Not Detected.					
36 Methacrylonitrile	41.00	Compound Not Detected.					
37 Bromochloromethane	128.00	Compound Not Detected.					
38 Chloroform	83.00	Compound Not Detected.					
41 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
42 1,1-Dichloropropene	75.00	Compound Not Detected.					
43 Carbon Tetrachloride	117.00	Compound Not Detected.					
45 Isobutanol	41.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
47 1,2-Dichloroethane	62.00	Compound Not Detected.					
49 n-Butanol	56.00	Compound Not Detected.					
50 Trichloroethene	130.00	Compound Not Detected.					
52 1,2-Dichloropropane	63.00	Compound Not Detected.					
53 Dibromomethane	93.00	Compound Not Detected.					
55 1,4-Dioxane	88.00	Compound Not Detected.					
56 Bromodichloromethane	83.00	Compound Not Detected.					
59 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
60 4-Methyl-2-pentanone	43.00	Compound Not Detected.					
62 Toluene	91	8.943	8.909	(0.840)	55574	0.26672	0.266715
63 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
65 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
67 1,3-Dichloropropane	76.00	Compound Not Detected.					
66 Tetrachloroethene	164.00	Compound Not Detected.					
68 2-Hexanone	43.00	Compound Not Detected.					
69 Dibromochloromethane	129.00	Compound Not Detected.					
70 1,2-Dibromoethane	107.00	Compound Not Detected.					
71 1-Chlorohexane	91.00	Compound Not Detected.					
73 Chlorobenzene	112.00	Compound Not Detected.					
74 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
75 Ethylbenzene	106.00	Compound Not Detected.					
76 m and p-Xylene	106.00	Compound Not Detected.					

544 - 5503 - 0.0-0.5 RB

Data File: /chem/H.i/091200.b/h1632.d
Report Date: 12-Sep-2000 14:41

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
13 Acrolein	56.00	Compound Not Detected.					
14 1,1-Dichloroethene	96	3.823	3.772	(0.546)	13162	0.20822	0.208215
15 Acetone	43.00	Compound Not Detected.					
17 Iodomethane	142.00	Compound Not Detected.					
19 Acetonitrile	41.00	Compound Not Detected.					
21 Methylene Chloride	84	4.308	4.275	(0.615)	10953	0.24637	0.246374
22 tert-Butyl alcohol	59.00	Compound Not Detected.					
23 Acrylonitrile	53.00	Compound Not Detected.					
24 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
27 1,1-Dichloroethane	63.00	Compound Not Detected.					
29 Vinyl acetate	43.00	Compound Not Detected.					
28 Chloroprene	53.00	Compound Not Detected.					
30 Isopropyl ether	87.00	Compound Not Detected.					
32 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
31 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 2-Butanone	43.00	Compound Not Detected.					
34 Propionitrile	54.00	Compound Not Detected.					
36 Methacrylonitrile	41.00	Compound Not Detected.					
37 Bromochloromethane	128.00	Compound Not Detected.					
38 Chloroform	83.00	Compound Not Detected.					
41 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
42 1,1-Dichloropropene	75.00	Compound Not Detected.					
43 Carbon Tetrachloride	117.00	Compound Not Detected.					
45 Isobutanol	41.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
47 1,2-Dichloroethane	62.00	Compound Not Detected.					
49 n-Butanol	56.00	Compound Not Detected.					
50 Trichloroethene	130.00	Compound Not Detected.					
52 1,2-Dichloropropane	63.00	Compound Not Detected.					
53 Dibromomethane	93.00	Compound Not Detected.					
55 1,4-Dioxane	88.00	Compound Not Detected.					
56 Bromodichloromethane	83.00	Compound Not Detected.					
59 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
60 4-Methyl-2-pentanone	43.00	Compound Not Detected.					
62 Toluene	91	8.942	8.909	(0.838)	27374	0.13176	0.131758
63 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
65 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
67 1,3-Dichloropropane	76.00	Compound Not Detected.					
66 Tetrachloroethene	164.00	Compound Not Detected.					
68 2-Hexanone	43.00	Compound Not Detected.					
69 Dibromochloromethane	129.00	Compound Not Detected.					
70 1,2-Dibromoethane	107.00	Compound Not Detected.					
71 1-Chlorohexane	91.00	Compound Not Detected.					
73 Chlorobenzene	112.00	Compound Not Detected.					
74 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
75 Ethylbenzene	106.00	Compound Not Detected.					
76 m and p-Xylene	106.00	Compound Not Detected.					

TB01

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/J.i/090600.b/j5031.d
Report Date: 06-Sep-2000 15:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/Kg)
10 Ethanol	45.00	Compound Not Detected.					
11 Ethyl Ether	59.00	Compound Not Detected.					
12 Acrolein	56.00	Compound Not Detected.					
13 1,1-Dichloroethene	96.00	Compound Not Detected.					
14 Acetone	43	4.222	4.203	(0.591)	6471	3.02525	3.02525(a)
15 Trichlorotrifluoroethane	151.00	Compound Not Detected.					
16 Iodomethane	142.00	Compound Not Detected.					
17 Carbon Disulfide	76.00	Compound Not Detected.					
18 Acetonitrile	41.00	Compound Not Detected.					
19 Allyl Chloride	41.00	Compound Not Detected.					
20 Methylene Chloride	84	4.673	4.672	(0.654)	7515	0.84848	0.848477(a)
21 tert-Butyl alcohol	59.00	Compound Not Detected.					
22 Acrylonitrile	53.00	Compound Not Detected.					
23 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
24 Methyl t-butyl ether	73.00	Compound Not Detected.					
25 Hexane	57	5.251	5.254	(0.508)	44217	2.47297	2.47297(a)
26 1,1-Dichloroethane	63.00	Compound Not Detected.					
27 Vinyl acetate	43.00	Compound Not Detected.					
28 Isopropyl ether	87.00	Compound Not Detected.					
29 Chloroprene	53.00	Compound Not Detected.					
30 2-Butanone	43.00	Compound Not Detected.					
31 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
32 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 Propionitrile	54.00	Compound Not Detected.					
34 Ethyl Acetate	43.00	Compound Not Detected.					
35 Methacrylonitrile	41.00	Compound Not Detected.					
36 Bromochloromethane	128.00	Compound Not Detected.					
37 Chloroform	83.00	Compound Not Detected.					
38 Tetrahydrofuran	42.00	Compound Not Detected.					
40 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
115 Cyclohexane	56.00	Compound Not Detected.					
41 1,1-Dichloropropene	75.00	Compound Not Detected.					
42 Carbon Tetrachloride	117.00	Compound Not Detected.					
43 Isobutanol	41.00	Compound Not Detected.					
45 1,2-Dichloroethane	62.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
48 n-Butanol	56.00	Compound Not Detected.					
49 Trichloroethene	130.00	Compound Not Detected.					
50 1,2-Dichloropropane	63.00	Compound Not Detected.					
51 Methyl Methacrylate	41.00	Compound Not Detected.					
52 Dibromomethane	93.00	Compound Not Detected.					
53 1,4-Dioxane	88.00	Compound Not Detected.					
54 Bromodichloromethane	83.00	Compound Not Detected.					
55 2-nitropropane	41.00	Compound Not Detected.					
56 2-Chloroethyl vinyl ether	63.00	Compound Not Detected.					
57 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
58 4-Methyl-2-pentanone	43.00	Compound Not Detected.					

Method Blank (soil) QC 027435

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/Kg)
60 Toluene	91.00	Compound Not Detected.					
61 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
62 Ethyl methacrylate	69.00	Compound Not Detected.					
63 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
64 1,3-Dichloropropane	76.00	Compound Not Detected.					
65 Tetrachloroethene	164.00	Compound Not Detected.					
66 2-Hexanone	43	9.457	9.438	(0.914)	21276	3.10070	3.10070(a)
67 Dibromochloromethane	129.00	Compound Not Detected.					
68 1,2-Dibromoethane	107.00	Compound Not Detected.					
69 1-Chlorohexane	91.00	Compound Not Detected.					
71 Chlorobenzene	112.00	Compound Not Detected.					
72 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
73 Ethylbenzene	106.00	Compound Not Detected.					
74 m and p-Xylene	106.00	Compound Not Detected.					
75 o-Xylene	106.00	Compound Not Detected.					
76 Styrene	104.00	Compound Not Detected.					
77 Bromoform	173.00	Compound Not Detected.					
78 Isopropyl benzene	105.00	Compound Not Detected.					
79 Cyclohexanone	55.00	Compound Not Detected.					
81 1,1,2,2-Tetrachloroethane	83.00	Compound Not Detected.					
82 Bromobenzene	156.00	Compound Not Detected.					
83 1,2,3-Trichloropropane	110.00	Compound Not Detected.					
84 t-1,4-Dichloro-2-butene	53.00	Compound Not Detected.					
85 n-Propylbenzene	120.00	Compound Not Detected.					
86 2-Chlorotoluene	126.00	Compound Not Detected.					
87 1,3,5-Trimethylbenzene	105.00	Compound Not Detected.					
88 4-Chlorotoluene	126.00	Compound Not Detected.					
89 tert-Butylbenzene	119.00	Compound Not Detected.					
90 1,2,4-Trimethylbenzene	105.00	Compound Not Detected.					
91 sec-Butylbenzene	105.00	Compound Not Detected.					
92 m-Dichlorobenzene	146.00	Compound Not Detected.					
93 4-Isopropyltoluene	119.00	Compound Not Detected.					
95 p-dichlorobenzene	146.00	Compound Not Detected.					
96 n-Butylbenzene	91.00	Compound Not Detected.					
97 o-Dichlorobenzene	146.00	Compound Not Detected.					
98 1,2-Dibromo-3-chloropropane	157.00	Compound Not Detected.					
99 1,2,4-Trichlorobenzene	180	15.685	15.683	(1.178)	14304	1.62585	1.62585(a)
100 Hexachlorobutadiene	225.00	Compound Not Detected.					
101 Napthalene	128	15.992	15.990	(1.201)	30668	3.38417	3.38417(a)
102 1,2,3-Trichlorobenzene	180	16.317	16.315	(1.225)	14977	1.99382	1.99382(a)

Not TC

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Data File: /chem/J.i/090600.b/j5032.d
Report Date: 06-Sep-2000 16:17

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/Kg)
10 Ethanol	45.00	Compound Not Detected.					
11 Ethyl Ether	59.00	Compound Not Detected.					
12 Acrolein	56.00	Compound Not Detected.					
13 1,1-Dichloroethene	96	4.185	4.185	(0.586)	6677	0.74796	0.747963 (a)
14 Acetone	43	4.203	4.203	(0.588)	21874	10.1855	10.1855 (a)
15 Trichlorotrifluoroethane	151.00	Compound Not Detected.					
16 Iodomethane	142.00	Compound Not Detected.					
17 Carbon Disulfide	76.00	Compound Not Detected.					
18 Acetonitrile	41.00	Compound Not Detected.					
19 Allyl Chloride	41.00	Compound Not Detected.					
20 Methylene Chloride	84	4.654	4.672	(0.651)	9021	1.01445	1.01444 (a)
21 tert-Butyl alcohol	59.00	Compound Not Detected.					
22 Acrylonitrile	53.00	Compound Not Detected.					
23 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
24 Methyl t-butyl ether	73.00	Compound Not Detected.					
25 Hexane	57.00	Compound Not Detected.					
26 1,1-Dichloroethane	63.00	Compound Not Detected.					
27 Vinyl acetate	43.00	Compound Not Detected.					
28 Isopropyl ether	87.00	Compound Not Detected.					
29 Chloroprene	53.00	Compound Not Detected.					
30 2-Butanone	43.00	Compound Not Detected.					
31 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
32 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 Propionitrile	54.00	Compound Not Detected.					
34 Ethyl Acetate	43	6.026	6.030	(0.843)	50464	4.77966	4.77966 (a)
35 Methacrylonitrile	41.00	Compound Not Detected.					
36 Bromochloromethane	128.00	Compound Not Detected.					
37 Chloroform	83.00	Compound Not Detected.					
38 Tetrahydrofuran	42.00	Compound Not Detected.					
40 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
115 Cyclohexane	56.00	Compound Not Detected.					
41 1,1-Dichloropropene	75.00	Compound Not Detected.					
42 Carbon Tetrachloride	117.00	Compound Not Detected.					
43 Isobutanol	41.00	Compound Not Detected.					
45 1,2-Dichloroethane	62.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
48 n-Butanol	56.00	Compound Not Detected.					
49 Trichloroethene	130.00	Compound Not Detected.					
50 1,2-Dichloropropane	63.00	Compound Not Detected.					
51 Methyl Methacrylate	41.00	Compound Not Detected.					
52 Dibromomethane	93.00	Compound Not Detected.					
53 1,4-Dioxane	88.00	Compound Not Detected.					
54 Bromodichloromethane	83.00	Compound Not Detected.					
55 2-nitropropane	41.00	Compound Not Detected.					
56 2-Chloroethyl vinyl ether	63.00	Compound Not Detected.					
57 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
58 4-Methyl-2-pentanone	43.00	Compound Not Detected.					

DATE

Prep / Method Blank (5031) DK 20 Q 101

Data File: /chem/J.i/090600.b/j5032.d
Report Date: 06-Sep-2000 16:17

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/Kg)
60 Toluene	91.00	Compound Not Detected.					
61 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
62 Ethyl methacrylate	69.00	Compound Not Detected.					
63 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
64 1,3-Dichloropropane	76.00	Compound Not Detected.					
65 Tetrachloroethene	164.00	Compound Not Detected.					
66 2-Hexanone	43.00	Compound Not Detected.					
67 Dibromochloromethane	129.00	Compound Not Detected.					
68 1,2-Dibromoethane	107.00	Compound Not Detected.					
69 1-Chlorohexane	91.00	Compound Not Detected.					
71 Chlorobenzene	112.00	Compound Not Detected.					
72 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
73 Ethylbenzene	106.00	Compound Not Detected.					
74 m and p-Xylene	106.00	Compound Not Detected.					
75 o-Xylene	106.00	Compound Not Detected.					
76 Styrene	104.00	Compound Not Detected.					
77 Bromoform	173.00	Compound Not Detected.					
78 isopropyl benzene	105.00	Compound Not Detected.					
79 Cyclohexanone	55.00	Compound Not Detected.					
81 1,1,2,2-Tetrachloroethane	83.00	Compound Not Detected.					
82 Bromobenzene	156.00	Compound Not Detected.					
83 1,2,3-Trichloropropane	110.00	Compound Not Detected.					
84 t-1,4-Dichloro-2-butene	53.00	Compound Not Detected.					
85 n-Propylbenzene	120.00	Compound Not Detected.					
86 2-Chlorotoluene	126.00	Compound Not Detected.					
87 1,3,5-Trimethylbenzene	105.00	Compound Not Detected.					
88 4-Chlorotoluene	126.00	Compound Not Detected.					
89 tert-Butylbenzene	119.00	Compound Not Detected.					
90 1,2,4-Trimethylbenzene	105.00	Compound Not Detected.					
91 sec-Butylbenzene	105.00	Compound Not Detected.					
92 m-Dichlorobenzene	146.00	Compound Not Detected.					
93 4-Isopropyltoluene	119.00	Compound Not Detected.					
95 p-dichlorobenzene	146.00	Compound Not Detected.					
96 n-Butylbenzene	91.00	Compound Not Detected.					
97 o-Dichlorobenzene	146.00	Compound Not Detected.					
98 1,2-Dibromo-3-chloropropane	157.00	Compound Not Detected.					
99 1,2,4-Trichlorobenzene	180	15.665	15.683	(1.176)	10309	1.11184	1.11184(a)
100 Hexachlorobutadiene	225.00	Compound Not Detected.					
101 Napthalene	128	15.990	15.990	(1.201)	15325	1.60461	1.60461(a)
102 1,2,3-Trichlorobenzene	180	16.297	16.315	(1.224)	10038	1.26797	1.26797(a)

Not TR

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: /chem/H.i/091200.b/h1622.d
Report Date: 12-Sep-2000 11:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
13 Acrolein	56.00	Compound Not Detected.					
14 1,1-Dichloroethene	96.00	Compound Not Detected.					
15 Acetone	43.00	Compound Not Detected.					
17 Iodomethane	142.00	Compound Not Detected.					
19 Acetonitrile	41.00	Compound Not Detected.					
21 Methylene Chloride	84	4.291	4.275	(0.614)	12986	0.28636	0.286358
22 tert-Butyl alcohol	59.00	Compound Not Detected.					
23 Acrylonitrile	53.00	Compound Not Detected.					
24 trans-1,2-Dichloroethene	96.00	Compound Not Detected.					
27 1,1-Dichloroethane	63.00	Compound Not Detected.					
29 Vinyl acetate	43.00	Compound Not Detected.					
28 Chloroprene	53.00	Compound Not Detected.					
30 Isopropyl ether	87.00	Compound Not Detected.					
32 cis-1,2-Dichloroethene	96.00	Compound Not Detected.					
31 2,2-Dichloropropane	77.00	Compound Not Detected.					
33 2-Butanone	43.00	Compound Not Detected.					
34 Propionitrile	54.00	Compound Not Detected.					
36 Methacrylonitrile	41.00	Compound Not Detected.					
37 Bromochloromethane	128.00	Compound Not Detected.					
38 Chloroform	83.00	Compound Not Detected.					
41 1,1,1-Trichloroethane	97.00	Compound Not Detected.					
42 1,1-Dichloropropene	75.00	Compound Not Detected.					
43 Carbon Tetrachloride	117.00	Compound Not Detected.					
45 Isobutanol	41.00	Compound Not Detected.					
46 Benzene	78.00	Compound Not Detected.					
47 1,2-Dichloroethane	62.00	Compound Not Detected.					
49 n-Butanol	56.00	Compound Not Detected.					
50 Trichloroethene	130.00	Compound Not Detected.					
52 1,2-Dichloropropane	63.00	Compound Not Detected.					
53 Dibromomethane	93.00	Compound Not Detected.					
55 1,4-Dioxane	88.00	Compound Not Detected.					
56 Bromodichloromethane	83.00	Compound Not Detected.					
59 cis-1,3-Dichloropropene	75.00	Compound Not Detected.					
60 4-Methyl-2-pentanone	43.00	Compound Not Detected.					
62 Toluene	91.00	Compound Not Detected.					
63 trans-1,3-Dichloropropene	75.00	Compound Not Detected.					
65 1,1,2-Trichloroethane	97.00	Compound Not Detected.					
67 1,3-Dichloropropane	76.00	Compound Not Detected.					
66 Tetrachloroethene	164.00	Compound Not Detected.					
68 2-Hexanone	43.00	Compound Not Detected.					
69 Dibromochloromethane	129.00	Compound Not Detected.					
70 1,2-Dibromoethane	107.00	Compound Not Detected.					
71 1-Chlorohexane	91.00	Compound Not Detected.					
73 Chlorobenzene	112.00	Compound Not Detected.					
74 1,1,1,2-Tetrachloroethane	131.00	Compound Not Detected.					
75 Ethylbenzene	106.00	Compound Not Detected.					
76 m and p-Xylene	106.00	Compound Not Detected.					

Method Blk (aqueous) DKaP5101

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

J Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEERS

Lab Code: QESPIT SDG No:

Matrix Spike ID: S44-SS05-0.0-0.5 Level:(low/med) LOW

Lot #: C0H310243 WO #: DJPLR10E
BATCH: 0250546

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
4-Nitrophenol	2960	3030	102	13	64	10- 148	
2,4-Dinitrotoluene	1980	1900	96	11	45	10- 171	
Pentachlorophenol	2960	3090	104	10	87	10- 144	
Pyrene	1980	1740	55	~~8.5~~ 16.7	66	10- 218	
Phenol	2960	1610	54	9.2	50	10- 148	
2-Chlorophenol	2960	1730	57	8.6	54	17- 116	
1,4-Dichlorobenzene	1980	1050	53	9.3	59	18- 110	
N-Nitrosodi-n-propylamine	1980	1070	54	9.6	50	12- 128	
1,2,4-Trichlorobenzene	1980	1190	60	7.9	54	16- 121	
4-Chloro-3-methylphenol	2960	2190	74	13	55	17- 128	
Acenaphthene	1980	1350	66	~~9.2~~ 9.5	44	13- 133	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 11 outside limits

C ENTS:

FORM III

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SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: Severn Trent Laboratories, Inc. Client: MFG ENVIRONMENTAL SCIENTISTS & ENGINEI

ab Code: QESPIT SDG No:

atrix Spike ID: LAB MS/MSD Level: (low/med) LOW

ot #: C0H300198 WO #: DJLXH108
BATCH: 0245432

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Phenol	2740	1490	54	1.9	50	10- 148	
2-Chlorophenol	2740	1350	49	4.5	54	17- 116	
1,4-Dichlorobenzene	1820	686	38	8.8	59	18- 110	
N-Nitrosodi-n-propylamine	1820	1070	59	1.0	50	12- 128	
1,2,4-Trichlorobenzene	1820	878	48	4.9	54	16- 121	
4-Chloro-3-methylphenol	2740	2150	79	4.0	55	17- 128	
Acenaphthene	1820	1770	82	~~5.4~~ 5.9	44	13- 133	
4-Nitrophenol	2740	2640	96	7.2	64	10- 148	
2,4-Dinitrotoluene	1820	1450	79	4.1	45	10- 171	
Pentachlorophenol	2740	2590	95	3.7	87	10- 144	
Pyrene	1820	9150	184	~~5.6~~ 19.6	66	10- 218	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

D: 0 out of 11 outside limits
ike Recovery: 0 out of 11 outside limits

MMENTS:

FORM III

L Pittsburgh 2010

STL-Pittsburgh

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: ICPST **Units:** ug/L

Chart Number: T00913A.ARC **Acceptable Range:** 50% - 150%

Standard Source: Inorganic Ventures **Standard ID:** 0057-047-1

Element	WL/ Mass	True Conc	CRA-1 9/13/00 7:15 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Arsenic	189.042	10.0	11.48	114.8								
Barium	493.409	200.0	197.73	98.9								
Cadmium	226.502	2.0	2.26	113.0								
Chromium	267.716	10.0	9.73	97.3								
Lead	220.353	3.0	3.59	119.7								
Selenium	220.353	5.0	4.74	94.8								

Version 4.10.2

Form 2B Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: T00913A.ARC **Acceptable Range:** 0% - 0%

Standard Source: Inorganic Ventures **Standard ID:** 0057-057-8

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 9/13/00 7:19 AM Found	Found	Found	Found	Found
Arsenic	189.042	10		0				
Barium	493.409	200		2				
Cadmium	226.502	5		2				
Chromium	267.716	5		2				
Lead	220.353	3		5				
Selenium	220.353	5		3				

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Run Results Report
Results: C:\FLOW_4\090700A.RST
Results completed: 13:04 September 07, 2000.
Operator: ERIC WESOLOSKI

E. T. Wesoloski 9/7/00

CYANIDE

Time	Cup	Name	Height	Calc.	Flags
---------- User request: Start Data Collect ----------					
09:31	0	CARRYOVER	486	0.001285	
09:32	0	CARRYOVER	46	0.000039	
		Mean & RSD:	266	0.000662	NoRSD
09:33	0	READ BASELIN	0	-0.000090	BL
09:34	301	0.500 PPM ST	163732	0.463259	
09:36	301	0.500 PPM ST	167832	0.474862	
09:37	301	0.500 PPM ST	167803	0.474780	
		Mean & RSD:	166455	0.470967	1.42%
09:38	302	0.400 PPM ST	135738	0.384040	
09:39	302	0.400 PPM ST	137187	0.388139	
09:40	302	0.400 PPM ST	137619	0.389362	
		Mean & RSD:	136848	0.387180	.72%
09:41	303	0.300 ppm ST	104777	0.296422	
09:43	303	0.300 ppm ST	105433	0.298277	
09:44	303	0.300 ppm ST	104759	0.296369	
		Mean & RSD:	104990	0.297023	.366%
09:45	304	0.200 PPM ST	69847	0.197571	
09:46	304	0.200 PPM ST	70465	0.199320	
09:47	304	0.200 PPM ST	70732	0.200077	
		Mean & RSD:	70348	0.198989	.646%
09:48	305	0.100 PPM ST	35693	0.100918	
09:50	305	0.100 PPM ST	35553	0.100523	
09:51	305	0.100 PPM ST	35671	0.100858	
		Mean & RSD:	35639	0.100766	.211%
.52	306	0.050 PPM ST	17818	0.050334	
09:53	306	0.050 PPM ST	17708	0.050022	
09:54	306	0.050 PPM ST	17662	0.049893	
		Mean & RSD:	17729	0.050083	.451%
09:55	307	0.010 PPM ST	4221	0.011855	OL
09:57	307	0.010 PPM ST	3987	0.011191	
09:58	307	0.010 PPM ST	3969	0.011142	
		Mean & RSD:	3978	0.011167	3.54%
09:59	0	0.000 PPM ST	-59	-0.000257	LO
10:00	0	0.000 PPM ST	-47	-0.000224	LO
10:01	0	0.000 PPM ST	3	-0.000083	LO OL
		Mean & RSD:	-53	-0.000240	61.7%
10:02	0	BLANK	-31	-0.000179	LO
10:04	2	CCV 7211705	37066	0.104805	104.8%
10:05	0	CCB	7	-0.000070	LO
10:06	0	BASELINE	0	-0.000090	BL
10:07	101	.05 7211702	15897	0.044898	90% ok
10:08	102	.40 7211703	128792	0.364382	91%
10:09	0	BLANK	-4	-0.000102	LO

E. T. Wesoloski
9/7/00

Run Results Report
Results: C:\FLOW_4\090700B.RST
Results completed: 15:21 September 07, 2000.
Operator: ERIC WESOLOSKI

E. T. Wesoloski 9/7/00

CYANIDE

Time	Cup	Name	Height	Calc.	Flags
----------	User request:	Start Data Collect	----------		
13:19	0	CARRYOVER	454	0.001066	
13:20	0	CARRYOVER	-34	-0.000227	LO
		Mean & RSD:	210	0.000419	NoRSD
13:21	0	READ BASELIN	0	-0.000137	BL
13:22	301	0.500 PPM ST	184257	0.487913	
13:23	301	0.500 PPM ST	184081	0.487448	
13:24	301	0.500 PPM ST	186387	0.493556	
		Mean & RSD:	184908	0.489639	.694%
13:26	302	0.400 PPM ST	150571	0.398688	
13:27	302	0.400 PPM ST	151416	0.400927	
13:28	302	0.400 PPM ST	150694	0.399012	
		Mean & RSD:	150894	0.399542	.303%
13:29	303	0.300 ppm ST	113675	0.300959	
13:30	303	0.300 ppm ST	113464	0.300400	
13:31	303	0.300 ppm ST	115122	0.304793	
		Mean & RSD:	114087	0.302050	.791%
13:33	304	0.200 PPM ST	76646	0.202878	
13:34	304	0.200 PPM ST	75327	0.199385	
13:35	304	0.200 PPM ST	75448	0.199707	
		Mean & RSD:	75807	0.200656	.961%
13:36	305	0.100 PPM ST	38047	0.100640	
13:37	305	0.100 PPM ST	37703	0.099730	
13:38	305	0.100 PPM ST	37880	0.100196	
		Mean & RSD:	37877	0.100189	.454%
13:40	306	0.050 PPM ST	19142	0.050566	
13:41	306	0.050 PPM ST	19117	0.050499	
13:42	306	0.050 PPM ST	18936	0.050018	
		Mean & RSD:	19065	0.050361	.591%
13:43	307	0.010 PPM ST	4247	0.011112	
13:44	307	0.010 PPM ST	4332	0.011337	
13:45	307	0.010 PPM ST	4121	0.010779	OL
		Mean & RSD:	4289	0.011225	2.47%
13:47	0	0.000 PPM ST	-77	-0.000342	LO OL
13:48	0	0.000 PPM ST	-31	-0.000220	LO
13:49	0	0.000 PPM ST	7	-0.000118	LO
		Mean & RSD:	-12	-0.000169	353%
13:50	0	BLANK	-41	-0.000245	LO
13:51	2	CCV 7211705	39851	0.105418	105.4%
13:52	0	CCB	2	-0.000131	LO
13:54	0	BASELINE	0	-0.000137	BL
13:55	101	.05 7211702	17390	0.045924	91.8% oc
13:56	102	.40 7211703	144256	0.381960	95.5%
13:57	0	BLANK	34	-0.000046	LO

E. T. Wesoloski 9/7/00

STL-Pittsburgh

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength /Mass	Reporting Limit	MDL	Date of MDL
Arsenic	189.04	10	10.0	4/1/00
Barium	493.41	200	200	4/1/00
Cadmium	226.50	5	5.0	4/1/00
Chromium	267.72	5	5.0	4/1/00
Lead	220.35	3	3.0	4/1/00
Selenium	220.35	5	5.0	4/1/00

Reporting Limits

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IDL Summary Report

Instrument: ICPST Units: ppb

Element	WL/ Mass	Average Standard Deviation	Average Rounded IDL	
AG	328.068	0.19	0.56	
AS	189.042	0.61	1.8	✓
BA	493.409	0.086	0.26	✓
BE	313.042	0.15	0.46	
CA	317.933	10.3	30.8	
CD	226.502	0.084	0.25	✓
CO	228.616	0.17	0.50	
CR	267.716	0.25	0.74	
CU	324.753	0.30	0.90	
FE	271.441	5.8	17.3	
MG	279.078	8.6	25.7	
MN	257.61	0.079	0.24	
MO	202.03	0.45	1.4	
NI	231.604	0.43	1.3	
PB	220.353	0.55	1.7	✓
SB	220.353	0.75	2.3	
SE	220.353	0.80	2.4	✓
TL	190.864	1.8	5.4	
V_	292.402	0.30	0.90	
ZN	213.856	0.36	1.1	

REVIEWED BY: mtw
DATE: 9-15-00

IDL performed 8/00

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Data File: /chem/J.i/090600.b/j5028.d
Report Date: 06-Sep-2000 14:18

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
49 Trichloroethene	0.321	0.333	0.010	-4.0	50.0	
50 1,2-Dichloropropane	0.311	0.316	0.020	-1.6	20.0	
53 1,4-Dioxane	0.003	0.003	0.000	0.1	50.0	
52 Dibromomethane	0.225	0.238	0.010	-5.9	50.0	
54 Bromodichloromethane	0.474	0.507	0.010	-6.9	50.0	
57 cis-1,3-Dichloropropene	0.464	0.502	0.010	-8.3	50.0	
58 4-Methyl-2-pentanone	1.417	1.411	0.010	0.4	50.0	
60 Toluene	4.975	4.761	0.020	4.3	20.0	
61 trans-1,3-Dichloropropene	1.779	1.856	0.010	-4.3	50.0	
63 1,1,2-Trichloroethane	1.335	1.336	0.010	0.0	50.0	
65 Tetrachloroethene	1.614	1.665	0.010	-3.2	50.0	
64 1,3-Dichloropropane	2.116	2.103	0.010	0.6	50.0	
66 2-Hexanone	0.868	0.948	0.010	-9.3	50.0	
67 Dibromochloromethane	1.696	1.781	0.010	-5.0	50.0	
68 1,2-Dibromoethane	1.620	1.652	0.010	-2.0	50.0	
69 1-Chlorohexane	2.353	2.359	0.010	-0.3	50.0	
71 Chlorobenzene	3.253	3.264	0.300	-0.3	50.0	
72 1,1,1,2-Tetrachloroethane	1.507	1.576	0.010	-4.6	50.0	
73 Ethylbenzene	1.747	1.761	0.010	-0.8	20.0	
74 m and p-Xylene	2.281	2.268	0.010	0.6	50.0	
75 o-Xylene	2.182	2.200	0.010	-0.8	50.0	
76 Styrene	3.434	3.709	0.010	-8.0	50.0	
77 Bromoform	1.508	1.738	0.101	-15.2	50.0	
78 Isopropyl benzene	6.370	6.495	0.010	-2.0	50.0	
79 Cyclohexanone	0.082	0.246	0.005	-200.8	50.0	<- WATL
81 1,1,2,2-Tetrachloroethane	1.203	1.015	0.300	15.6	50.0	
82 Bromobenzene	1.030	0.967	0.010	6.1	50.0	
83 1,2,3-Trichloropropane	0.331	0.297	0.010	10.4	50.0	
85 n-Propylbenzene	0.887	0.786	0.010	11.4	50.0	
86 2-Chlorotoluene	0.790	0.689	0.010	12.8	50.0	
87 1,3,5-Trimethylbenzene	3.074	2.692	0.010	12.4	50.0	
88 4-Chlorotoluene	0.772	0.700	0.010	9.3	50.0	
89 tert-Butylbenzene	3.108	2.630	0.010	15.4	50.0	
90 1,2,4-Trimethylbenzene	2.807	2.578	0.010	8.1	50.0	
91 sec-Butylbenzene	4.344	3.792	0.010	12.7	50.0	

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Data File: /chem/J.i/090600.b/j5028.d
Report Date: 06-Sep-2000 14:18

STL Denver

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: J.i
Lab File ID: j5028.d
Analysis Type: SOIL
Lab Sample ID: MVSTD050
Quant Type: ISTD

Injection Date: 06-SEP-2000 14:29
Init. Calibration Date(s): 06/06/0 06/07/0
Init. Calibration Times: 23:48 04:15
Method File: /chem/J.i/090600.b/J5030-8260B-soil.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
92	m-Dichlorobenzene	1.480	1.446	0.010	2.3	50.0	
93	4-Isopropyltoluene	2.991	2.723	0.010	9.0	50.0	
95	p-dichlorobenzene	1.571	1.513	0.010	3.7	50.0	
96	n-Butylbenzene	2.590	2.577	0.010	0.5	50.0	
97	o-Dichlorobenzene	1.372	1.319	0.010	3.9	50.0	
98	1,2-Dibromo-3-chloropropane	0.253	0.262	0.010	-3.7	50.0	
99	1,2,4-Trichlorobenzene	0.706	0.974	0.010	-38.0	50.0	DOT TC
100	Hexachlorobutadiene	0.688	0.813	0.010	-18.2	50.0	
101	Napthalene	0.727	1.089	0.010	-49.7	50.0	DOT TC
102	1,2,3-Trichlorobenzene	0.603	0.816	0.010	-35.4	50.0	DOT TC

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A-3 Laboratory Analytical Data on CD

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B-1 Test Boring Logs

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APPENDIX B

Field Logs and Photographs

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-HA01

Ground Surface Elevation: 518.65 MSL

Coordinates: Northing 603675.3, Easting 1666320

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Crushed commercial stone	1	SS		
1		Reddish-brown, clayey silt, weathered slate, refusal.	2	SS		AB-HA01-1.3'-1.6' Note: Tapped 3 holes, all refusal to 1.6'
		End of Borehole				

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/7/99

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

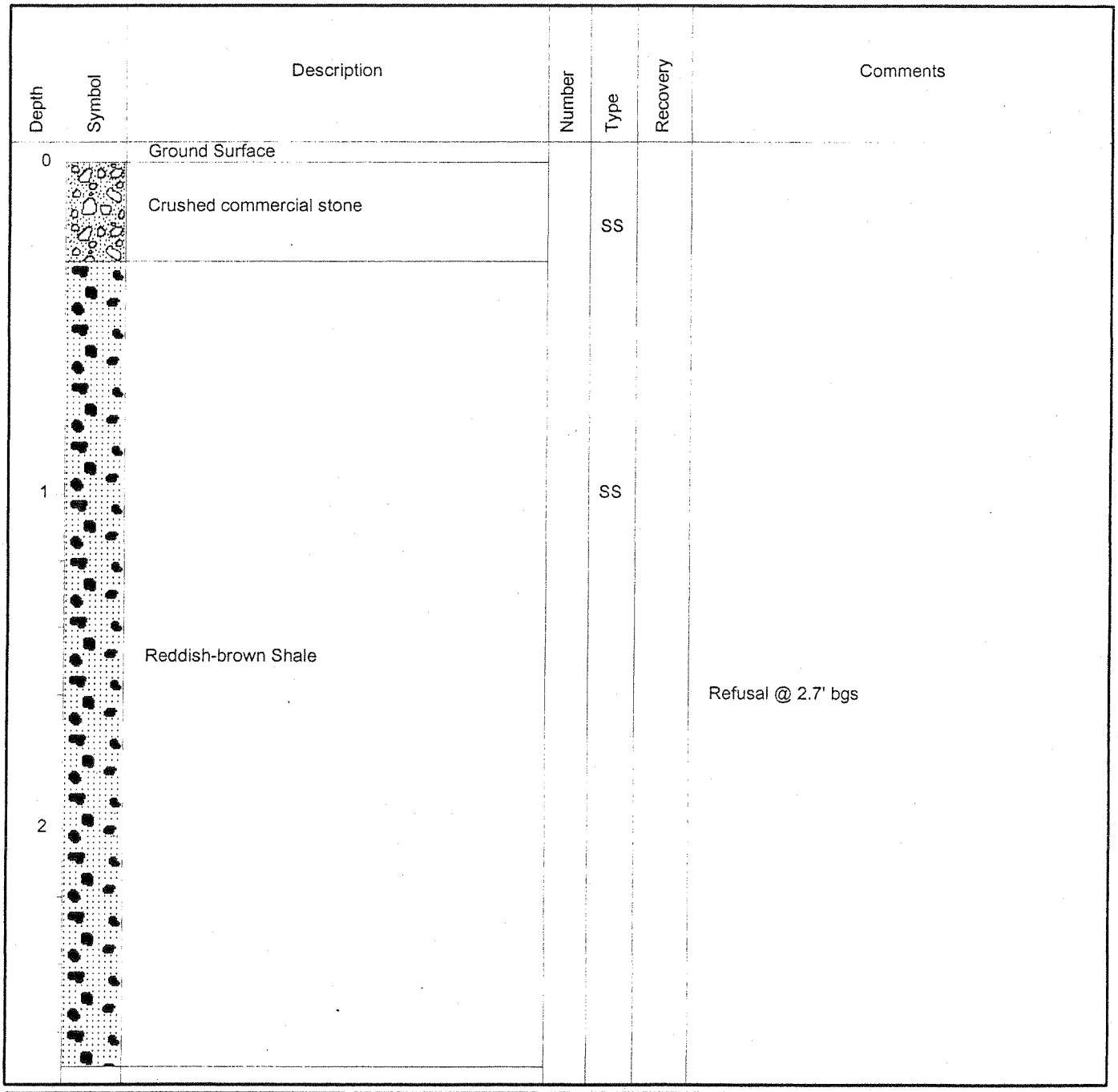
Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-HA02

Ground Surface Elevation: 517.78

Coordinates: Northing 603689.779,Easting 1666267.206

Engineer: George Werkman, IT Corporation



Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Borehole Diameter: 4.0"

MFG, Inc.
800 Vinial Street
Building A
Pittsburgh, Pa. 15212

Drill Date: 10/8/99

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-HA03

Ground Surface Elevation: 519.19 MSL

Coordinates: Northing 603715.7, Easting 1666329

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Crushed commercial stone	1	SS		
1		Yellowish to reddish-brown, clayey silt, weathered slate fragments.	2	SS		
2						AB-HA03-1.5'-2.0'
3		Reddish-brown, clayey silt, moist.				
4						AB-HA03-3.5'-4.0'
5						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/7/99

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-SS01

Ground Surface Elevation: 515.94

Coordinates: Northing 603655.614,Easting 1666292.420

Engineer: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Comments
0		Ground Surface				
		Crushed commercial stone		SS		
1		Reddish-brown, silty clay, weathered shale.		SS		Refusal @ 1.6' bgs

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Borehole Diameter: 4.0"

MFG, Inc.
800 Vinial Street
Building A
Pittsburgh, Pa. 15212

Drill Date: 10/7/99

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-SS02

Ground Surface Elevation: 519.29 MSL

Coordinates: Northing 603685.8, Easting 1666334

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Crushed commercial stone	1	SS		
		Reddish to light gray silt, trace crushed stone.	2	SS		AB-SS02-0.0'-0.5'
		End of Borehole				
1						

Drilled By: George Werkman, IT Corp

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: AB-SS03

Ground Surface Elevation: 518.76

Coordinates: Northing 603723.468,Easting 1666272.104

Engineer: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Comments
0		Ground Surface				
				SS		
		Crushed commercial stone				
						Refusal @ .5' bgs

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Borehole Diameter: 4.0"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: NE-HA01

Ground Surface Elevation: 530.66 MSL

Coordinates: Northing 606221.6, Easting 1667602

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material dense, lite reddish-brown, sandy silt, little organic matter, roots, moist.	1	SS		NE-HA01 0.0'-0.5'
1		Dense, yellowish-brown, clayey silt, tree roots, moist	2	SS		NE-HA01 0.5'-.095'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 6.25" ID, 9.625" Hole Diam.

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Drill Date: 10/5/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: NE-HA02

Ground Surface Elevation: 525.11 MSL

Coordinates: Northing 606071.1, Easting 1667254

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material Dark brown, organic, humas, sweet gum.	1	SS		
		Dark brown sandy silt, weather shell, brittle.	2	SS		Note: Offsite sample to west approximately 3' from valley axis, due to bedrock at surface.
		Dense, yellow, shelly, clay, wet.	3	SS		
			4	SS		
		Rufusal- weather shell				
1						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: NE-HA03

Ground Surface Elevation: 525.90 MSL

Coordinates: Northing 607084.6, Easting 1667450

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material Humus	1	SS		NE-HA03 0.0'-0.5' (EB taken) NE-HA03 0.0'-0.5'D (duplicate)
1		Dense, yellowish-brown to reddish-brown, clayey silt, moist.	2	SS		NE-HA03 0.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Project: ALCOA Badin

Log of Borehole: NE-HA04

Ground Surface Elevation: 554.17 MSL

Coordinates: Northing 607339.7, Easting 1666860

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material Dark reddish-brown, sandy silt, little clay, tree roots, Weathered slate fragments.	1	SS		NE-HA04-0.0'-0.5'
1		Dense, reddish-brown, clayey silt, little weathered slate fragments, tree roots, moist.	2	SS		NE-HA04-0.5'-2.0'
2						

Drilled By: George Werman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: NE-HA05

Ground Surface Elevation: 552.25 MSL

Coordinates: Northing 607743.59, Easting 1667029.81

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material Dense, light grayish brown sandy, gravelly silt, trace clay ,moist.	1	SS		S2-HA06 0.0'-0.5'
		End of Borehole				
1						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/5/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S22-TB01

Ground Surface Elevation: 521.77 MSL

Coordinates: Northing 607254.08, Easting 1667256.79

Geologist: Bill Squire, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Fill Material Top 0.4' Crushed, angular, stone, above liner.				
		Orange-brown, clay/silt, weathered slate fragments.				
1			1	SS		Photo 5, film 3, S22-TB01-0'-2'
		Weathered, slate, bedrock, dry.				Sample S22-TB01-1.5'-2.0'
2						

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split-Spoon/Direct Push

Hole Size: Augers 6.25" ID, 9.625" Hole Diam.

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Drill Date: 9-30-99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S22-TB02

Ground Surface Elevation: 523.99 MSL

Coordinates: Northing 607129.2, Easting 1667169

Geologist: Bill Squire, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Top 0.5 Crushed angular, stone, above liner.	1	SS		Photo 4, film 3
1		Mid 0.9' Orange and gray clay/silt, little weathered slate frags.				
		Btm 0.6' Med dense, red, sand, with silt, little rock frags, damp.				
2		Top 0.9 Med stiff, red-brown silt, silt, some gravel and fine sand, damp.	2	SS		Photo 3, film 3
3		Btm 0.9' Olive-gray, weathered slate bedrock, dry.				S22-TB02- 3.5'-4.0'
4		Weathered, slate bedrock as above.	3	SS		Drillers advanced two borings per location to provide adequate sample volume
5						
6						

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Auger/Direct Push

Hole Size: 6.25" ID 9.625" Hole Diam

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Drill Date: 9/30/99

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Project: ALCOA Badin, NC Works

Log of Borehole: S22-TB03

Ground Surface Elevation: 521.47 MSL

Coordinates: Northing 607177.55, Easting 1667238.39

Geologist: Bill Squire, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
		Top 0.3' Crushed angular gravel above liner					Photo 2, film 3
		Brown-red silt/clay, little sand, few weathered slate fragments, damp to moist.					S22-TB03 0.5'-1.0'
1			1	SS			
2							
3		Olive-gray, weathered slate, bedrock, dry.	2	SS			Photo 1, film 3
4							
5		Refusal	3	SS			
6							

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/ Split Spoon/Direct Push

Hole Size: 6.25" ID, 9.625" Hole Diam.

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Drill Date: 9/30/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB01

Ground Surface Elevation: 521.93 MSL

Coordinates: Northing 606728.9, Easting 1667194

Geologist: Bill Squire, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Fill Material Top 0.5' Loose, black ash, some gravel and clay, damp.				
1		Btm 1.3' Loose, black ash, slag, cinders, damp to dry.	1	SS		S35-TB01-000.5
2		Top 0.5' Loose, black silty ash, pieces of wood, damp.				
3		Mid 0.4' Yellow brick.	2	SS		
		Btm 0.4' Loose, red-brown ash, gravel, damp to dry.				
4		Loose to medium dense, black ash, little fine sand, 0.2' layer of broken angular gravel, damp.				
5			3	SS		S35-TB01-0406 Second boring advanced to 6.0 to provide adequate sample volume
6		Medium dense black, yellow, gray ash, brick, gravel, sand, damp to wet.				
7			4	SS		
8						

Drilled By: Parratt Wolff Drilling.

Drill Method: HSA/Split-Spoon/Direct Push

Hole Size: 6.25" ID Augers, 9.625" Hole Diam.

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Drill Date: 9-28-99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB02

Ground Surface Elevation: 522.38 MSL

Coordinates: Northing 606728.9, Easting 1667209

Geologist: Bill Squire, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
0–1		*Fill Material* Top 0.5' Loose to medium dense, Brown, silt, sand, gravel, ash, cinders, damp.	1	SS		S35-TB02-0.0-0.5 Loose, brown, silt, sand, gravel to as cinders, damp.
1–3		Mid 0.2' Gray, broken angular gravel Btm 0.7' Loose to med dense, black ash, silt sand, gravel, damp.	2	SS		
3–4		Top 0.3' Loose, brown, silt, sand, gravel, damp Mid 0.5' black, and rust, ash, pieces of brick Btm 0.5' Med stiff, orange-yellow, clay, damp	3	SS		Second boring for additional sample was taken in 4'-6' interval.
4–6		Btm. 0.3' Brick Med dense to loose, brown, silty clay, black mottles, little olive weatherd slate, weathered, few coal cinders, damp	4	SS		S35-TB02-0406 Second boring for additional sample in 6'-8' interval was wet, no sample t was taken
6–9		Loose, black fine coal, as above, wet at bottom.	5	SS		
9–10		Top 0.9' As above, wet. Btm 0.8' Med stiff, orange, silty clay, few pieces red brick, few black granular mottles, few white granular mottles, little gravel, damp to moist	6	SS		
10–13		Loose, orange and gray silt, gravel, brick fragments, wet to saturated.	7	SS		
13–14		Orange, silt/clay and olive weathered slate, moist to wet	8	SS		
14–16		Olive weathered slate, wet to saturated, with oily water.				
16–18		top 1.8' soft, brown, clay and silt few organic matter, moist btm 0.2' orange, slate, competent	9	SS		

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split-Spoon/Direct Push

Hole Size: 6.25" ID Augers, 9.625" Hole Diam.

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB03

Ground Surface Elevation: 521.77 MSL

Coordinates: Northing 606771, Easting 1667203

Geologist: Bill Squire, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
1		*Fill Material* Dense, brown, fine sand, red brick, black ash, moist.	1	SS		S35-TB03-000.5 Loose, orange-brown, clayey silt, some gravel, damp
2		Top 0.8' orange-brown, silty clay, few brick frags, weathered shales.				
3		Btm 0.4' Black, fine coal with metallic grains.	2	SS		
4		Loose, black fine coal, metallic grains, medium angular gravel, few brick frags, silty zones, damp.				
5		Loose, black fine coal, as above, wet at bottom.	3	SS		
6						S35-TB03-0408
7			4	SS		
8		Black, fine coal, as above, wet.				
9			5	SS		
10						
11		Black, fine coal, as above, with red brick.	6	SS		
12		Top 1.0' As above, wet to saturated.				
13			7	SS		
14		Btm 0.3' orange weathered slate.				

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split-Spoon/Direct Push

Hole Size: 6.25" ID Augers, 9.625" Hole Diam.

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-04

Project Number: 120006

Coordinates: Northing 606695.485,Easting 1667233.377

Ground Surface Elevation: 522.72

Geologist: Bruce Brown, MFG Inc.

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** 0.0'-0.2' Gray, Silt and Gravel. 0.2'-1.25' Black, Silt, Sand and Cinders, w/ Gravel, Dry.	1	SS		(6-4-6-7)
2						
3		2.0'-2.4' Black, Silt, Sand and Cinders, w/ Some Gravel, Dry. 2.4'-2.75' Orange/Brown, Silty Clay, sl Moist	2	SS		(6-4-6-22)
4						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-26-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB04A

Ground Surface Elevation: 520.37 MSL

Coordinates: Northing 606828.5, Easting 1667301

Geologist: Bill Squire, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Fill Material Top 0.4' gray angular gravel, little silt, wet (from rain).	1	SS		
2		Btm 1.4' Medium Stiff, Orange-brown clay with silt, some weathered slate frags, damp. Top 1.0' As above. Btm 0.5' Black granular coal, some gravel, moist.	2	SS		
4		Top 0.2' Black, granular coal, moist. Btm 0.9' Olive and gray claystone, piece of red shale, some silt, damp.	3	SS		
6		Orange-brown weathered slate, some orange clay.	4	SS		
8		As above	5	SS		Drill Date: 9/28/99
10			6	SS		
12		As above, very soft clay at 11'	7	SS		
		No recovery				
14		Top 1.4' Medium stiff to stiff, orange, clay, very soft, (top 0.3' saturated). Btm 0.2' orange-brown weathered slate.	8	SS		End of boring-refusal
16						

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split Spoon/Direct Push

Hole Size: 6.25" ID Auger, 9.625" Hole Diam.

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-05

Project Number: 120006

Coordinates: Northing 606726.526,Easting 1667228.551

Ground Surface Elevation: 522.71

Geologist: Bruce Brown, MFG Inc.

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** 0.0'-0.25' Dark Brown, Silt, w/ Gray Gravel. 0.25' Loose, Black, Silt, Sand and Ciinders, Dry.	1	SS		(12-13-12-10)
2						
3		2..0'-2.6' AA 2.6'-2.9' Stiff, Orange Brown, Silty Clay,Dry.	2	SS		(5-6-6-9)
4						
5		4.0'-4.4' Soft, Dark Yellow Brown, Silt sl Moist Grading to Black Cinders @ 4.3'-4.4' 4.4'-5.15' Red/Brown to Yellow/Brown, Silt, Sand and Cinders, sl Moist 5.15'-5.25' Olive Gray, Weathered Slate Frag 5.25'-6.85' Firm, Red Brown-Yellow Brown, Silty Clay, sl Moist	3	SS		(3-4-3-3)
6						
7		Black, Silt Sand and Cinders, sl Moist. Damp @ 7' bgs	4	SS		(2-4-2-3)
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-26-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-06

Project Number: 120006

Coordinates: Northing 606752.974,Easting 1667208.107

Ground Surface Elevation: 522.57

Geologist: Bruce Brown, MFG Inc.

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** 0.0'-0.5' Dark Brown, Silt w/ Gravel 0.5'-1.2' Dark Brown- Black, Silt Sand and Cinders, Dry-sl Moist.	1	SS		(15-25-30-10)
2						
3		Dark Brown to Black, Silt Sand and Cinders, Dry-sl Moist.	2	SS		(7-7-7-13)
4						
5		Dark Brown to Black, Silt Sand and Cinders, Dry-sl Moist.	3	SS		(5-4-3-4)
6						
7		Black, Silt Sand and Cinders, Some Gravel, v sl- Moist.	4	SS		(2-2-3-2)
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-07

Project Number: 120006

Coordinates: Northing 606736.528,Easting 1667159.452

Ground Surface Elevation: 522.90

Geologist: Bruce Brown, MFG Inc

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** Dark Brown to Black, Silt, Sand and Cinders, w/ Some Gravel.	1	SS		(6-6-5-6)
2						
3		Black, Sand and Silt, Some Gravel.	2	SS		(8-6-6-7)
4						
5		Black, Silt, Sand and Cinders, Becoming Damp @ 5.2' bgs	3	SS		(3-3-3-2)
6						
7		Black, Silt, Sand and Cinders, Damp to Wet.	4	SS		(4-3-3-3)
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-26-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-08

Project Number: 120006

Coordinates: Northing 606693.607,Easting 1667190.875

Ground Surface Elevation: 522.03

Geologist: Bruce Brown, MFG Inc.

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** Black, Silt, Sand and Cinders	1	SS		
2						
3		Black, Silt, Sand and Cinders	2	SS		Incountered Storm Drain Unable to advance Sampling any Further at TB-08
4		End of Borehole				
5						
6						
7						
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-26-00

Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-09

Project Number: 120006

Coordinates: Northing 606726.804,Easting 1667217.720

Ground Surface Elevation: 522.69

Geologist: Bruce Brown, MFG Inc

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** 0.0'-0.8' Olive/Brown, Silty Clay, w/ gravel. 0.8'-1.9' Black, Silt, Sand and Cinders.	1	SS		(10-10-10-10)
2						
3		Black, Silt, Sand and Cinders.	2	SS		(12-10-11-13)
4						
5		Orange/Brown, Silty Clay, sl Moist, Mixed w/ Black Silt, Sand and Cinders.	3	SS		(12-17-12-11)
6		6.0'-6.35' Orange/Brown Silt and Sand, w/ Rock Fragments 6.35'-7.0' Black, Silt, Sand and Cinders. 7.0'-7.15' Soft, Orange/Brown, Silt, and Fine Sand, sl Moist.	4	SS		(8-5-5-8)
7						
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-27-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-10

Project Number: 120006

Coordinates: Northing 606737.607,Easting 1667199.049

Ground Surface Elevation: 522.49

Geologist: Bruce Brown, MFG Inc

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** 0.0'-0.6' Gravel, w/ Gray Silt. 0.6'-1.6' Black, Silt, Sand and Cinders.	1	SS		(14-20-18-15)
2						
3		Black, Silt, Sand and Cinders.	2	SS		(8-8-8-14)
4						
5		Black, Silt, Sand and Cinders	3	SS		(8-8-5-8)
6						
7		Black, Silt, Sand and Cinders.	4	SS		(8-7-4-4)
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-27-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S35-TB-11

Project Number: 120006

Coordinates: Northing 606657.525,Easting 1667187.279

Ground Surface Elevation: 522.37

Geologist: Bruce Brown, MFG Inc.

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
1		***Fill Material*** Black, Silt, Sand and Cinders.	1	SS		(15-17-9-11)
2						
3		2.0'-2.35' Firm, Olive/Green, Silt, Dry 2.35'-2.70' Black, Silt, Sand and Cinders, Dry.	2	SS		(6-3-3-4)
4						
5		4.0'-4.55' Soft-Firm, Dark/Brown-Red/Brown, Silty Clay, sl Moist. 4.55'-4.65' Black, Silt, Sand and Cinders.	3	SS		(8-10-12-11)
6						
7		6.0'-6.35' Black, Silt, Sand and Cinders, sl Moist. 6.35'-6.5' Soft, Yellow/Brown, Silty Clay, Moist.	4	SS		(6-4-5-5)
8						

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon

Auger Diameter: 3.25" ID

Hole Diameter: 6"

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Drill Date: 8-26-00

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S38-TB-01

Ground Surface Elevation: Not Available

Coordinates: Not Available

Engineer: George Werkman, IT Corp.

Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
1		***Fill Material*** 0.0' - 2.5' Concrete				
2						S38-TB01- 2.5'-3.0'
3		Olive Weathered Slate				

Drilled By: Parratt Wolff

Drill Method: HSA/Split-Spoon Direct Push

Borehole Diameter: 9.625" ID (Auger 6.25" ID)

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Drill Date: 9/29/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S42-TB01

Ground Surface Elevation: 521.77 MSL

Coordinates: Northing 607254.1, Easting 1667257

Geologist: George Werkman, IT Corporation

SUBSURFACE PROFILE			SAMPLE			
Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Dense, dark brown, sandy silt, little organic matter, Weathered slate fragments, moist.	1	SS		
1		Brittle, dark reddish brown to olive gray, clayey silt, weathered slate fragments, moist.	2	SS		Four foot sample collected with Geoprobe - type (direct push) mechanism
2						
3						
4		Moderate hard, yellowish brown, clayey silt, little weathered slate fragments, brittle, moist.	3	SS		Photo 13, 4'-6' interval
5						
6		Yellowish brown to olive, weathered, slate.	4	SS		Refusal Photo 14, 6'-6.5' Dry, no water

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split-Spoon/Direct Push

Hole Size: 6.25" ID Augers, 9.625" Hole Diam.

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Drill Date: 9-30-99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S42-TB02, B016-MW-3

Ground Surface Elevation: 518.79 MSL

Coordinates: Northing 605565, Easting 1667426

Engineer: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Well Construction	Remarks
0		Ground Surface				
		Fill Material	1			
1		Dense, dark reddish brown, sandy silt, little organic matter, roots, weathered slate fragments, moist.				Cement/Bentonite grout from ground surface to 3.5' bgs
2		Mod hard, dark reddish brown, clayey silt, little weathered slate, brittle, wet at 3.5'	2	SS		
3						
4				SS		Top of Bentonite seal = 3.5' bgs
5		Top 1.5' Hard, reddish brown, clayey silt, little weathered slate fragments, brittle, moist. Btm .5' Olive, weathered slate, brittle. (5.5' weathered bedrock)	3			top of Sand pack (#1 sand) = 5' bgs
6		Top 1.7' Olive, weathered slate, brittle. Btm. .3' Reddish/olive, weathered slate.		SS		Bedrock, weathered
7			4			
8				SS		
9		Top 0.2' Olive, weathered slate, 8.0'-8.2' interval.	5			
10				SS		Top of #10 Slot 2" Sch 40 PVC = 10' bgsPhoto 1
11		Olive, weathered slate.	6			Photo 10, film 3, 10'-12' interval
12				SS		
13		Auger to 13.0' , geoprobe to 13.5', Olive, weathered, slate. (13.5' slightly wet)	7			Phot 9, film 3, Olive, Weathered, Shale
14		Auger to 15', geoprobe to 16'. wet at 15.5' to 16', Hard, olive, weathered slate.		SS		
15			8			Photo 8,7,and6, film 3
16		End of Borehole				
17						Bottom of Screen = 17.0' bgs
18						Total Depth = 17.8'

Drilled By: Parratt Wolff Drilling

Drill Method: HAS/Auger/Direct Push

Borehole Diameter: 3.25" ID Augers, Hole Diam.

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Drill Date: 9/30/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA01

Ground Surface Elevation: 554.65 MSL

Coordinates: Northing 606192.3, Easting 1666554

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
						S43-HA01-0.0'-0.5'
						S43-HA01-0.5'-1.0'
1		Dense, brown, gravelly, fine to coarse sand, little clay and silt, weathered slate, moist.	1	SS		
						S43-HA01-1.0'-1.5'
						S43-HA01-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA02

Ground Surface Elevation: 555.55 MSL

Coordinates: Northing 606078.7, Easting 1666501

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Commercial crushed stone	1	SS		S43-HA02-0.0'-0.5'
1		Dense, reddish-brown, clayey silt, little weathered slate, brittle, moist.	2	SS		S43-HA02-0.5'-1.0' S43-HA02-1.0'-1.5' S43-HA02-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99

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Project: ALCOA Badin,NC Works RFI

Log of Borehole: S43-HA03

Ground Surface Elevation: 557.85 MSL

Coordinates: Northing 606108.1, Easting 1666433

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Loose, dark brown, sandy silt, sod, little roots, moist.	1	SS		S43-HA03-0.0'-0.5'
1		Dense, reddish-brown, clayey silt, weathered slate, moist.	2	SS		S43-HA03-0.5'-1.0' S43-HA03-1.0'-1.5' S43-HA03-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA04

Ground Surface Elevation: 555.21 MSL

Coordinates: Northing 606072.6, Easting 1666563

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Commercial Crushed Stone	1	SS		S43-HA04-0.0'-0.5'
		Dense, reddish-brown to gray, clayey silt, little weathered slate, brittle, moist.	2	SS		S43-HA04-0.5'-1.0'
1						S43-HA04-1.0'-1.5'
						S43-HA04-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA05

Ground Surface Elevation: 555.87 MSL

Coordinates: Northing 606121.6, Easting 1666468

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
		Crushed Commercial stone	1	SS			S43-HA07-0.0'-0.5'
							S43-HA05-0.5'-1.0'
1		Reddish-brown, clayey silt.	2	SS			S43-HA05-1.0'-1.5'
		End of Borehole					

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA06

Ground Surface Elevation: 554.91 MSL

Coordinates: Northing 606134.9, Easting 1666517

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
		Loose, brown, fine to medium sand, little silt, moist.	1	SS			S43-HA06-0.0'-0.5'
							S43-HA06-0.5'-1.0'
1		Dense, reddish-brown to gray, clayey silt, little crushed commercial stone, weathered slate, moist.	2	SS			S43-HA06-1.0'-1.5'
							S43-HA06-1.5'-2.0'
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA07

Ground Surface Elevation: 557.12 MSL

Coordinates: Northing 606163.3, Easting 1666470

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Top Soil/SOD	1	SS		S43-HA07-0.0'-0.5'
						S43-HA07-0.5'-1.0'
1		Dense, reddish-brown, clayey silt, little weathered slate, moist.	2	SS		S43-HA07-1.0'-1.5'
						S43-HA07-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S43-HA08

Ground Surface Elevation: 555.62 MSL

Coordinates: Northing 606181.8, Easting 1666491

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Loose, dark brown, sandy silt, sod, little roots, moist.	1	SS		S43-HA08-0.0'-0.5'
1		Dense, reddish brown, clayey silt, weathered slate, moist.	2	SS		S43-HA08-0.5'-1.0' S43-HA08-1.0'-1.5' S43-HA08-1.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/8/99:

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: WA-TB01

Ground Surface Elevation: 555.31 MSL

Coordinates: Northing 606068.3, Easting 1666503

Engineer: Bill Squire, IT Corporation

Depth	Symbol	Description	Number	Type	Remarks
0		Ground Surface			
		Fill Material			
1		Top 1' Med stiff, brownred, clay, damp	1	SS	
2		Btm 1' Loose, gravel, sand, silt, damp to dry.			
3			2	SS	
4		Med stiff, brown-red, clay/silt, black, yellow, gray mottles, damp.			
5			3	SS	
6		6'-8' Olive-gray, weathered slate frags.			
7			4	SS	
8		Med stiff to stiff, brown-red clay, yellow, purple, gray mottles, damp.			
9			5	SS	
10		Med stiff to stiff, brown grading to red-brown silty clay, some fine sand, few black mottles, damp.			
11			6	SS	
12					
13			7	SS	
14		Soft, red-brown, silty clay, some fine sand, some weathered slate fragments, few black mottles. (fill)			
15			8	SS	
16		Btm 0.3' weathered slate bedrock			
		End of Borehole			
17				SS	
18					

Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split Spoon/Direct Push

Borehole Diameter: 6.25" ID, 9.625" Hole Diam.

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Drill Date: 9/30/99

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Project: ALCOA Badin,NC Works RFI

Well ID: MW-27

Ground Surface Elevation: 519.76 MSL

Coordinates (PVC): Northing 606838.2, Easting 1667333

Top Pvc Elevation: 521.82 MSL

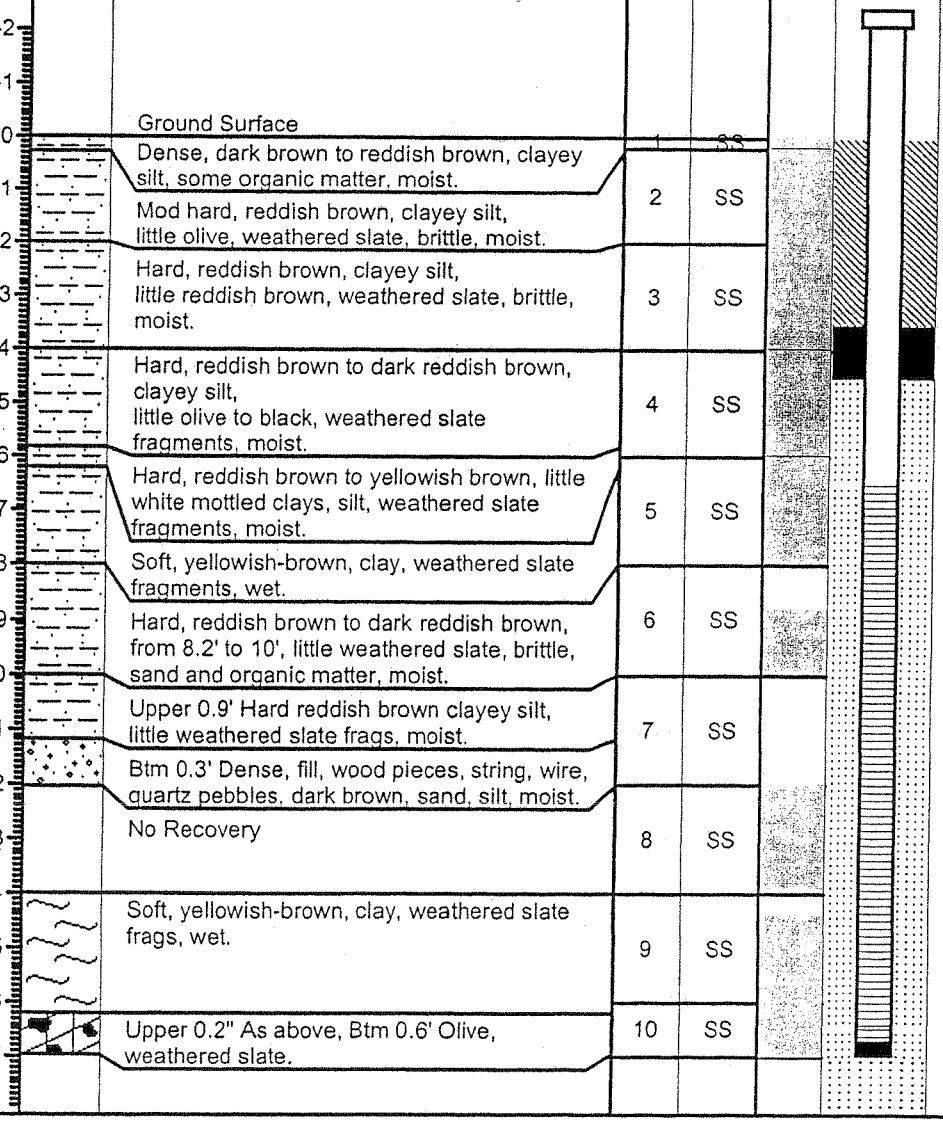
Top Steel Casing Elevation: 522.19 MSL

Geologist: George Werkman, IT Corporation

SUBSURFACE PROFILE

Depth	Description	Number	Type	Recovery	Remarks
-2					Stick up = 2.43' above ground
-1					
0	Ground Surface	1	SS		surface
1	Dense, dark brown to reddish brown, clayey silt, some organic matter, moist.	2	SS		Cement/Bentonite grout from ground surface to 3.5' - bgs
2	Mod hard, reddish brown, clayey silt, little olive, weathered slate, brittle, moist.				Schedule 40 PVC, 2" diameter riser
3	Hard, reddish brown, clayey silt, little reddish brown, weathered slate, brittle, moist.	3	SS		Top of Bentonite seal = 3.5' bgs
4					
5	Hard, reddish brown to dark reddish brown, clayey silt, little olive to black, weathered slate fragments, moist.	4	SS		Top of Sand Pack (#1 sand) = 4.5' bgs
6					
7	Hard, reddish brown to yellowish brown, little white mottled clays, silt, weathered slate fragments, moist.	5	SS		Top of #10 Slot 2" Sch 40 PVC = 6.5' bgs
8	Soft, yellowish-brown, clay, weathered slate fragments, wet.				
9	Hard, reddish brown to dark reddish brown, from 8.2' to 10', little weathered slate, brittle, sand and organic matter, moist.	6	SS		
10					
11	Upper 0.9' Hard reddish brown clayey silt, little weathered slate frags, moist.	7	SS		
12	Btm 0.3' Dense, fill, wood pieces, string, wire, quartz pebbles, dark brown, sand, silt, moist.				
13	No Recovery	8	SS		
14					water level - drilling
15	Soft, yellowish-brown, clay, weathered slate frags, wet.	9	SS		Complete remaining borehole to 6.25" ID
16					
17	Upper 0.2" As above, Btm 0.6' Olive, weathered slate.	10	SS		Bottom of Screen = 16.5' bgs TD = 17.0 ' bgs

Well Construction



Drilled By: Parratt Wolff Drilling

Drill Method: HSA/Split Spoon/Direct Push

Datum: Top of PVC

Hole Size: 6.25" ID Augers, 9.625" Hole Diam.

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Drill Date: 9-29-99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: MW-28

Project Number: 120006

Ground Surface Elevation: 562.43

Rim 2" PVC: 564.94

Coordinates: Northing605926.495, Easting 1666187.630

Geologist: Bruce Brown

Depth	Description	Number	Type	Recovery	Well Construction	Analytical Samples
0	Ground Surface					
2	Stiff, Red-Brown, Silty Clay, Fe Staining, Moist.	1	SS			2.9' Stick-up
4						Grout to 40.5'
6	Stiff, Red-Brown, Silty Clay, Fe Staining, Black Mottles, Moist.	2	SS			2" ID Riser
8	Stiff, Yellow- Brow to Red-Brown, sl Silty to vf Sand, w/ black mottles, Dry.					Sch 40 0.010 Slot Screen
10	Soft, Light Olive Brown, Silty Clay, w/ Black Mottles, Some Silt	3	SS			#1 Sand Pack 42.05'-54.3'
12						
14	Stiff, Orange Brown, Silty Clay, w/ Black Mottles, Slightly Moist.					
16	Stiff, Olive Brown, Silty Clay, sl Moist	4	SS			
18	Stiff, Olive Brown, Silty Clay, w/ Black Mottles, Some vf Grain Sand, Larger Pebble w/ Fe/Mg Banding,					
20	Light Brown Silt, w/ Fine-Coarse Sand, v-Slightly Moist.	5	SS			
22						
24						
26	Light Brown, Sandy Silt, w/ Blue/Gray-Gray/Green Rock Fragments, Possible Feldspars _Pyroxenes, v/sl-Moist	6	SS			
28						
30						
32	Orange to Yellow Brown, Silty, w/ Fine-Coarse Sand and Rock Fragments (feldspars), Some Black Mottles	7	SS			
34						
36	Stiff, Oragne-Brown, Silty Clay, w/ Some Black Mottles, sl Moist.	8	SS			Unable to Advance Bit,
38	35.7'-35.9' bgs Olive Gray, Silt, w/ Fine Sand, Black Mottles, sl Moist.					Must Skid Rig 25' to North,
40						Advance augers to 35'bgs
42	Olive Gray, Silt, w/ Fine Sand, Black Mottles, sl-Moist.	9	SS			Then Con't Sampling.
44						
46		10	SS			
48						
50		11	SS			TD 54.3', Back Fill to 54.0'
52						to Install MW-6
54		12	SS			

Driller: Parritt Wolff

Drilling Method: HSA/Split Spoon/Direct Push

Hole Size: 12.0"

Auger Size: 4.25"

MFG, Inc.
800 Vinial Street
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Drill Date: 8-23-00

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Project: Alcoa Badin Phase II

Log of Borehole: MW-29

Project Number: 120006

Ground Surface Elevation: 555.35

Coordinates: Northing 606081.090,Easting 1666576.845

Rim 2" PVC: 558.35

Geologist: Bruce Brown,MFG Inc

Depth	Symbol	Description	Sample Number	Sample Type	Recovery	Well Construction	Analytical Samples
0		Ground Surface					
2		Continuous Auger through Upper 5'	1	SS			
4							
6		5.0'-5.95' Firm, Red/Brown, Silty Clay, w/ Some Brick-Red Rock Fragments, Dry.	2	SS			
8		5.95'-7.0' Firm, Yellow/Brown, Silty Clay, w/ Reb/Brown Streaks, Dry.					
10			3	SS			
12		Soft-Firm, Red/Brown, Silty Clay, w/ Some Olive Green Streaks, Moist.					
14							
16		Red/Brown, Silty Clay, w/ Mn Mottles and Straining, Moist-v. Moist.	4	SS			
18							
20		20.0'-20.9' Stiff, Yellow/Brown, Silty Clay, w/ Some Red/Brown Silty Clay, sl. Moist.	5	SS			
22		20.9'-21.7' Stiff, Red/BrownSilty Clay, w/ Mn Mottles, sl Moist					
24		21.7'-22.0' Red/Brown, Saprolitic Weathered Slate, w/ Remnant Bedding Mn Staining along Old Fractures.					
26			6	SS			
28		Yellow/Brown-Olive/Brown, Saprolitic Weathered Slate, w/ Mn Staining along Old Fractures.	7	SS			
30		Yellow/Brown - Gray, Saprolitic Weathered Slate	8	SS			
32		Gray/Brown-Yellow/Brown, Saprolitic Weathered Slate	9	SS			
34			10	SS			
36			11	SS			
38		Gray/Brown-Yellow/Brown, Saprolitic Weathered Slate.	12	SS			
40			13	SS			
42			14	SS			
44							

3.0' Stick-up

Grout0.0'-29.0' bgs

Bentonite Seal 29.0'-31.0'bgs

#1 Sand Pack 31.0'-44.0bgs

2" ID, Sch 40, PVC Riser

0.010 Slot Screen 33.3'-43.3'bgs

Driller: Parratt Wolff

Drill Method: HSA/Split-Spoon

Hole Diameter: 12.0" Diameter

Auger Diameter: 6.25" Diameter

MFG, Inc.
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Drilling Date: 8-25-00

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Project: ALCOA Badin,NC Works RFI

Log of Borehole: S3-HA03

Ground Surface Elevation: 572.04 MSL

Coordinates: Northing 606906.48, Easting 1670491.62

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
							S3-HA03-0.0'-0.5'
1		Reddish- brown	1	SS			S3-HA03-0.5'-2.0'
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S3-HA04

Ground Surface Elevation: 561.29 MSL

Coordinates: Northing 606841.46, Easting 1670740.62

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
							S3-HA04-0.0'-0.5'
1		Dark reddish-brown	1	SS			S3-HA04-0.5'-2.0'
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S2-HA03

Ground Surface Elevation: 539.78 MSL

Coordinates: Northing 603999.9, Easting 1664741

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Fill Material Reddish, clay, organic matter.				S2-HA03-0.0'-0.5' S2-HA03-0.0'-0.5' D
		Bright reddish, clayey silt trace sand.	1	SS		S2-HA03-0.5'-2.0'
1		End of Borehole				
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Drill Date: 10/5/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S2-HA04

Ground Surface Elevation: 560.84 MSL

Coordinates: Northing 603715.8, Easting 1665511

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
						S2-HA04-0.0'-0.5'
1		Tan-Reddish-Brown, moist, extremely weathered slate, brittle.	1	SS		S2-HA04-0.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/6/99

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Log of Borehole: S2-HA05

Project: ALCOA Badin, NC Works RFI

Ground Surface Elevation: 543.43 MSL

Coordinates: Northing 604416.2, Easting 1665483

Geologist: Georgre Werkman, IT Corpration

Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		Fill Material Dark brown, sandy silt, trace organic matter and roots	1	SS		
1		Dense, dark red-brown, clayey silt, little weathered slate, moist.	2	SS		S2-HA05 0.0"-0.5"
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/5/99

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Log of Borehole: S2-HA06

Project: ALCOA Badin, NC Works RFI

Ground Surface Elevation: 544.85 MSL

Coordinates: Northing 604640.4, Easting 1665372

Geologist: Georgre Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Analytical Samples
0		Ground Surface				
		No Description 0 - 0.3'				
		Fill Material Dark brown, sandy silt, organic matter, roots.	1	SS		S2-HA06 0.0'-0.5'
1		Dense, dark red-brown, clayey silt, moist.	2	SS		
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/5/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S3-HA01

Ground Surface Elevation: 642.34

Coordinates: Northing 606683.77, Easting 1670404.8

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
			1	SS			S3-HA01-0.0'-0.5'
1		Reddish brown, Clayey silt, organic matter.					S3-HA01-0.5'-2.0'
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
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Building B
Pittsburgh, Pa. 15212

Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S3-HA02

Ground Surface Elevation: 611.10

Coordinates: Northing 606585.132, Easting 1670536.96

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Remarks
0		Ground Surface			
			1		Sample Collected 0.5'-0.7'
1		Reddish Brown, Clayey Silt, Roots			
2					

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Borehole Diameter: 4.0"

MFG, Inc.
800 Vinial Street
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Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S3-HA05

Ground Surface Elevation: 577.00 MSL

Coordinates: Northing 606678.74, Easting 1607905.21

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
							S3-HA05-0.0'-0.5'
1		Dark-redish-brown.	1	SS			S3-HA05-0.5'-2.0'
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Building B
Pittsburgh, Pa. 15212

Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S3-HA06

Ground Surface Elevation: 606.67 MSL

Coordinates: Northing 606502.00, Easting 1670881.84

Geologist: George werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Well Construction	Remarks
0		Ground Surface					
							S3-HA06-0.0'-0.5'
1		Dark reddish-brown.	1	SS			S3-HA06-0.5'-2.0'
							extra volume taken on S3-HA06-0.0'-0.5
2							

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

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Pittsburgh, Pa. 15212

Drill Date: 10/7/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S2-HA-01

Ground Surface Elevation: 466.44 MSL

Coordinates: Northing 603040.58, Easting 1665082.17

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Dense, reddsih Brown, clayey silt, moist.	1	SS		S2-HA01-0.0'-0.5'
			2	SS		S2-HA01-0.5'-1.0'
1						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
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Pittsburgh, Pa. 15212

Drill Date: 10/6/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: S2-HA-02

Ground Surface Elevation: 471.25 MSL

Coordinates: Northing 603454.1, Easting 1664596

Geologist: George Werkman, IT Corporation

Depth	Symbol	Description	Number	Type	Recovery	Remarks
0		Ground Surface				
		Very loose, dark brown, twigs, leaves, moist.				
		Very loose, light brown, silty loam, trace fine sand, moist.				S2-HA02-0.0'-0.5'
1		Light brown, silt, trace clay, fine sand, moist	1	SS		S2-HA02-0.5'-2.0'
2						

Drilled By: George Werkman, IT Corp.

Drill Method: Hand Auger

Hole Size: 4.0"

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, Pa. 15212

Drill Date: 10/5/99

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Project: ALCOA Badin, NC Works RFI

Log of Borehole: OBL-MW-6

Project Number: 120006

Ground Surface Elevation: 577.32

Rim 2" PVC: 579.97

Coordinates: Northing 606354.792,Easting 1671103.092

Geologist: Bruce Brown, MFG Inc.

Depth	Description	Number	Type	Recovery	Well Construction	Analytical Samples
0	Ground Surface					
2	Stiff, Red-Brown, Silty Clay, Fe Staining, Moist.	1	SS			
4						
6	Stiff, Red-Brown, Silty Clay, Fe Staining, Black Mottles, Moist.	2	SS			
8	Stiff, Yellow- Brown to Red-Brown, sl Silty to vf Sand, w/ black mottles, Dry.					
10	Soft, Light Olive Brown, Silty Clay, w/ Black Mottles, Some Silt	3	SS			
12						
14	Stiff, Orange Brown, Silty Clay, w/ Black Mottles, Slightly Moist.					
16	Stiff, Olive Brown, Silty Clay, sl Moist	4	SS			
18	Stiff, Olive Brown, Silty Clay, w/ Black Mottles, Some vf Grain Sand, Larger Pebble w/ Fe/Mg Banding,					
20	Light Brown Silt, w/ Fine-Coarse Sand, v-Slightly Moist.	5	SS			
22						
24						
26	Light Brown, Sandy Silt, w/ Blue/Gray-Gray/Green Rock Fragments, Possible Feldspars ,Pyroxenes, v/sl-Moist	6	SS			
28						
30						
32	Orange to Yellow Brown, Silty, w/ Fine-Coarse Sand and Rock Fragments (feldspars), Some Black Mottles	7	SS			
34						
36	Stiff, Orange-Brown, Silty Clay, w/ Some Black Mottles, sl Moist.	8	SS			Unable to Advance Bit, Must Skid Rig 25' to North, Advance augers to 35'bgs Then Con't Sampling.
38	35.7'-35.9' bgs Olive Gray, Silt, w/ Fine Sand, Black Mottles, sl Moist.					
40						
42	Olive Gray, Silt, w/ Fine Sand, Black Mottles, sl-Moist.	9	SS			
44						
46		10	SS			
48						
50						
52		11	SS			TD 54.3', Back Fill to 54.0' to Install MW-6
54		12	SS			

Driller: Parratt Wolff

Drill Method: HSA/Split Spoon

Hole Diameter 12.0"

Auger Diameter 6.25" ID

MFG, Inc.
800 Vinial Street
Building B
Pittsburgh, PA. 15212

Drilling Date: 8/22/00 & 8/23/00

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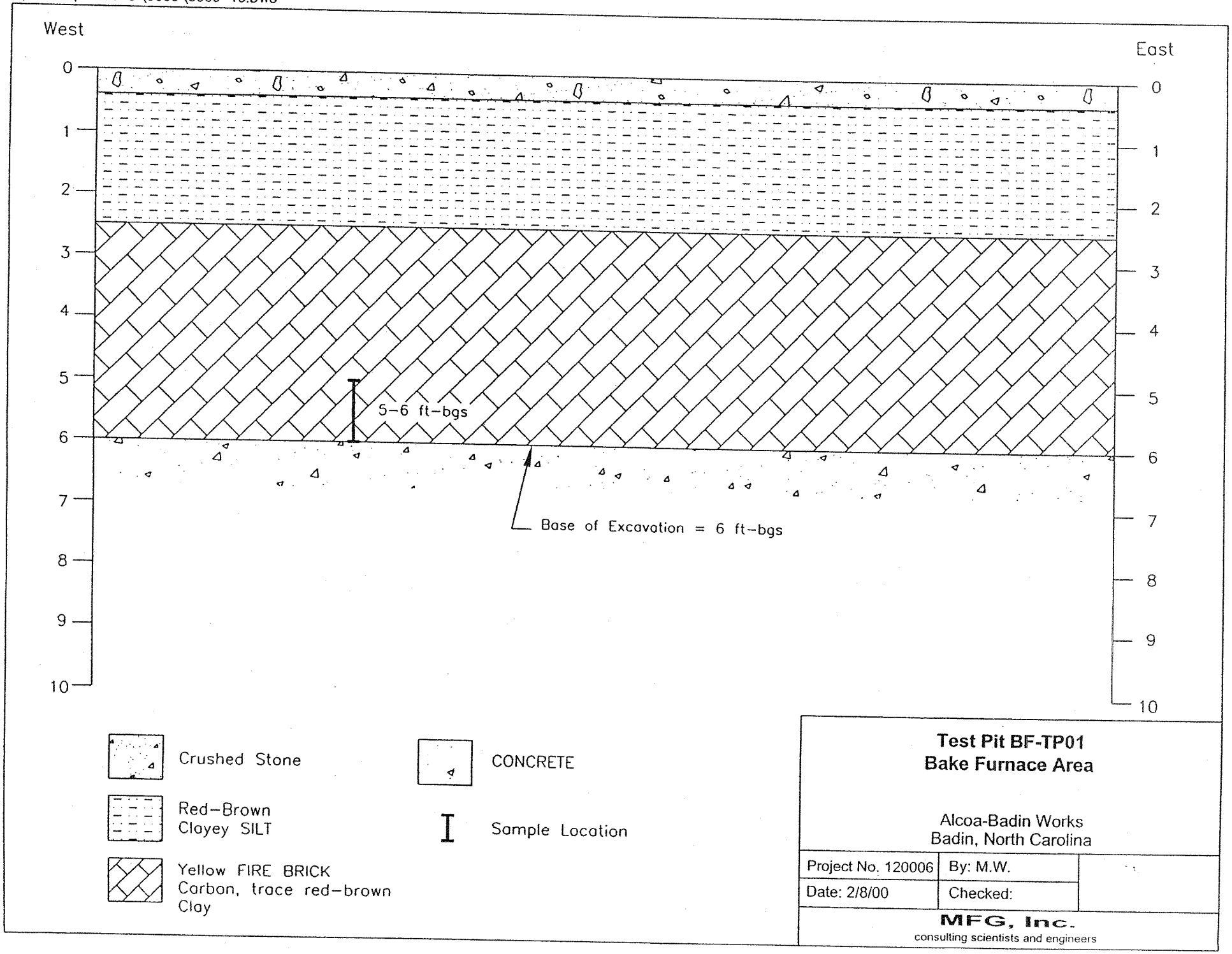

Test Pit BF-TP01
Bake Furnace Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
consulting scientists and engineers

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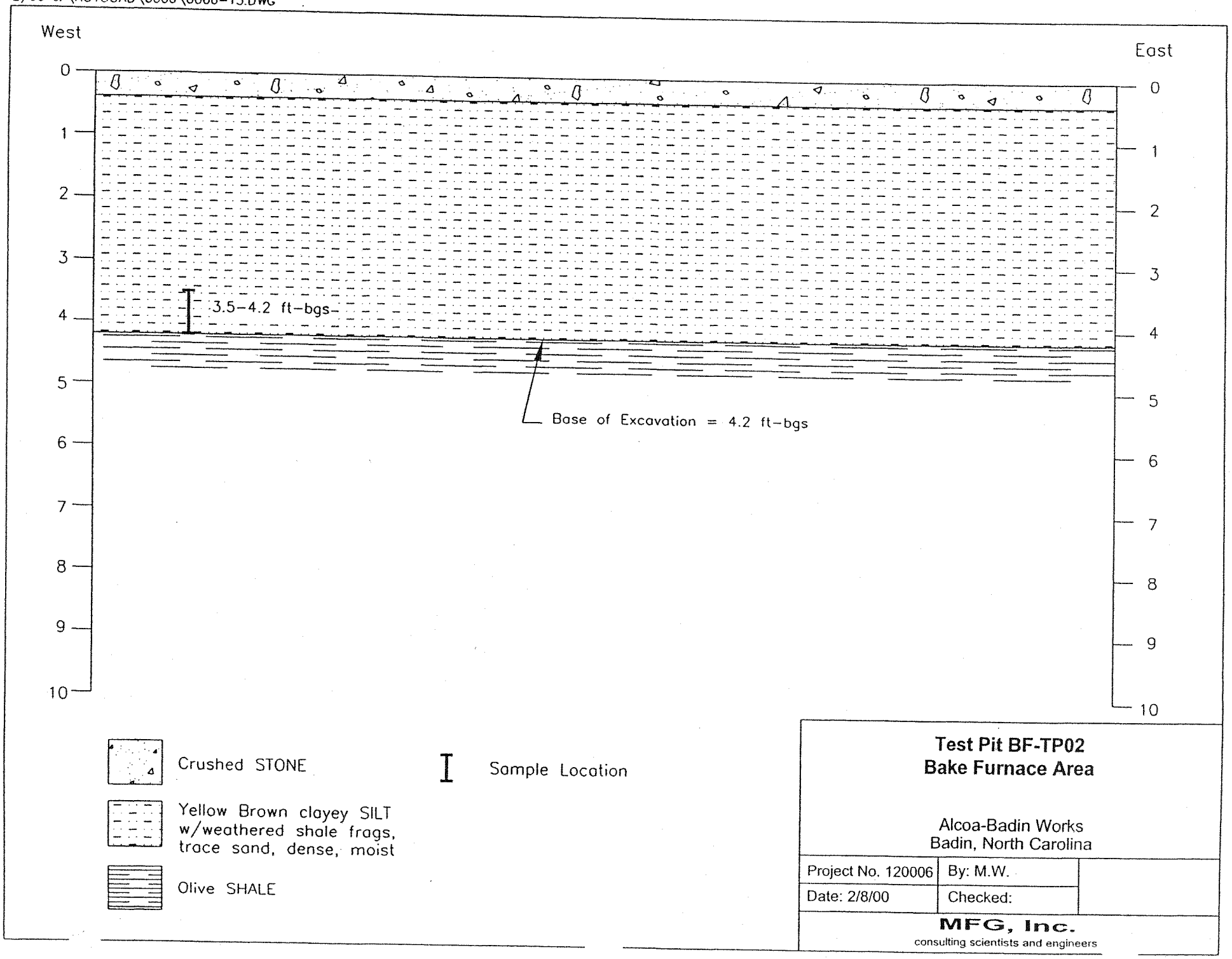

Test Pit BF-TP02
Bake Furnace Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
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B-2 Test Pit Logs

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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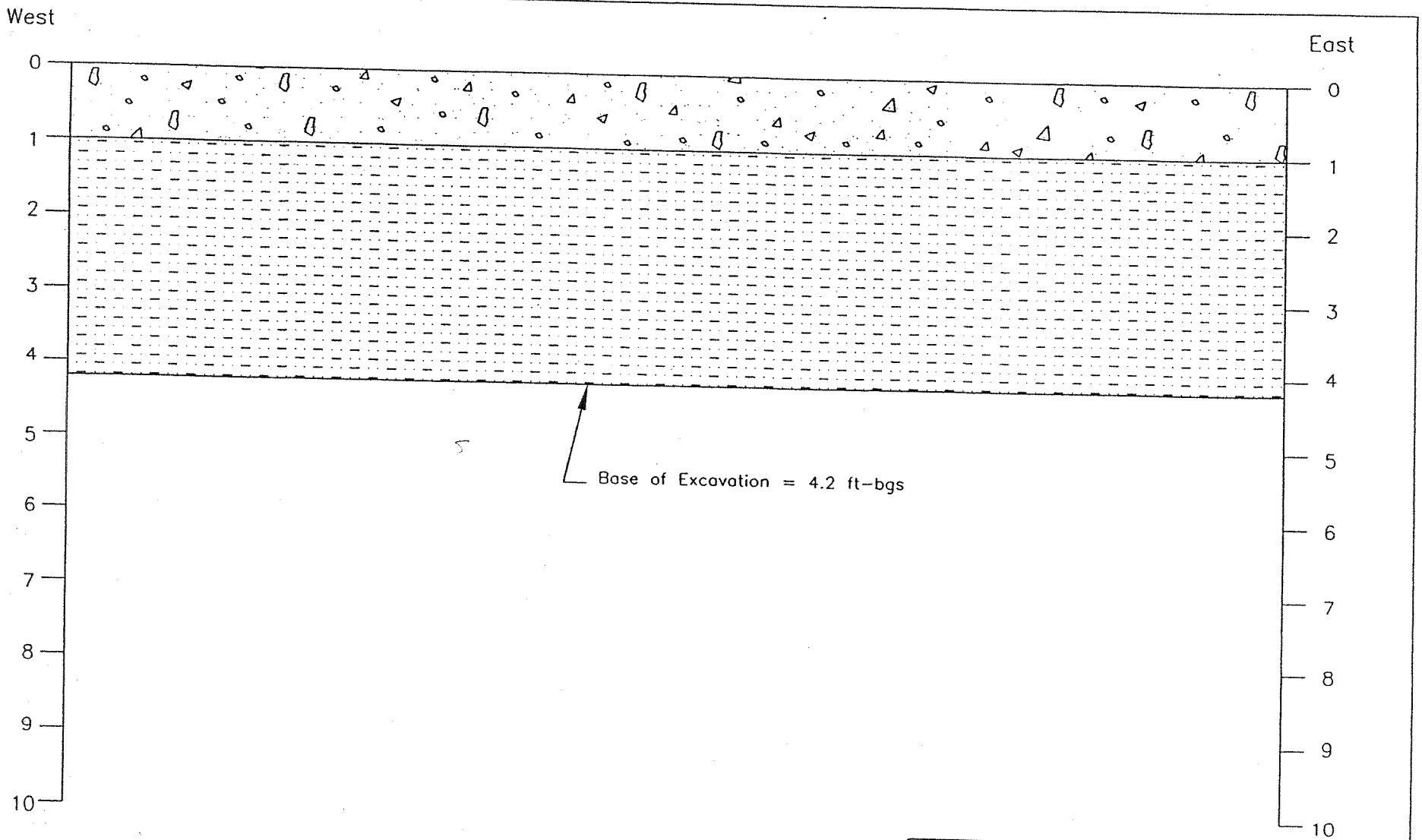

Crushed STONE

Yellow clayey SILT with red brick, ash, shale fragments, trace wood

Test Pit BF-TP03
Bake Furnace Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
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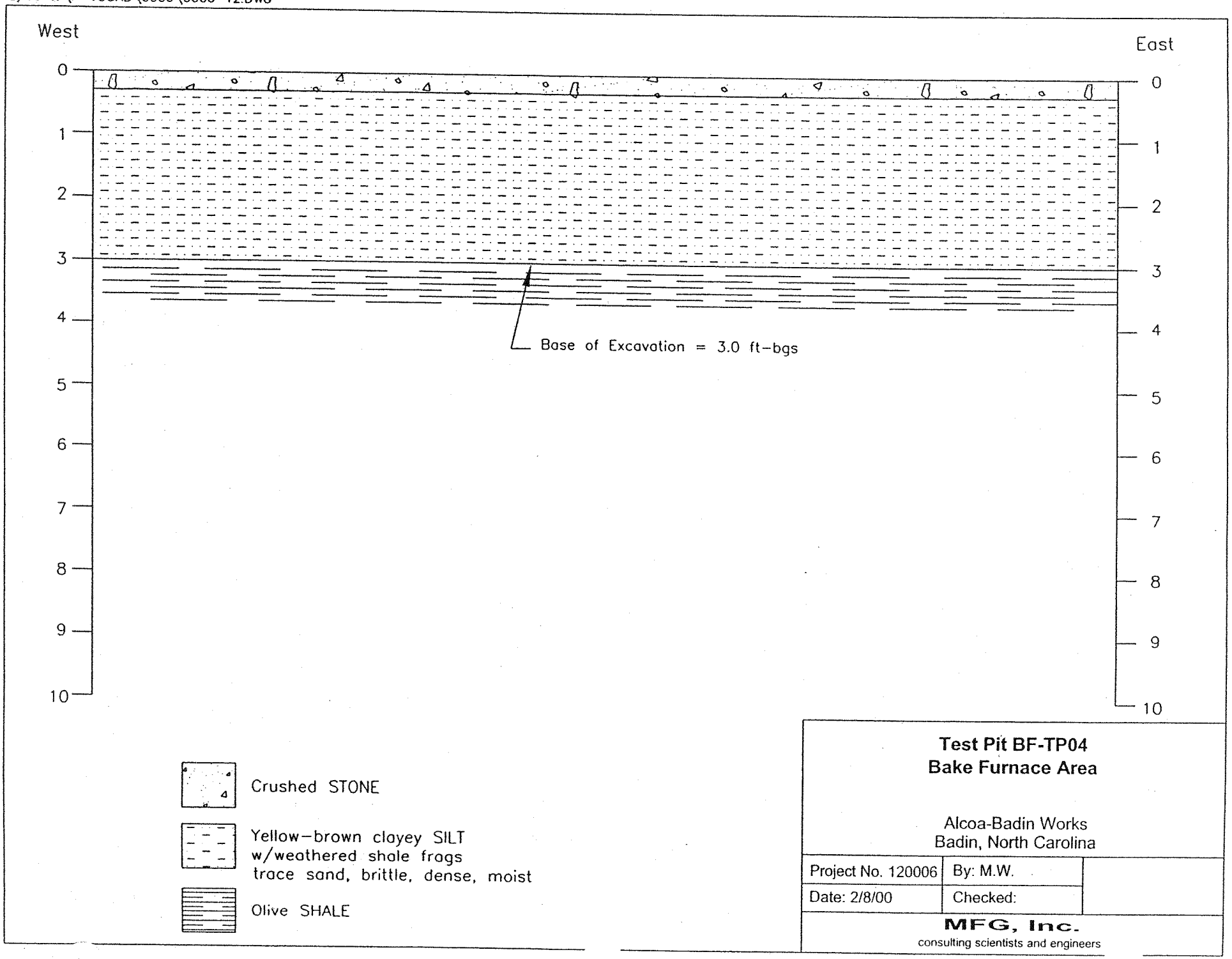

Test Pit BF-TP04
Bake Furnace Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

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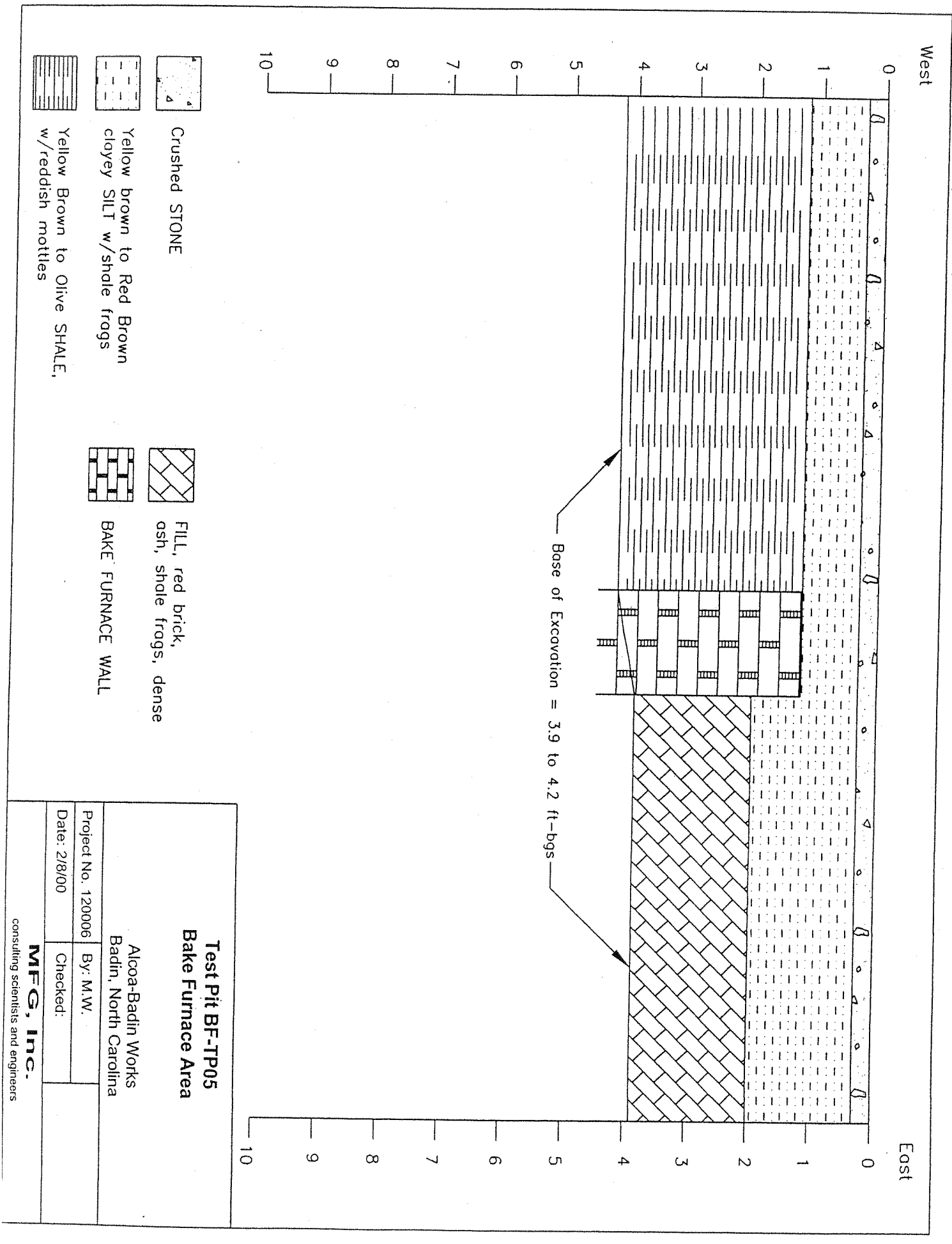

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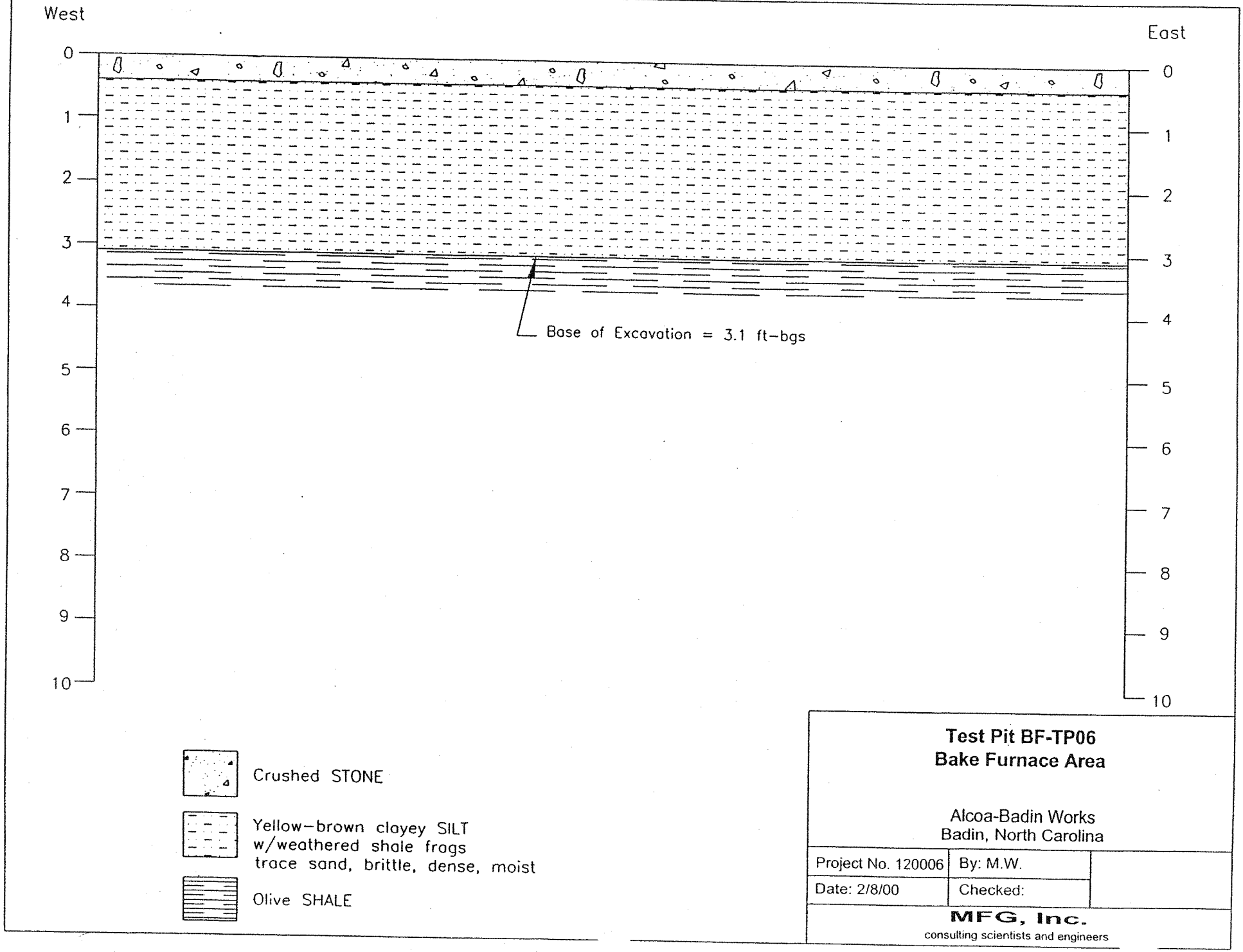

Test Pit BF-TP06
Bake Furnace Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

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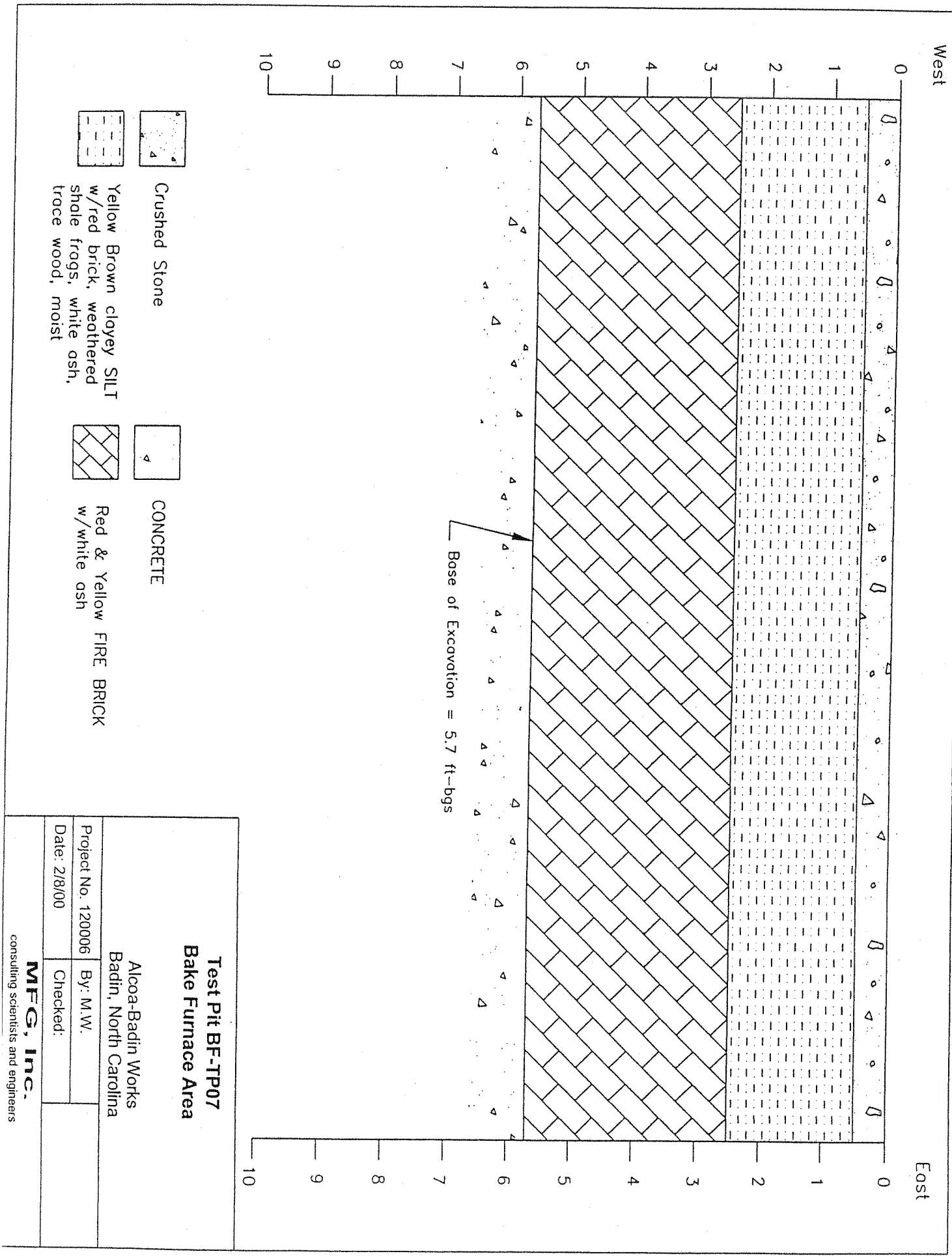

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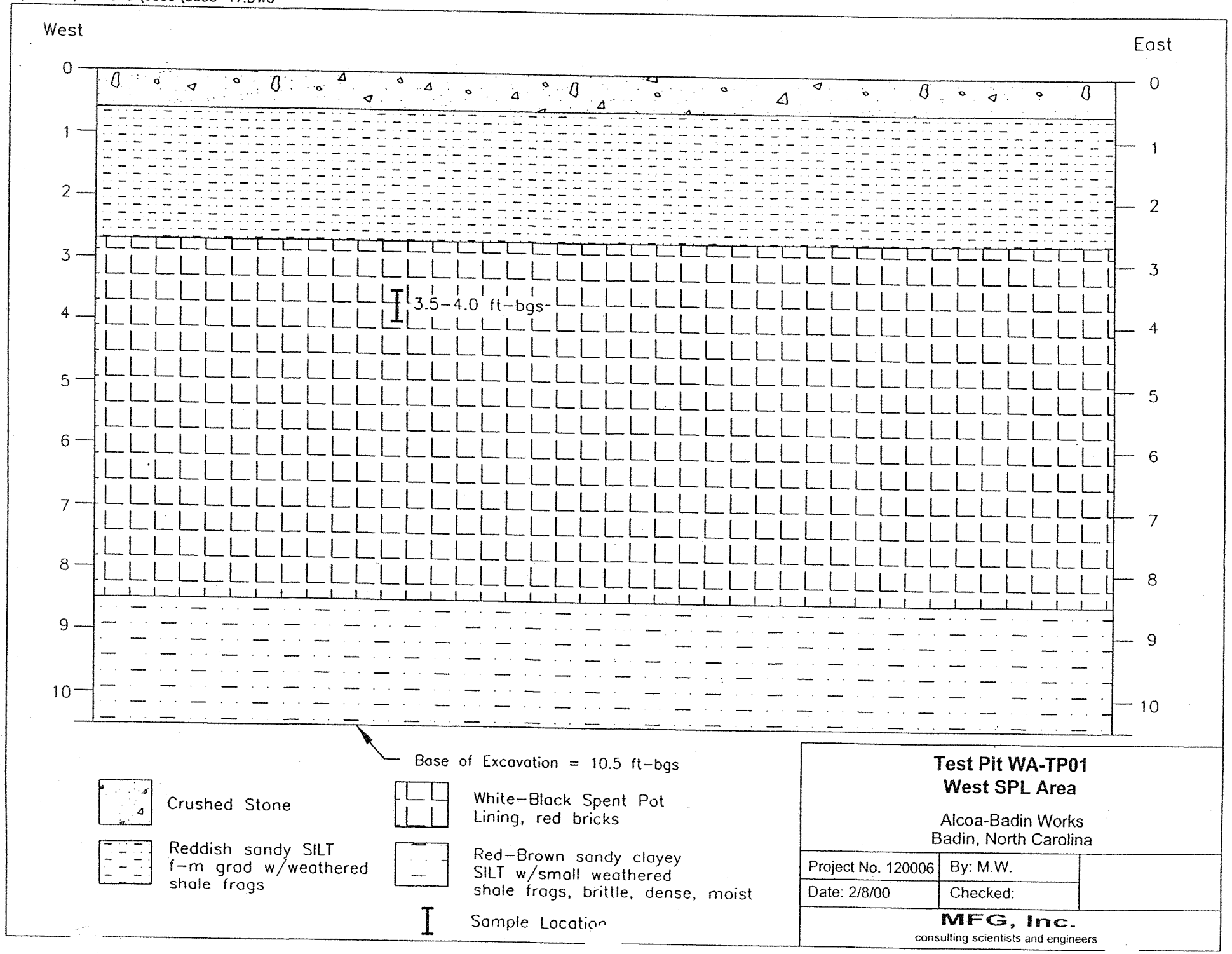

Test Pit WA-TP01
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.	
Date: 2/8/00	Checked:	

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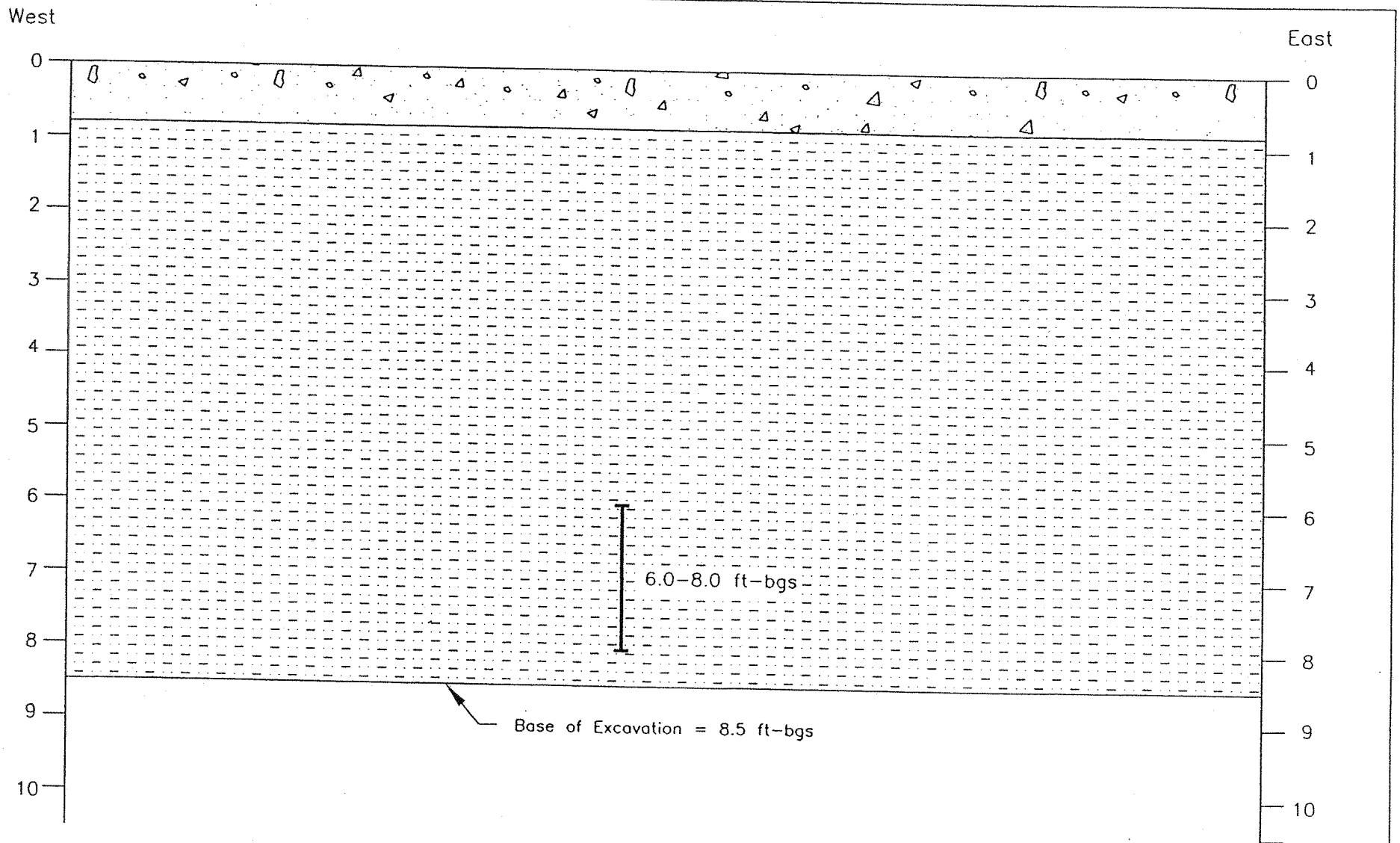

Crushed Stone

Reddish sandy SILT f–m grad w/weathered shale frags

I Sample Location

Test Pit WA-TP01E
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

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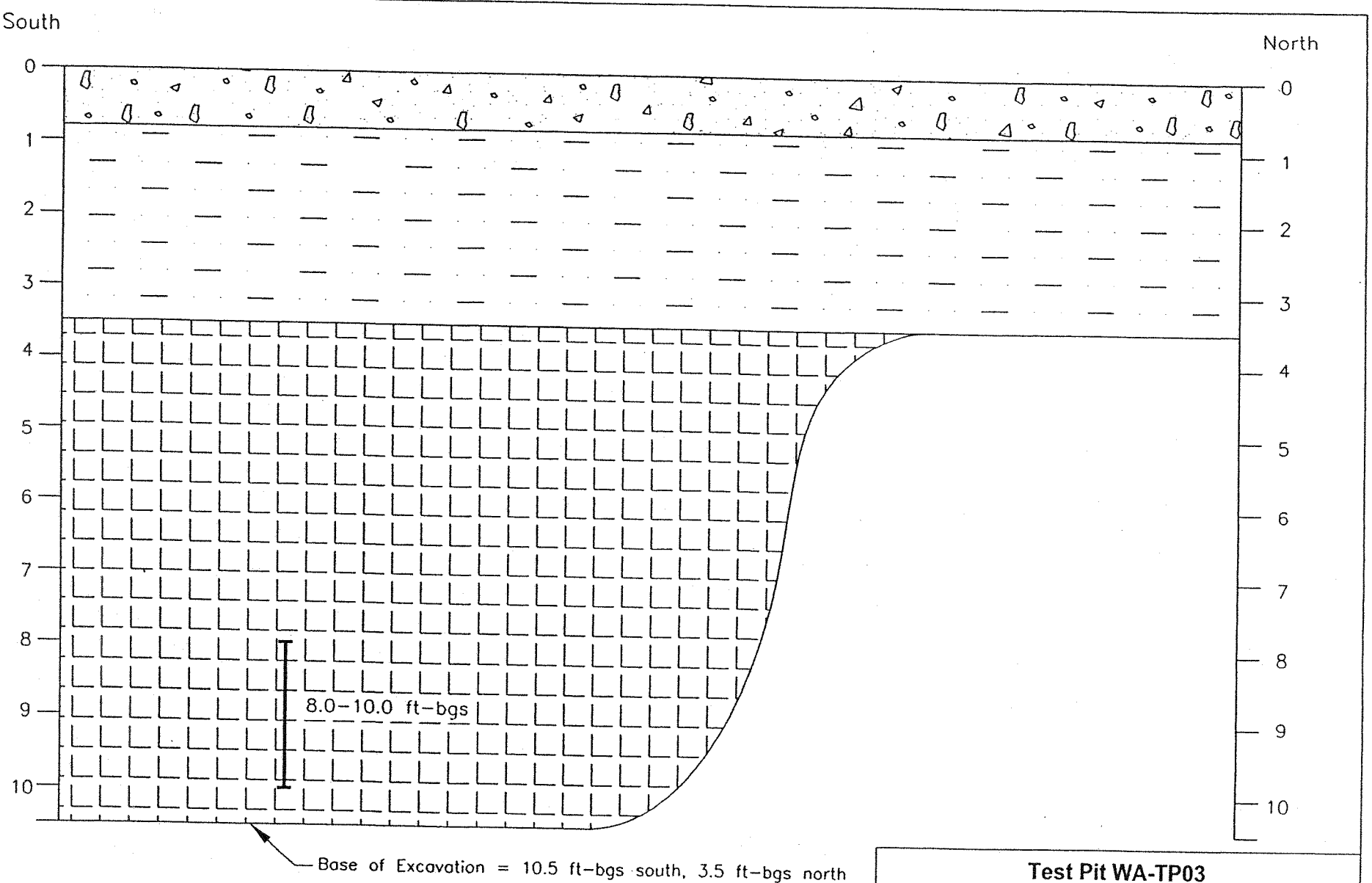

Test Pit WA-TP03
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

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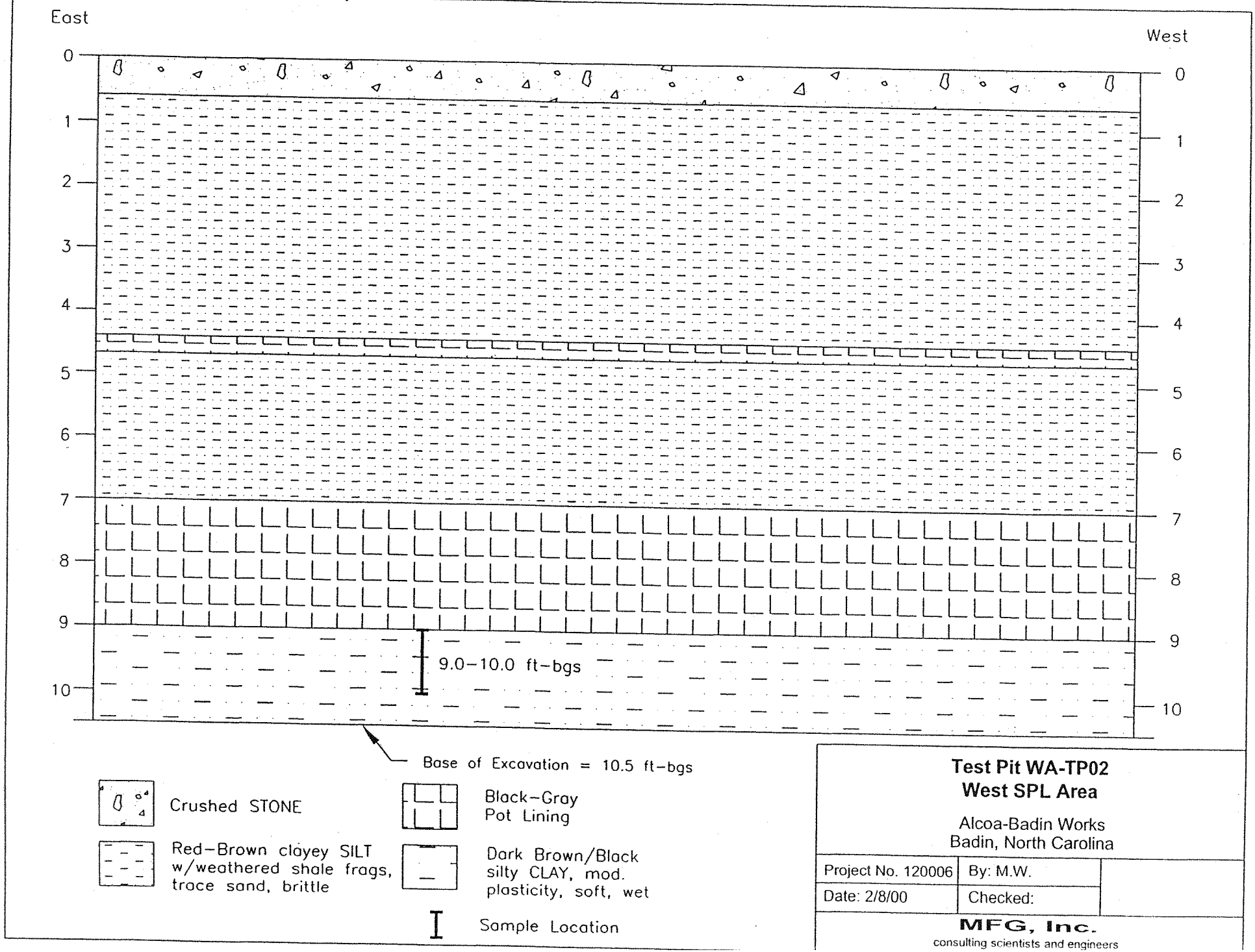

Test Pit WA-TP02
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

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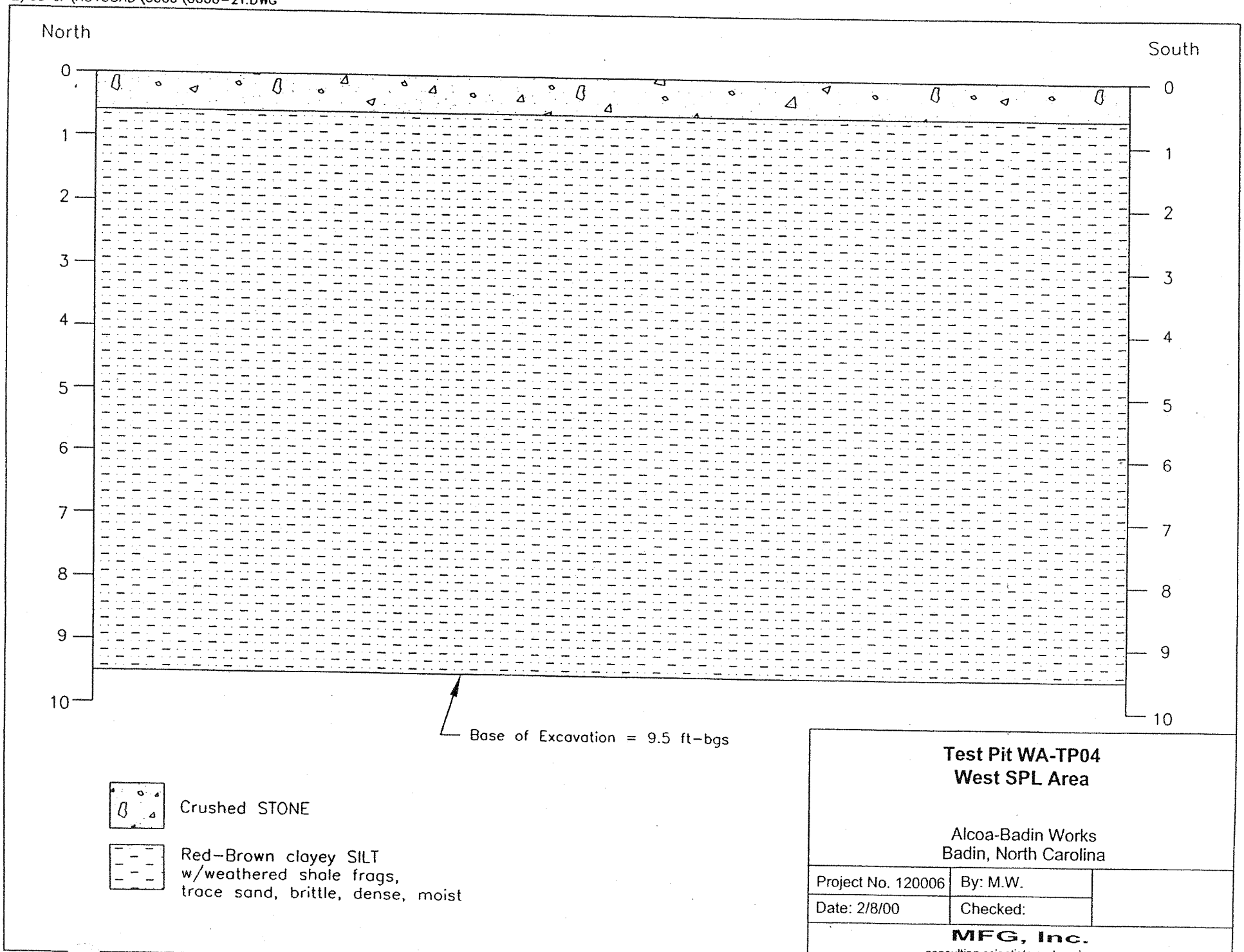

Test Pit WA-TP04
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.	
Date: 2/8/00	Checked:	

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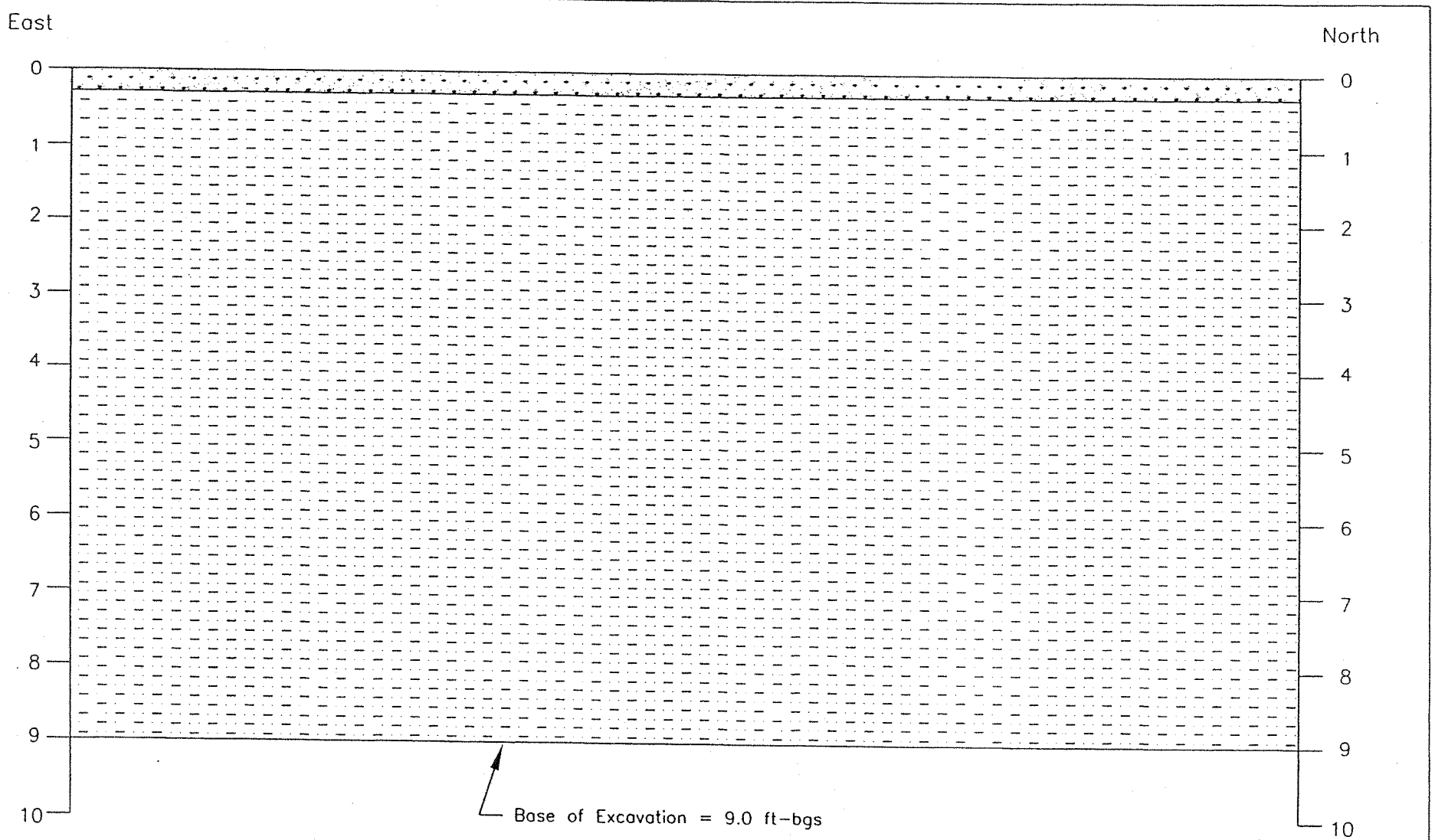

Top Soil w/ organic matter and roots

Red-Brown clayey SILT w/weathered shale frags, brittle, dense, moist

Test Pit WA-TP05
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.	
Date: 2/8/00	Checked:	

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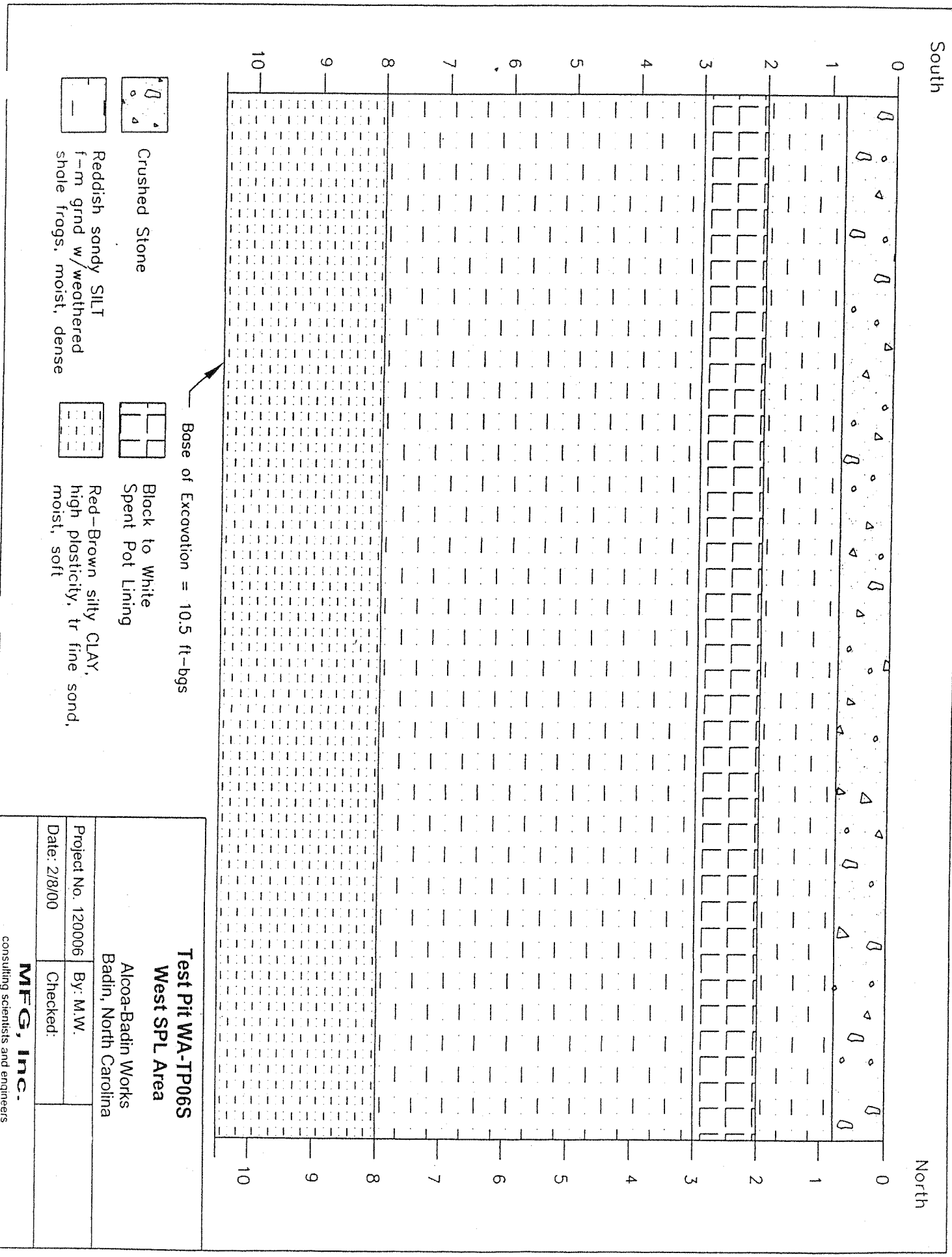

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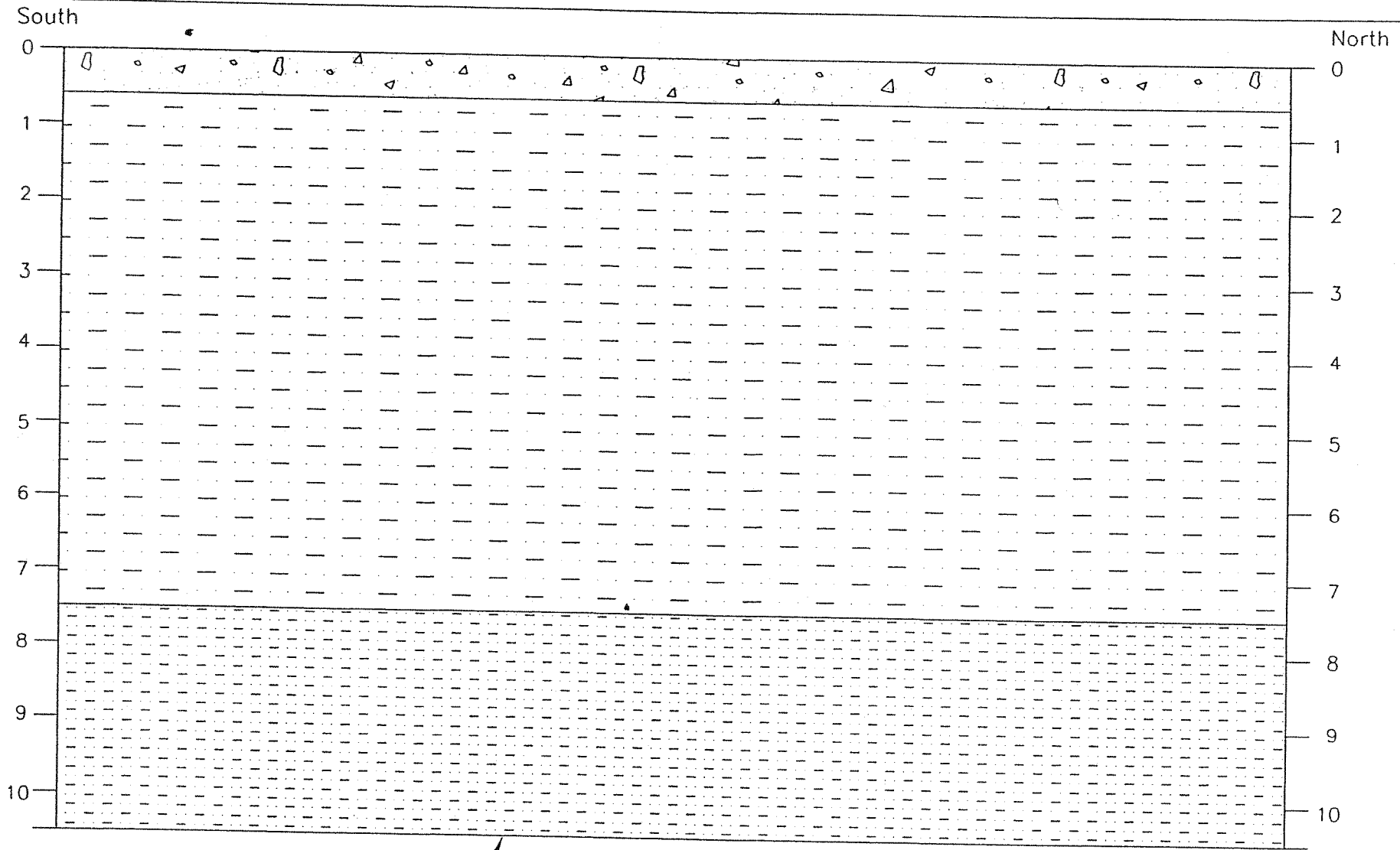

Test Pit WA-TP06N
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
consulting scientists and engineers

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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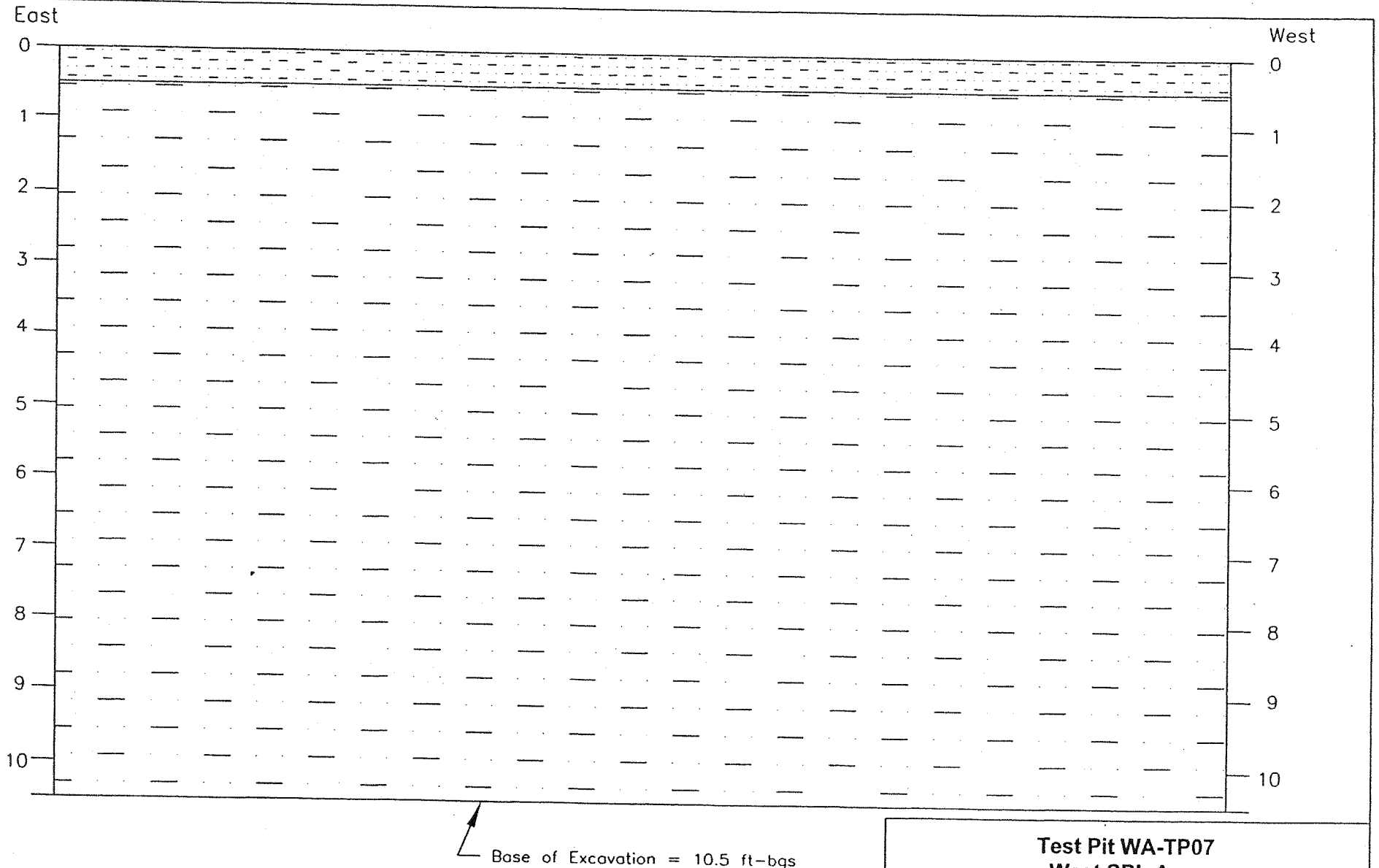

Test Pit WA-TP07
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
consulting scientists and engineers

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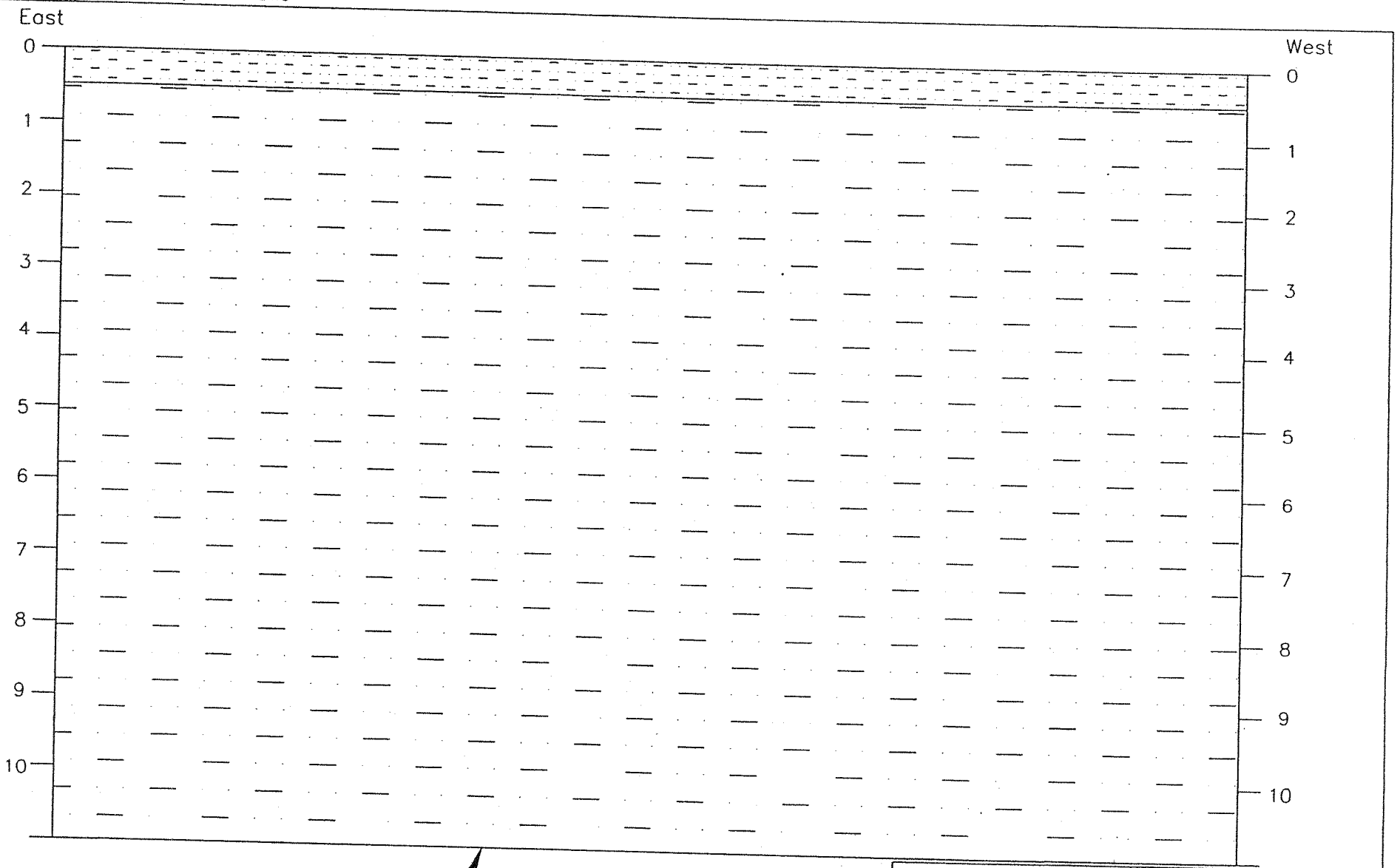


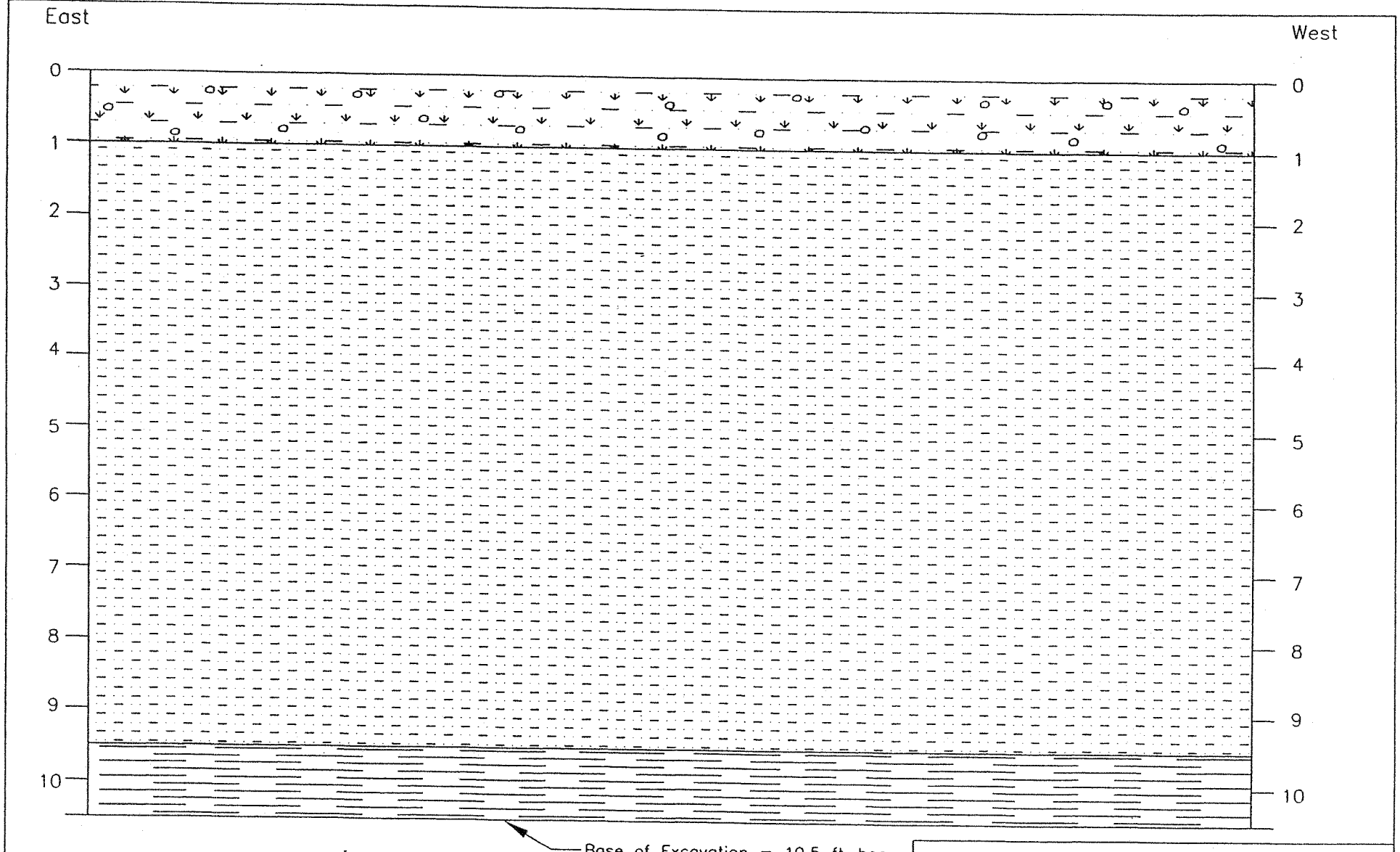
Test Pit WA-TP08
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.	
Date: 2/8/00	Checked:	

MFG, Inc.
consulting scientists and engineers

2/00 J:\AUTOCAD\0006\0006-27.DWG



Test Pit WA-TP09
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
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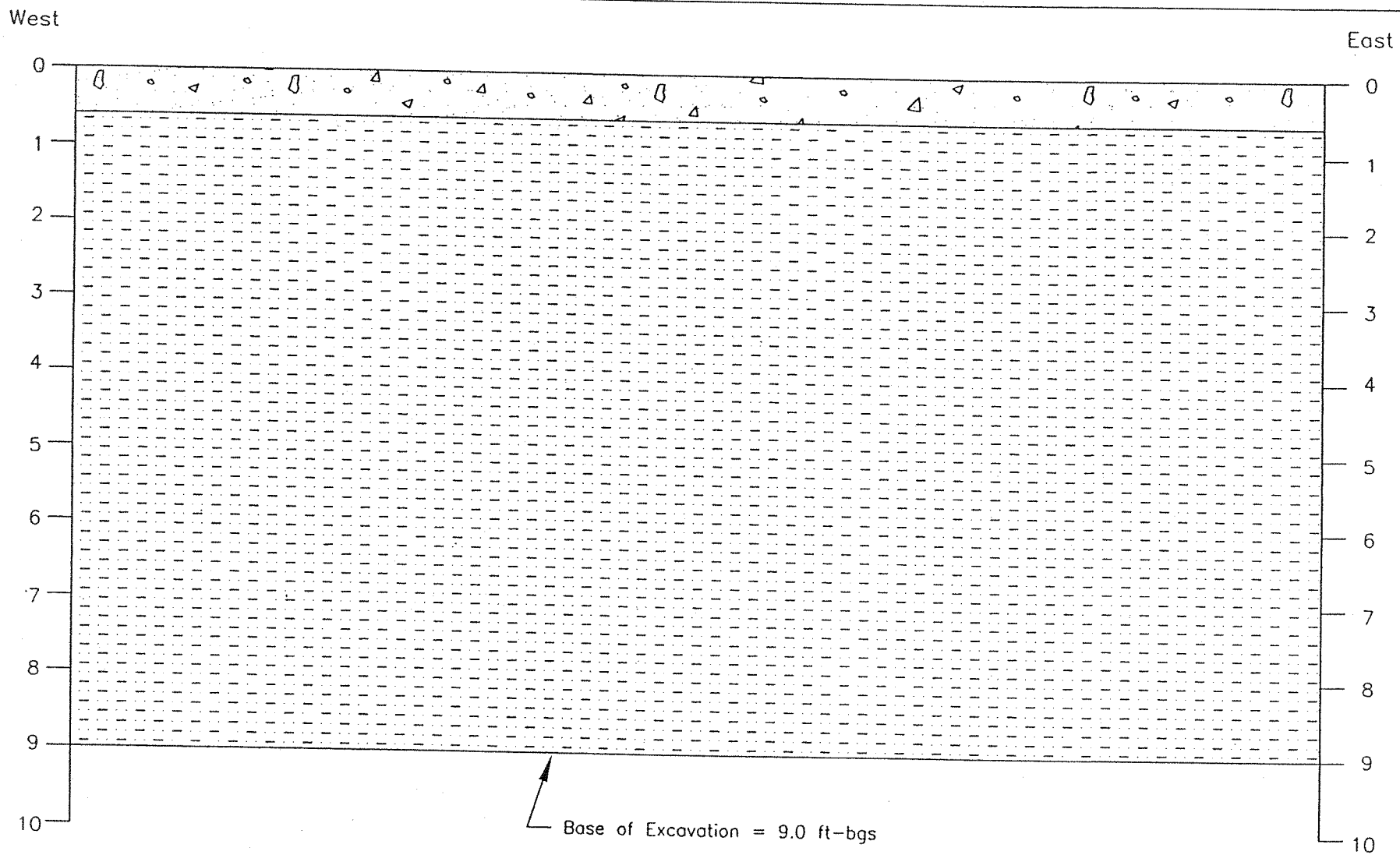

Test Pit WA-TP10
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
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20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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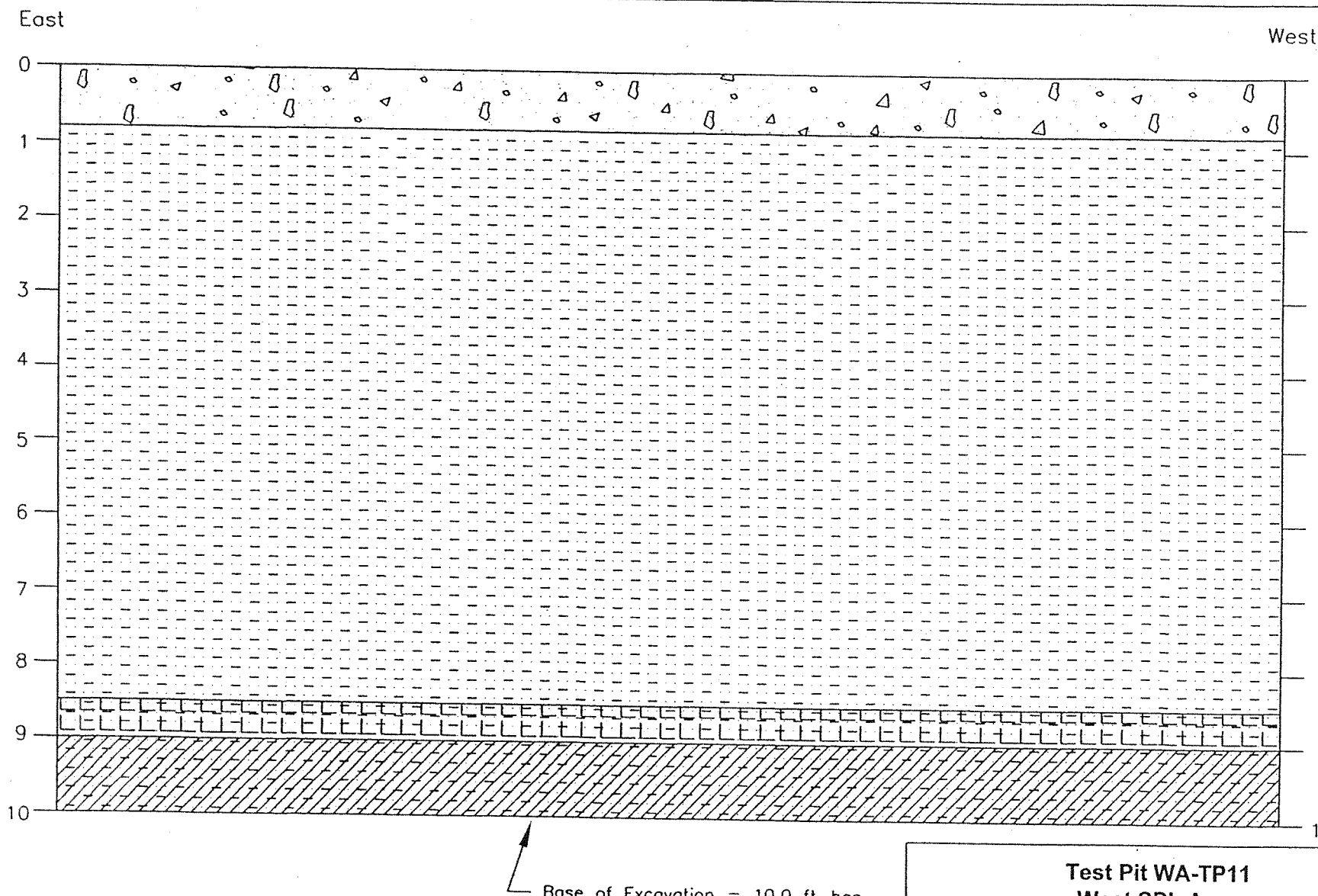

Test Pit WA-TP11
West SPL Area

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 2/8/00	Checked:

MFG, Inc.
consulting scientists and engineers

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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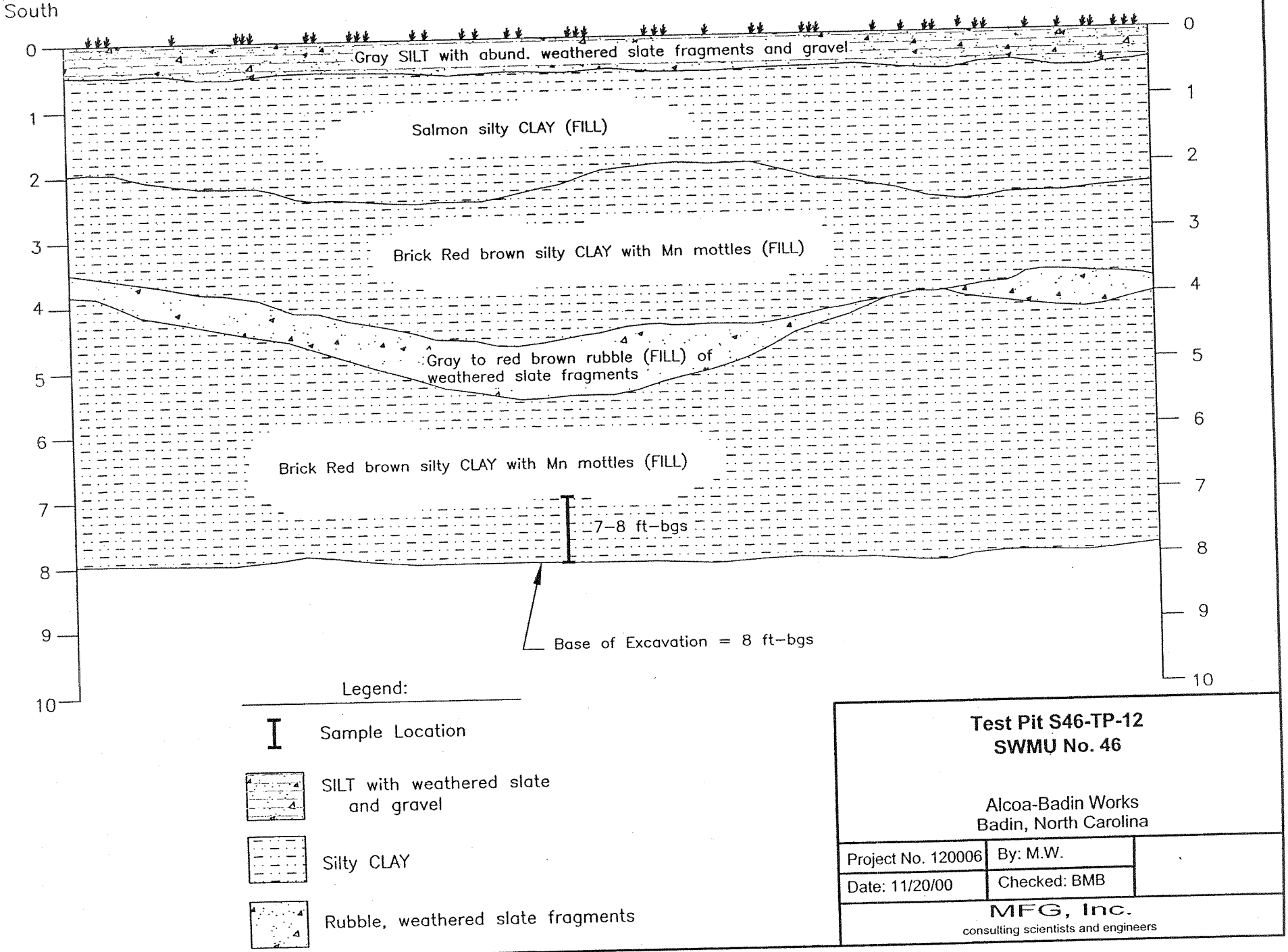


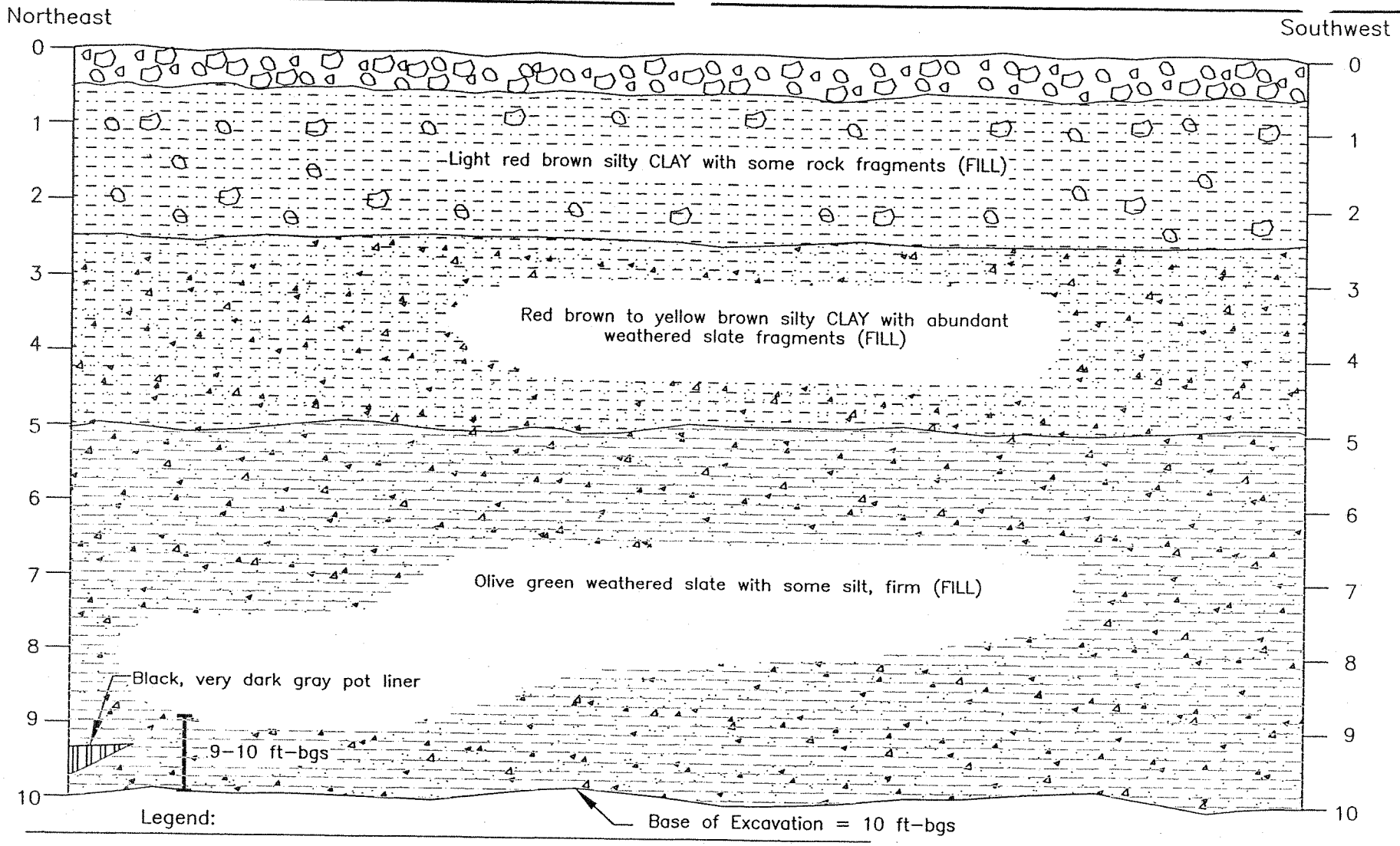
Test Pit S46-TP-12
SWMU No. 46

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 11/20/00	Checked: BMB

MFG, Inc.
consulting scientists and engineers

11/00 J: CAD\0006\0006-37.DWG



Legend:

- Sample Location
- Gravel cover
- Silty CLAY with some rock fragments
- Silty CLAY with weathered slate fragments
- Weathered slate with some silt
- Spent pot liner

Test Pit S46-TP-13
SWMU No. 46

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 11/20/00	Checked: BMB

MFG, Inc.
consulting scientists and engineers

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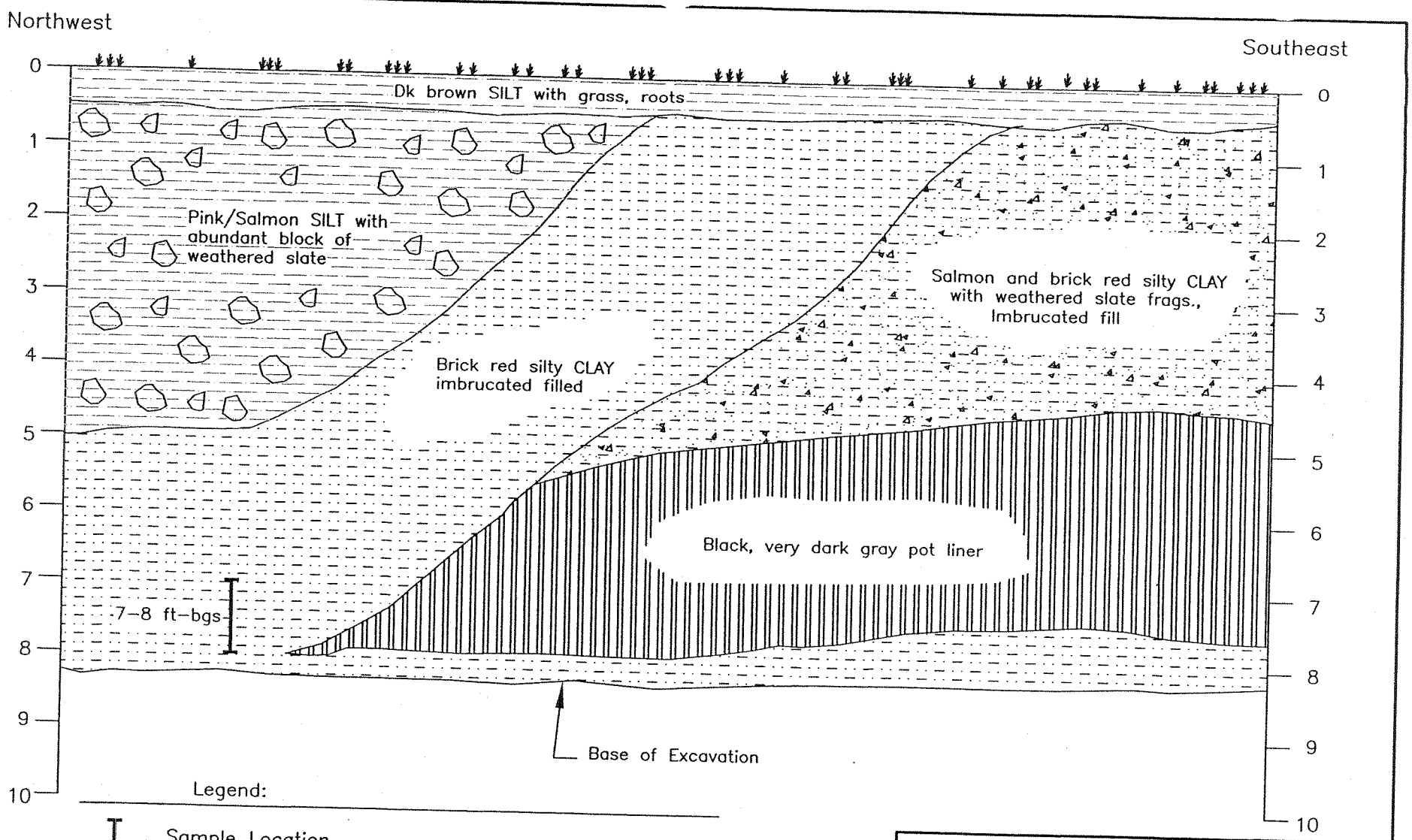

Legend:

- Sample Location
- SILT with grass
- SILT with blocks of weathered slate
- silty CLAY with weathered slate fragments
- silty CLAY
- Spent pot liner

Test Pit S46-TP-14
SWMU No. 46

Alcoa-Badin Works
Badin, North Carolina

Project No. 120006	By: M.W.
Date: 11/20/00	Checked: BMB

MFG, Inc.
consulting scientists and engineers

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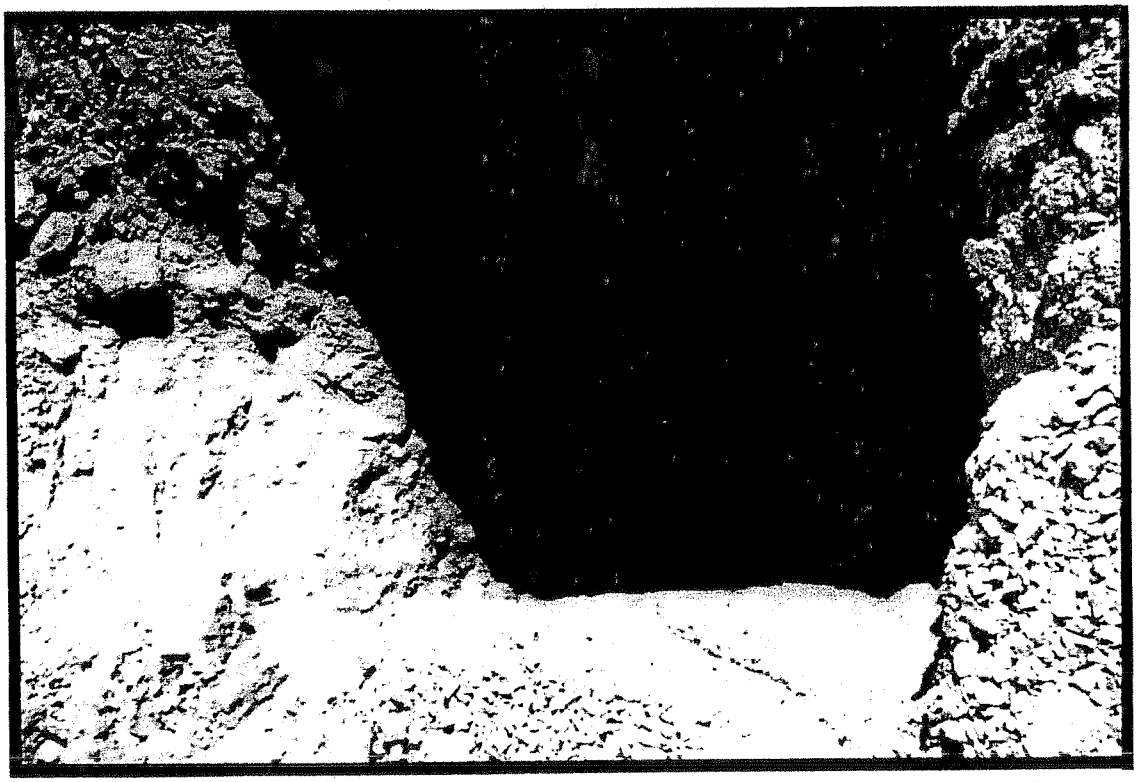
20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

B-3 Test Pit Photographs

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit -BF-TP01-Oriented West to East.

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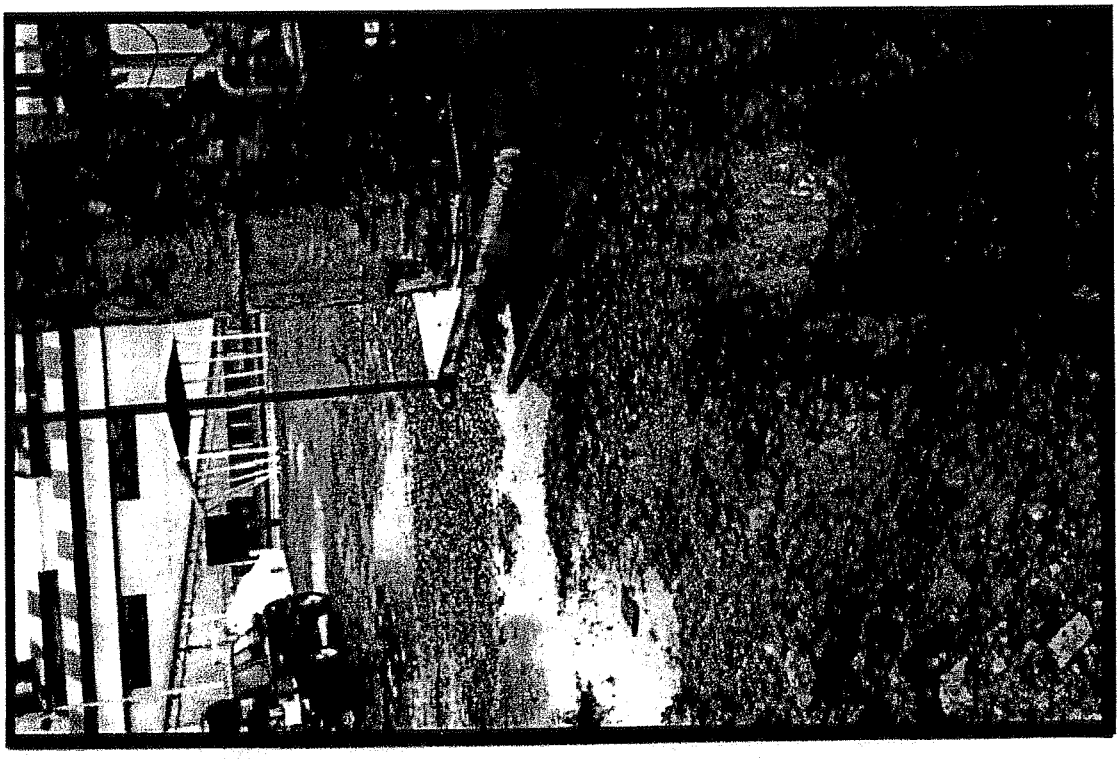

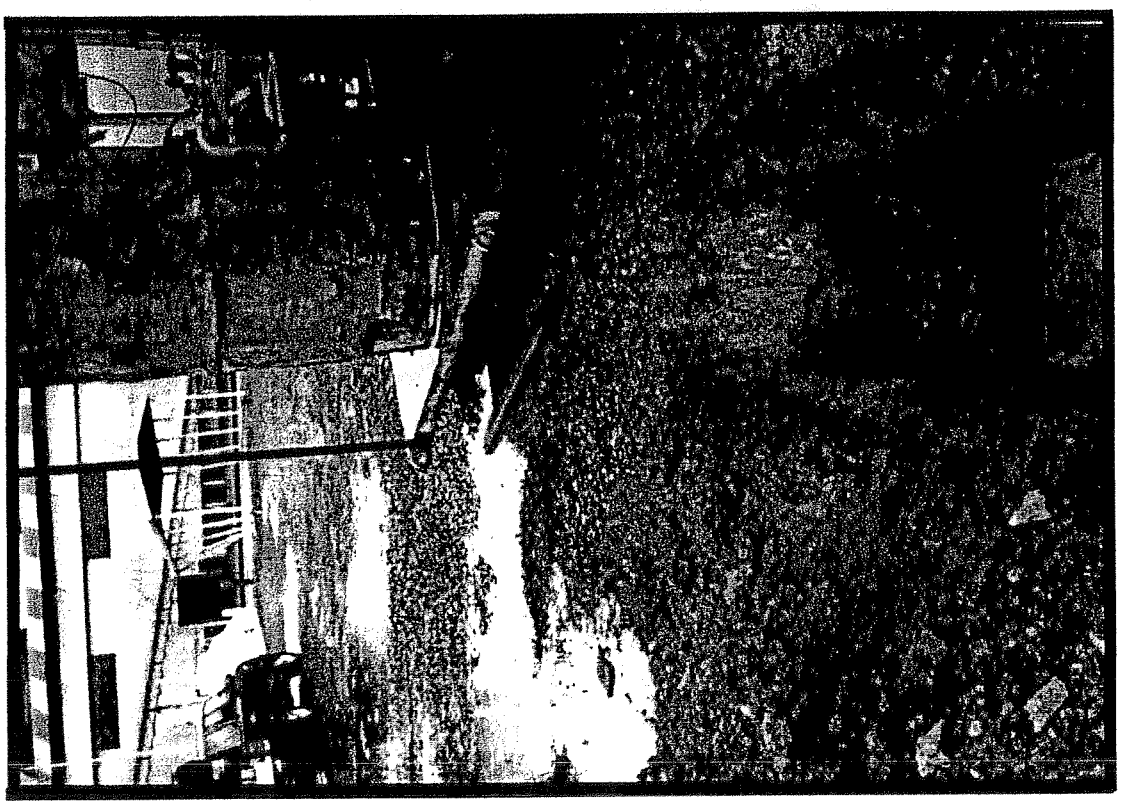

Test Pit -BF-TP02-Oriented East to West.

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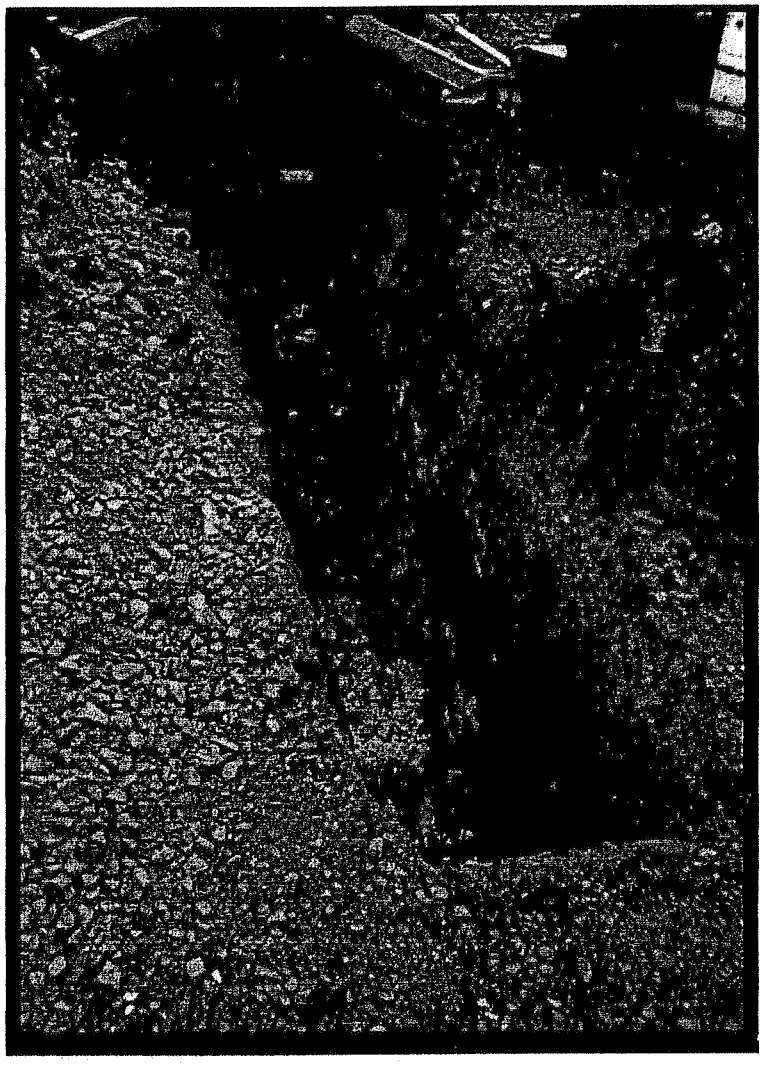

Test Pit -BF-TP03-Oriented West to East.

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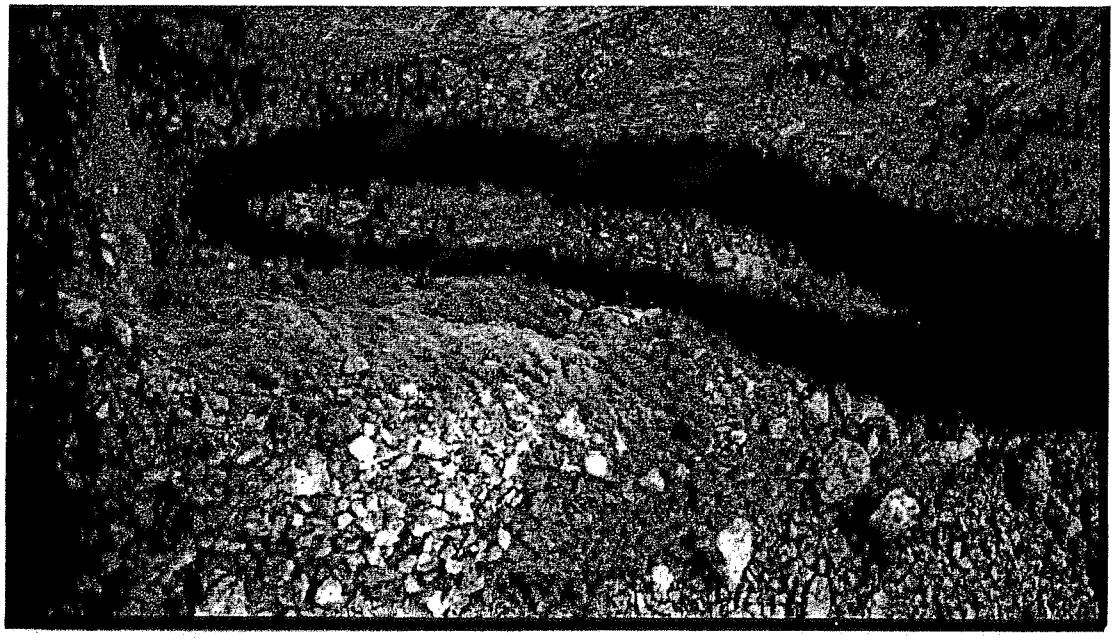
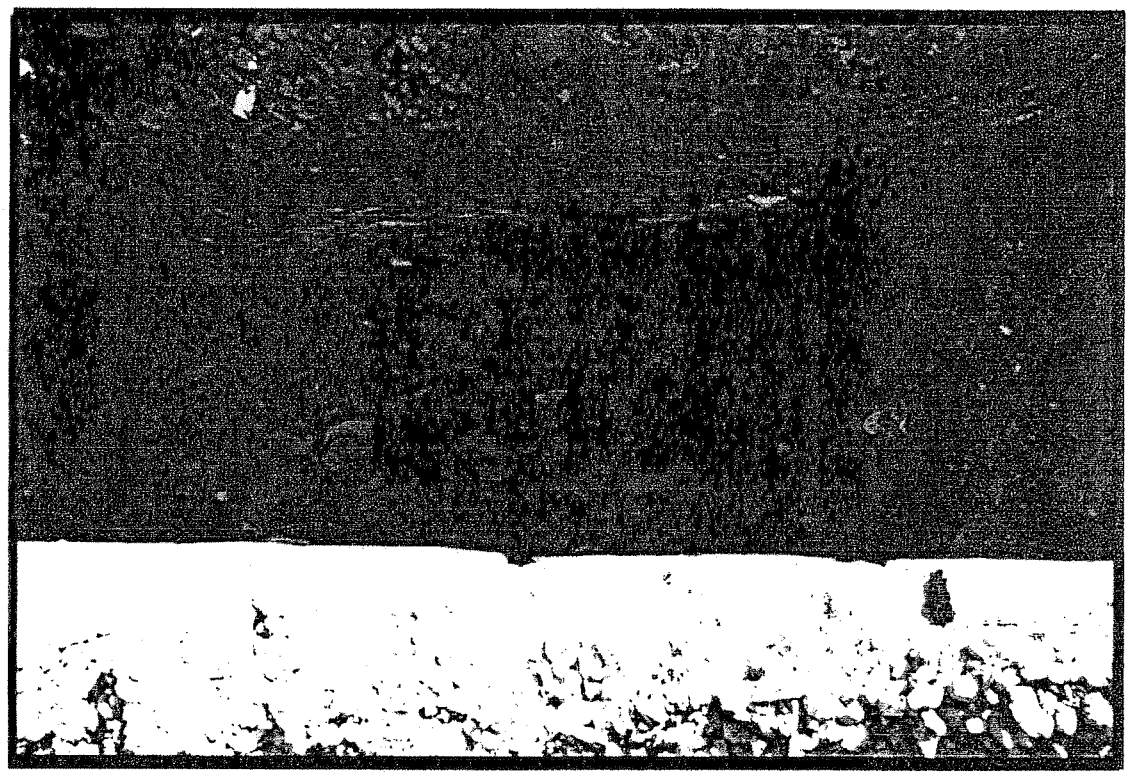


Test Pit -BF-TP04-Oriented East to West.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

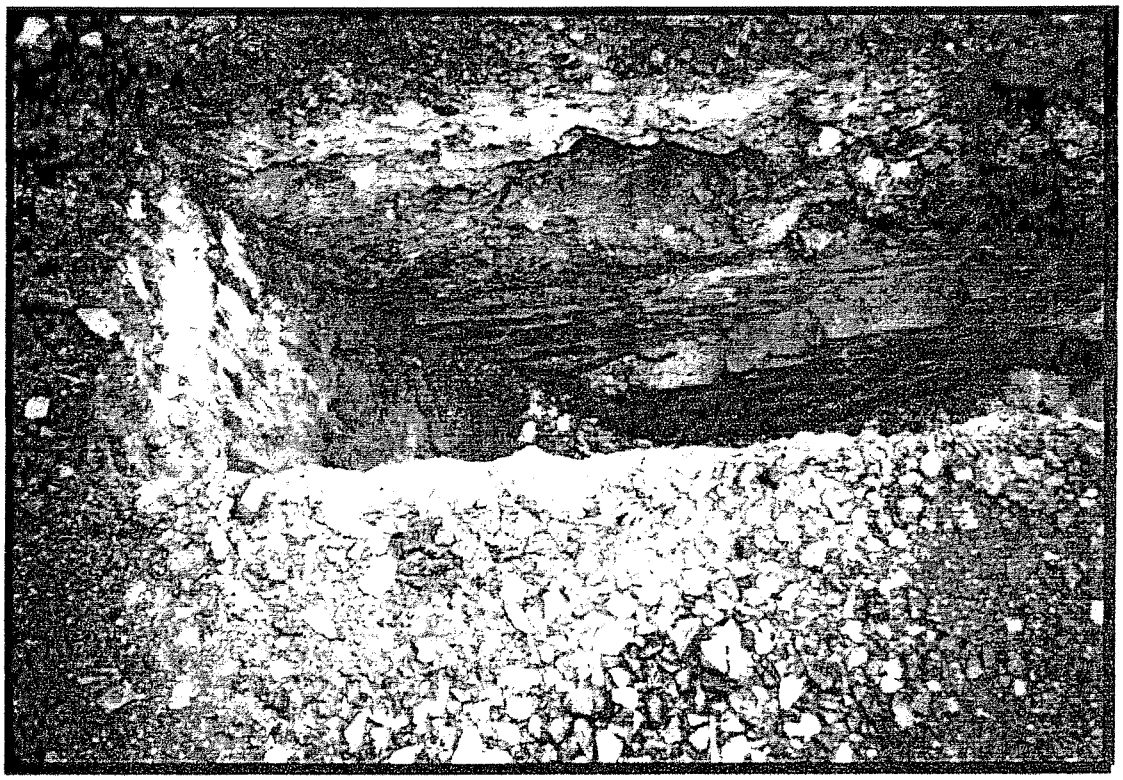
Test Pit -BF-TP05-Oriented South to North.

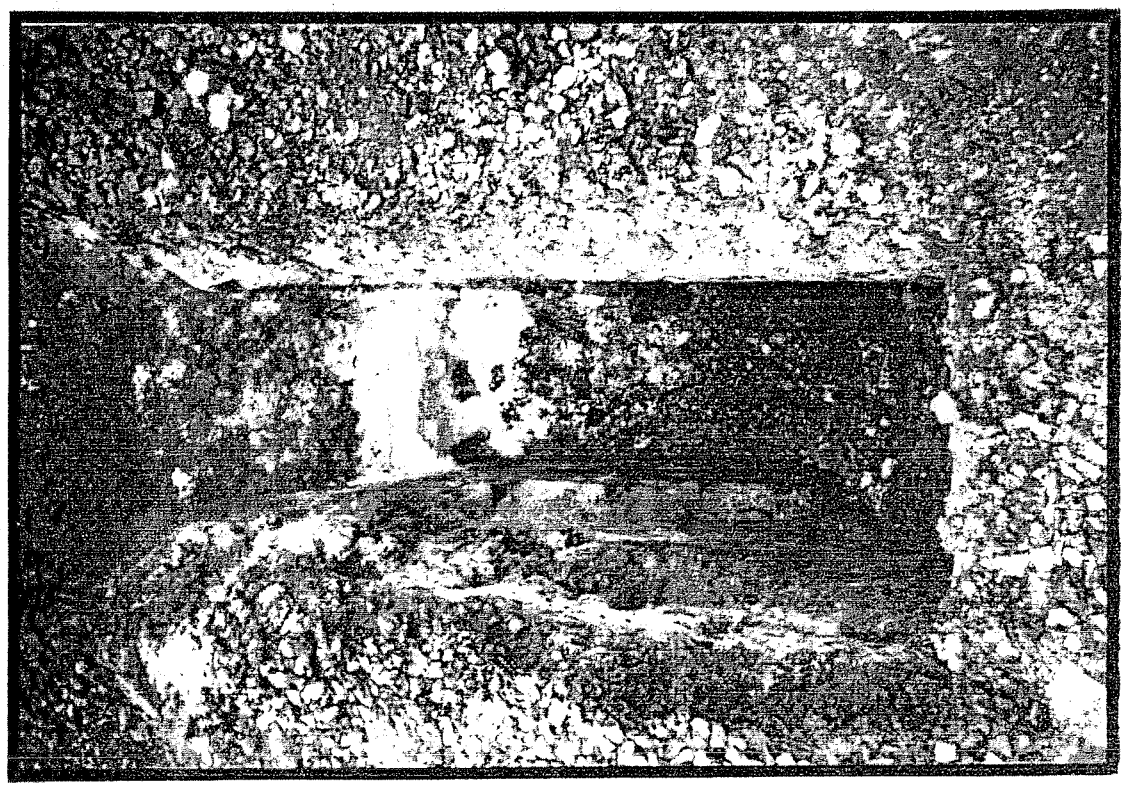
20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit -BF-TP06-Oriented West to East.

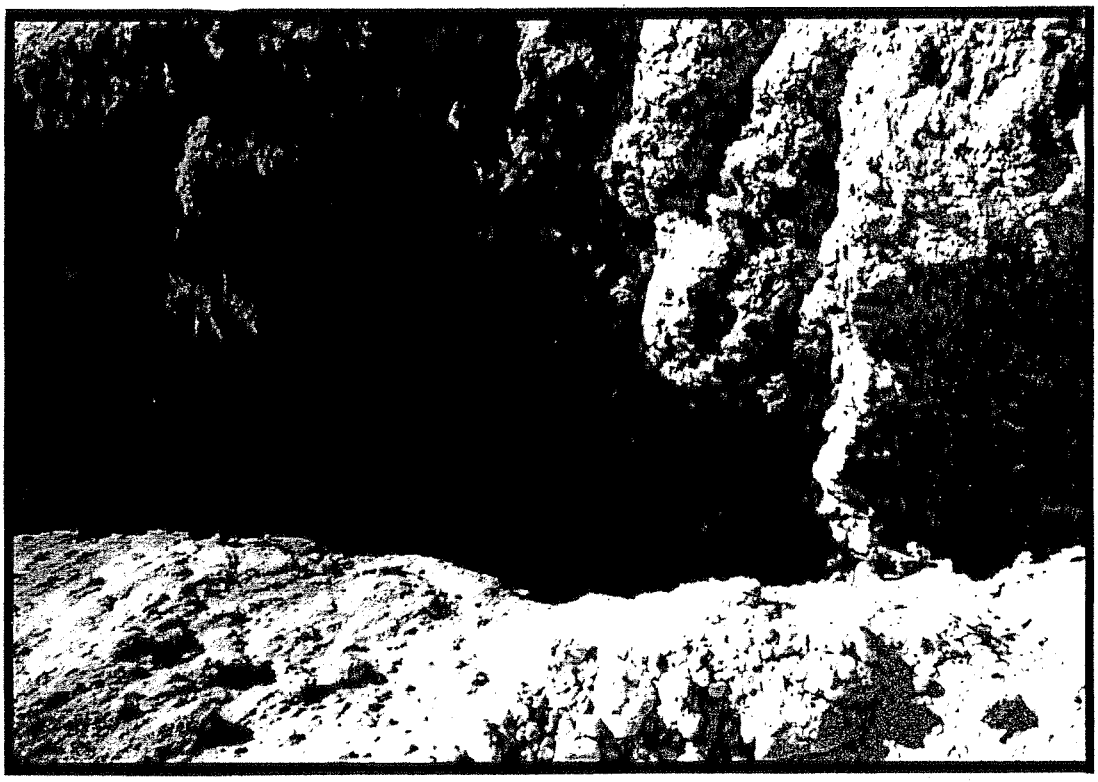
20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM





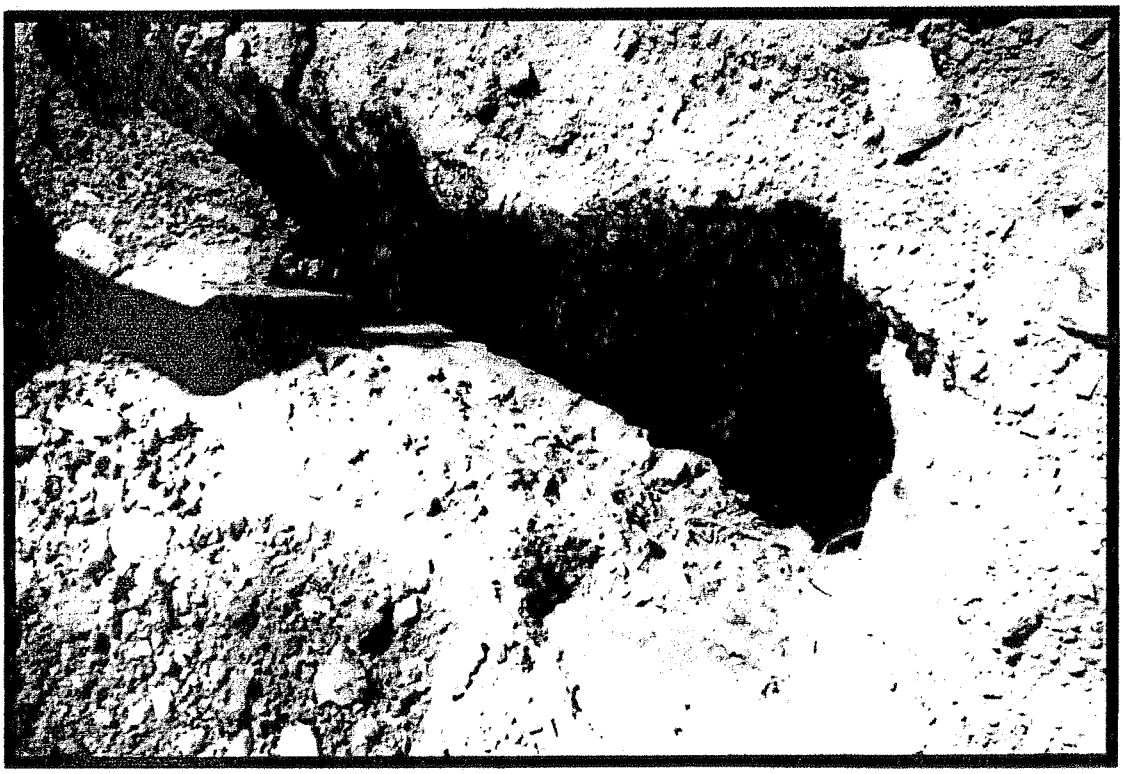
Test Pit -BF-TP07-Oriented West to East.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



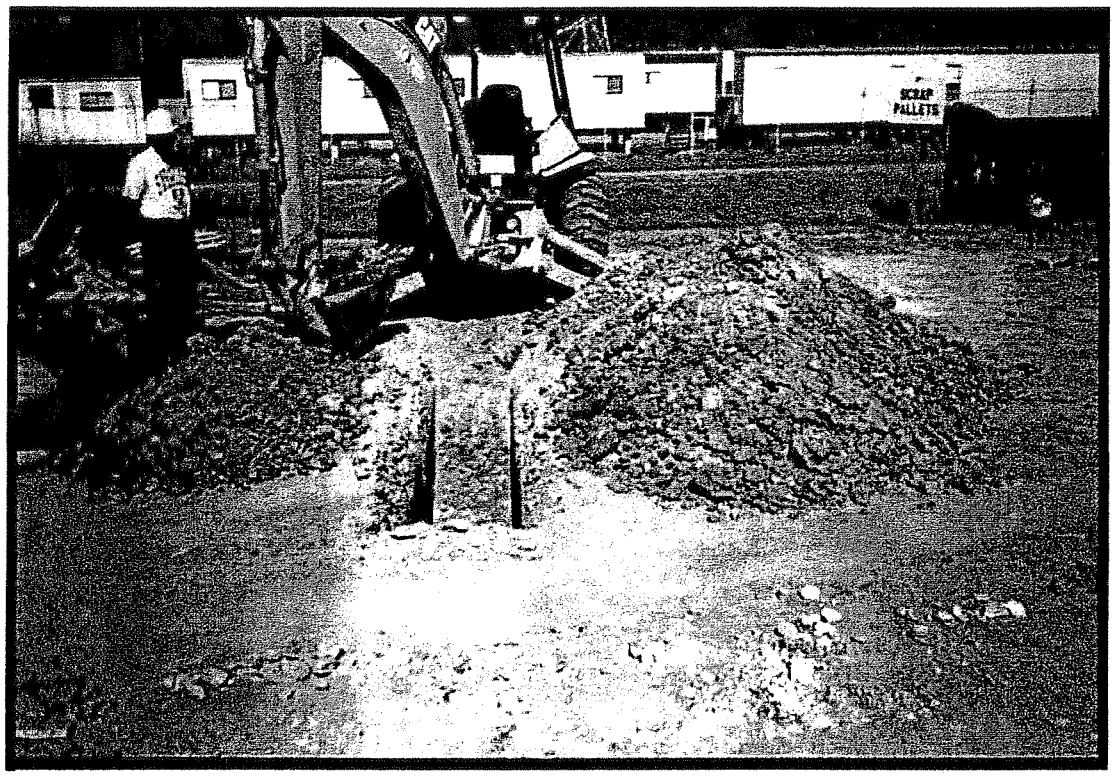
Test Pit -WA-TP01-Oriented West to East.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit -WA-TP01E, Orientation West to East.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit- WA-TP02-Oriented East to West.

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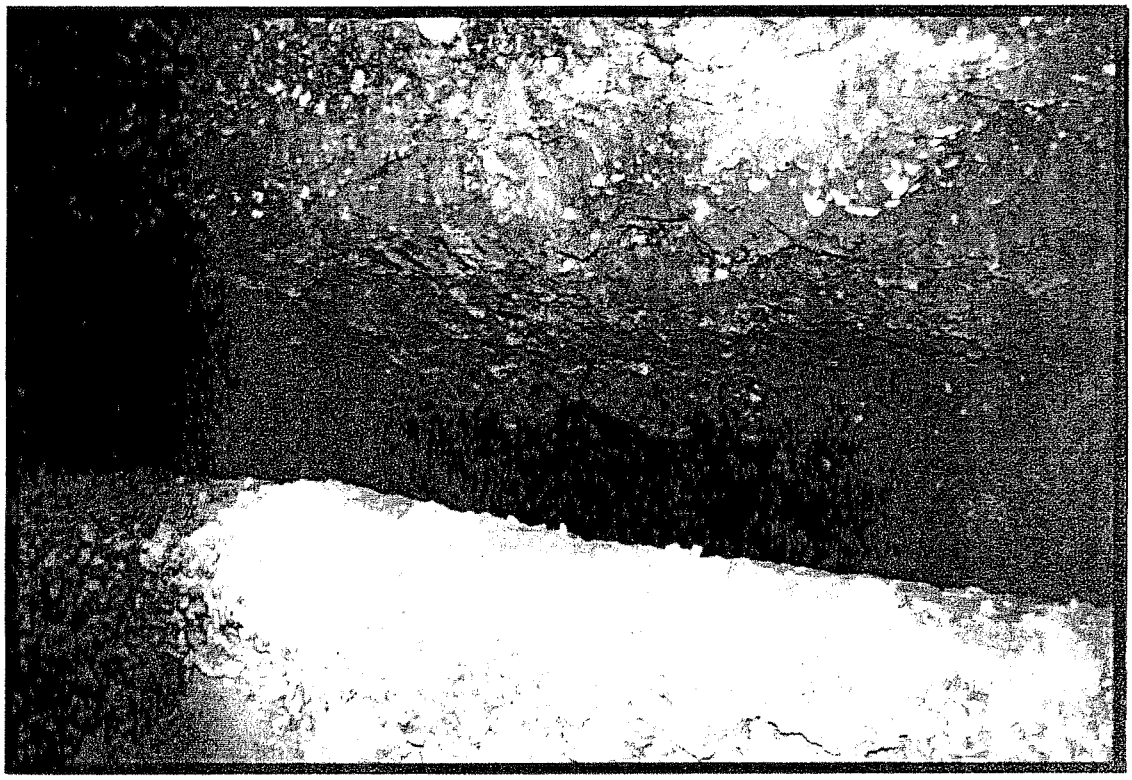
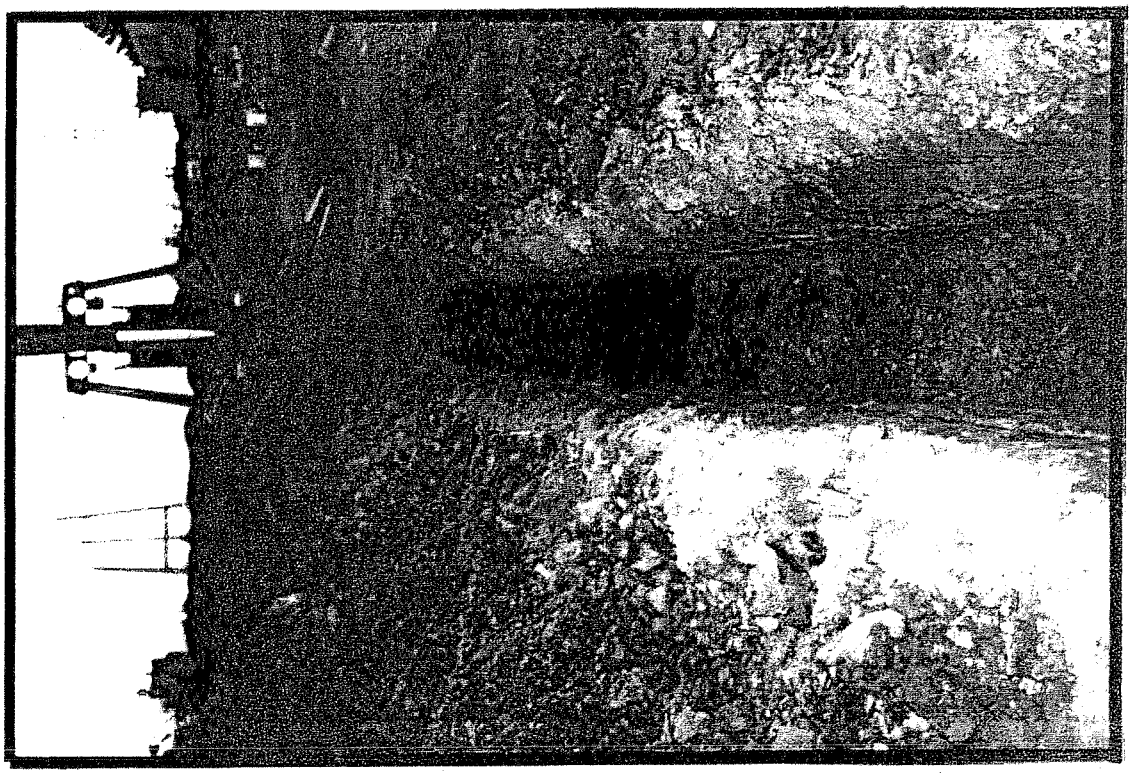


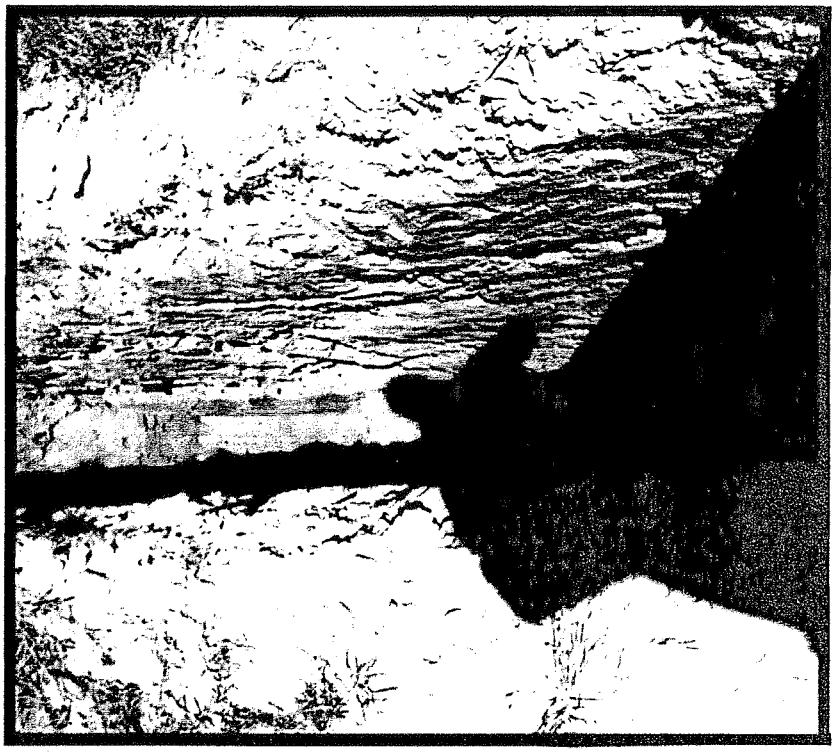


Test Pit-WA-TP03-Oriented South to North.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

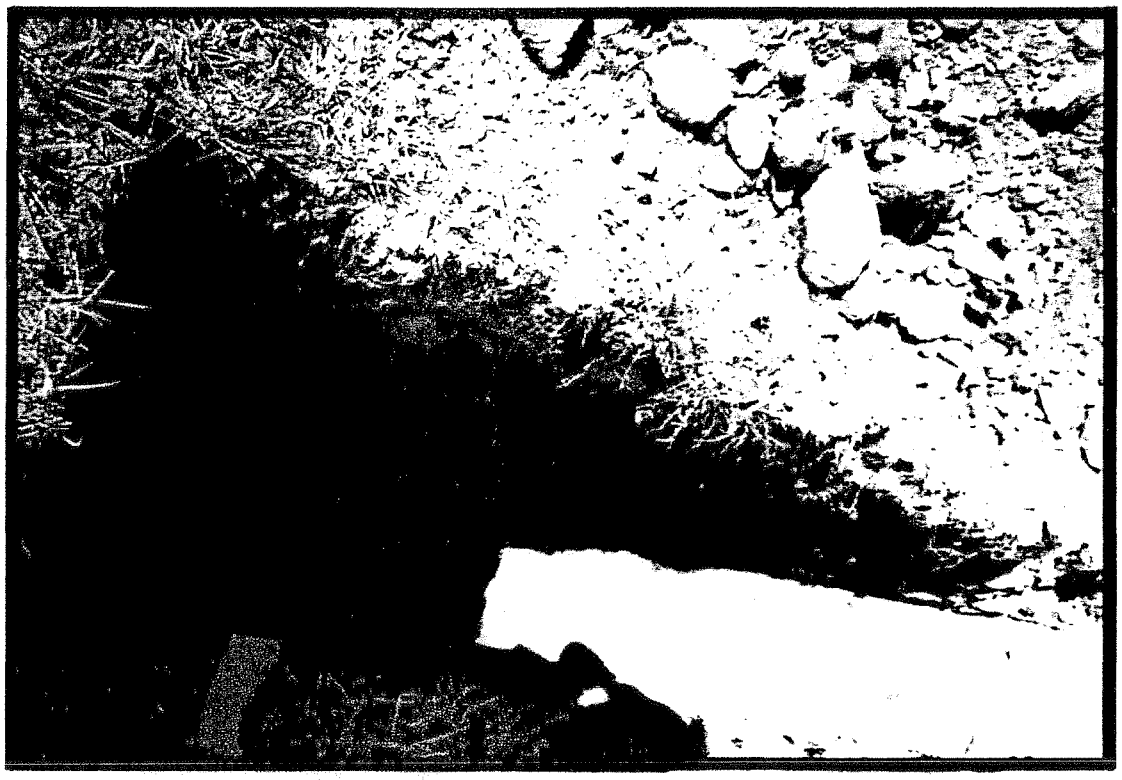
Test Pit- WA-TP06S- Oriented South to North.

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit- WA-TP06N- Oriented South to North

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM



Test Pit-WA-TP07- Oriented East to West

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Test Pit- WA-TP08- Oriented East to West

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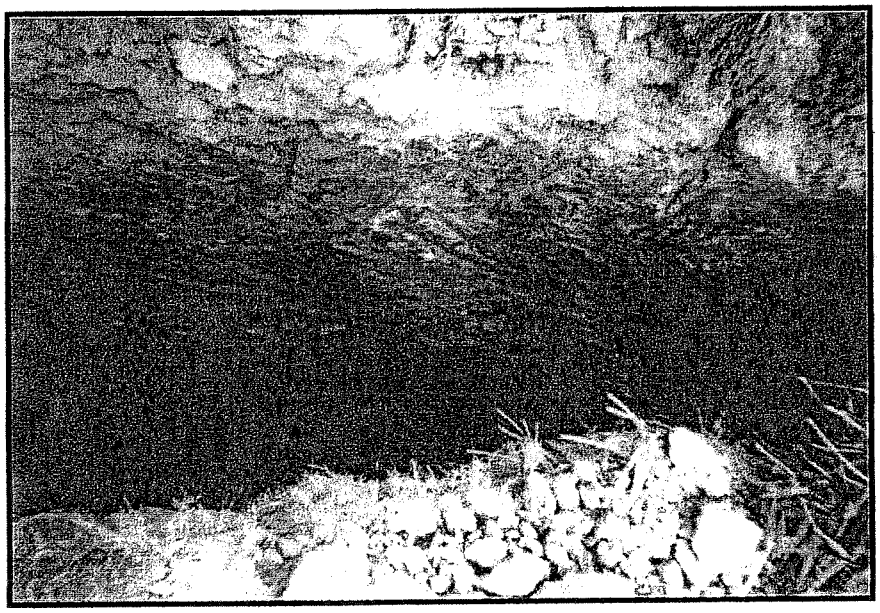
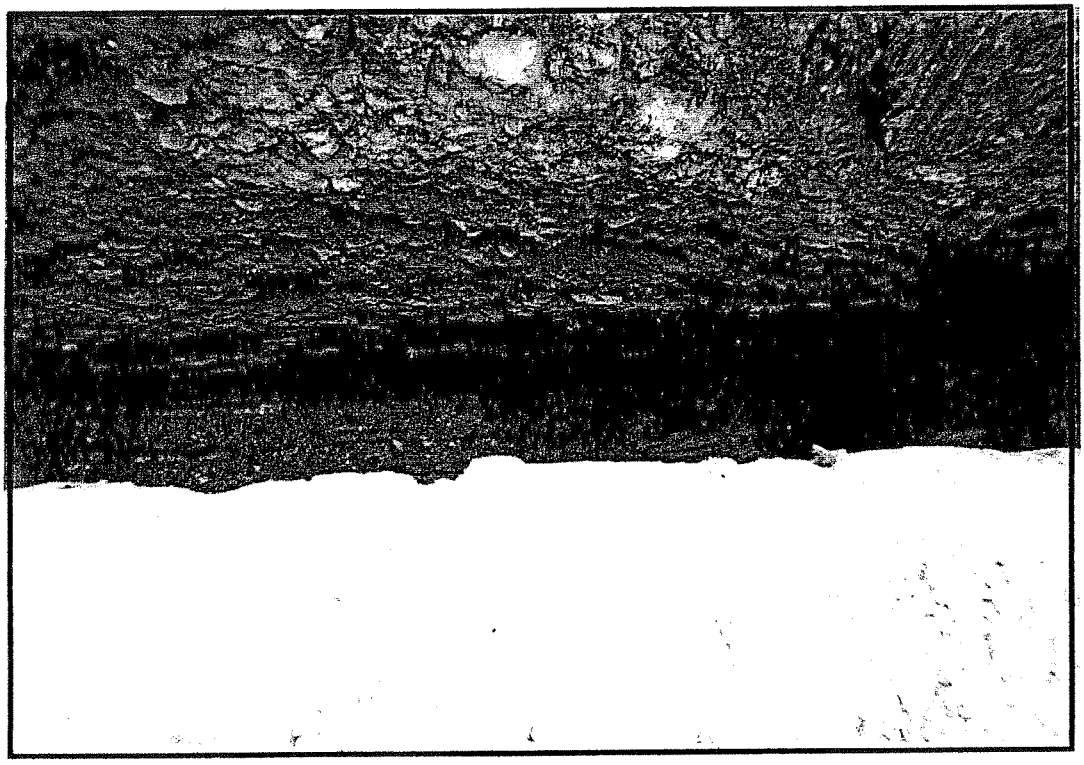
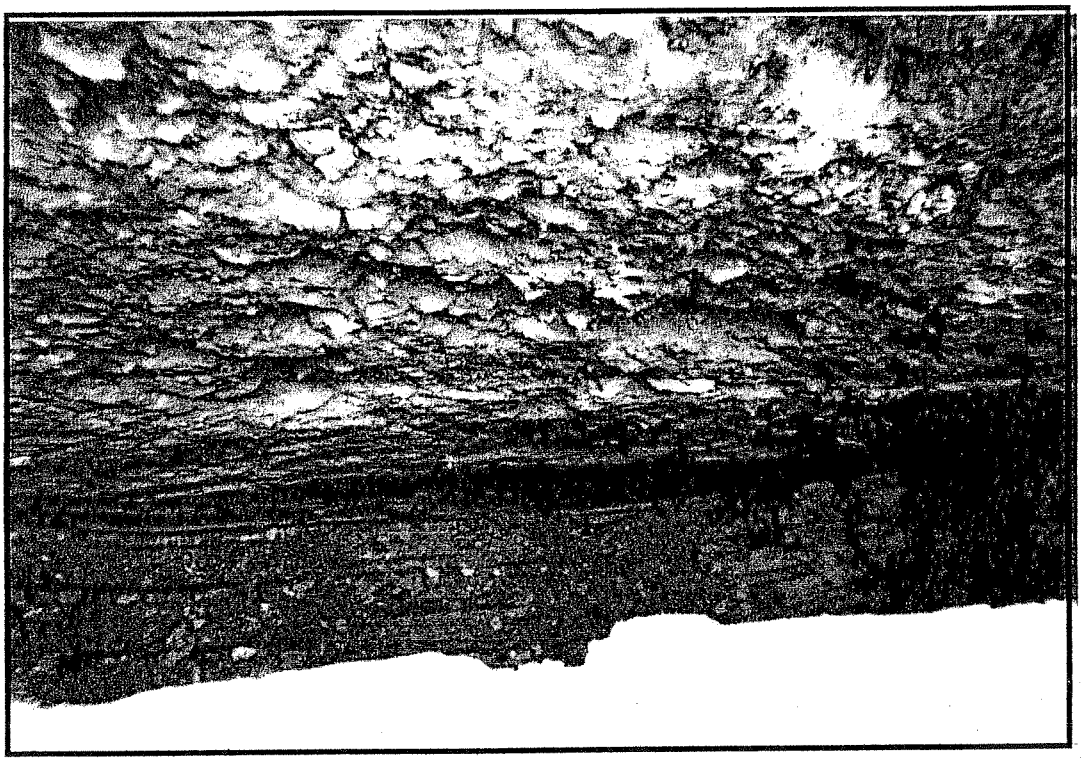


Test Pit S46-TP-12 Oriented north to south

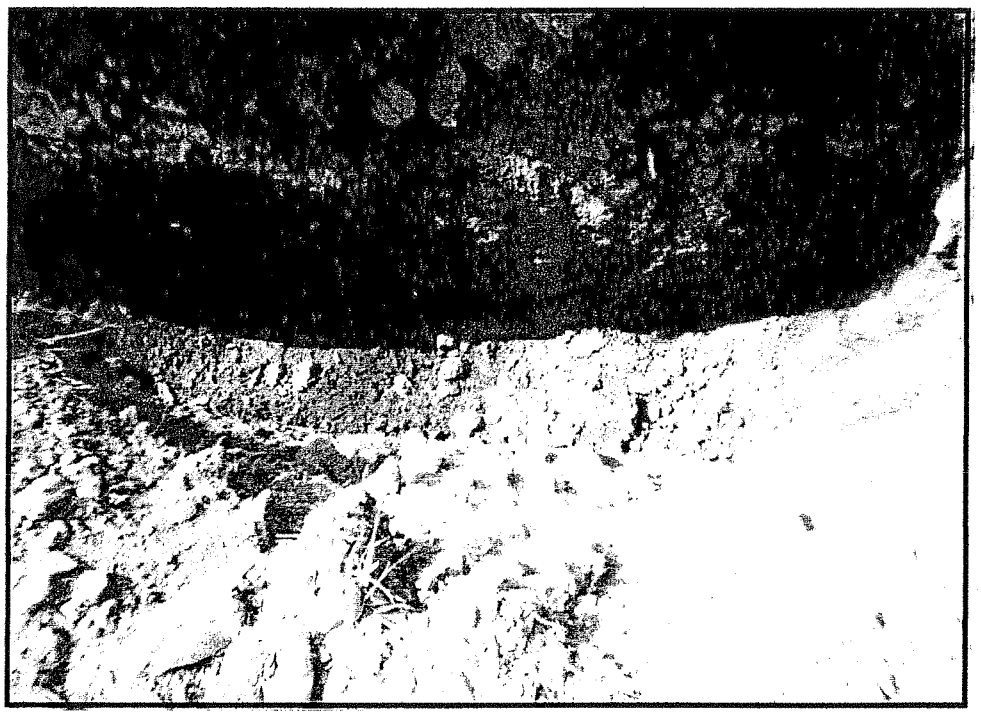
20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

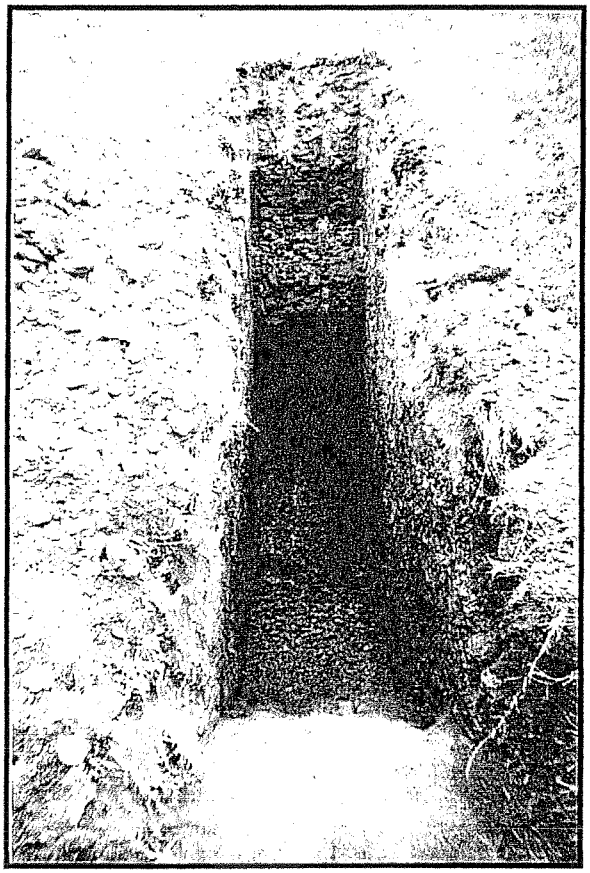




Test Pit S46-TP-13 Oriented northeast to southwest

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM





Test Pit S46-TP-14 Oriented northeast to southeast

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

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APPENDIX C

Fracture Trace and Bedrock Outcrop Supplement Information

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

Sector	Strike Direction	Angle Degrees
3N0W		
	E	37
	W	58
	E	60
	W	77
	E	37
	W	35
2N0W		
	W	53
	W	3
	W	70
	E	42
1N0W		
	E	3
	E	48
	W	59
	E	48
	W	17
	W	17
0N0W		
	W	26
	W	41
	E	37
	E	67
	E	63
	E	42
	E	62
1S0W		
	N	0
	W	15
	W	82
	W	39
	E	8
	E	52
	E	44
	E	42
	W	72
2S0W		
	E	75
	W	52
	E	72
	E	72
	E	7
3S0W		

Sectors based on 1000 meter Universal Traverse Mercator Grid As Indicated on the U.S.G.S. Topographic quadrangle maps for Badin (1981, photorevised 1983) and New London, NC (1993)

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

	E	54
	E	89
	E	87
	E	22
	E	32
	W	63
3N0E		
	E	47
	E	55
	E	78
2N0E		
	E	42
	E	33
	W	84
	E	42
1N0E		
	W	78
	W	10
	E	26
0N0E		
	E	26
1S0E		
	W	15
	E	4
	E	53
	W	56
	W	10
2S0E		
	W	7
	E	77
	E	72
	E	20
	E	74
3S0E		
	E	25
	W	63
	W	30
	W	51
	E	44
3N1W		
	E	29
	E	43
2N1W		

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

	E	57
	E	42
	E	3
	E	58
1N1W		
	E	34
	W	28
	E	11
	E	56
	E	25
	E	32
	E	48
	E	31
	W	17
	W	17
	W	27
	W	26
	W	24
	W	43
0N1W		
	E	36
	E	82
	W	4
	E	3
	W	34
	E	56
	W	9
	E	47
1S1W		
	E	47
	E	20
	E	62
	E	33
	E	38
	E	22
	W	8
	W	82
	W	72
2S1W		
	W	77
	E	30
	E	30
	W	50
	E	23
	E	49
	W	58
	E	17
	E	33

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

	E	85
3S1W		
	E	33
	E	32
3N1E		
	E	78
	E	26
2N1E		
	W	26
	E	26
1N1E		
	W	29
	E	86
	E	70
0N1E		
	E	14
	W	43
	E	16
	W	18
	E	55
1S1E		
	E	39
	E	38
	W	8
	E	47
	E	36
	E	15
2S1E		
	E	42
	E	5
	E	7
	W	73
	E	20
	E	15
3S1E		
	E	84
	W	37
	W	72
	W	76
	E	44
3N2W		
	NONE	

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

2N2W		
	E	44
	E	1
	E	4
1N2W		
	E	6
	E	38
	E	62
	E	54
	E	60
	W	82
	W	15
0N2W		
	E	55
	E	44
	E	43
	W	14
	W	28
	E	43
	W	73
	W	33
	W	32
	W	45
	E	3
	W	46
1S2W		
	W	23
	W	6
	W	7
	W	62
	W	45
	E	22
2S2W		
	W	30
	W	17
2N2E		
	W	88
	E	39
	W	14
1N2E		
	E	57
	E	62
0N2E		
	W	53
	E	18

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Table C-1
FRACTURE TRACE ORIENTATIONS
Alcoa-Badin, NC

	E	56
	W	49
	W	17
	W	52
	W	88
1S2E		
	E	24
	E	12
	E	22
	E	21
	E	62
	E	85
	E	20
	E	40
2S2E		
	E	5
	W	76
	W	60
	W	53
	E	72
	E	65
1N3W		
	E	54
	N	0
0N3W		
	E	48
1S3W		
	E	40
2S3W		
	E	33
1N3E		
	E	62
	E	57
0N3E		
	E	23
	E	83
1S3E		
	E	44
	E	54

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Table C-2
Fracture Orientation
Field Measurements
Alcoa-Badin,NC

Fracture Measurements

Outcrop	Strike Corrected Declin. 6	Dip
A	N76E	8N
	N24W	58S
	N86E	81N
	N58E	76N
	N36E	84N
	N21W	88N
	N42E	32S
	Due E	74N
B1	N74E	6-8N
	N54W	55S
	N46E	85N
	N47W	70N
	N51E	78N
	N42E	88N
B2	N66E	5-6N
	N14W	82-90N
	N86E	90N
	N62E	54S
B3	N31E	4N
	N24-30E	86N
	N81E	78S
	N54W	48S
B4	N79E	76S
	N26E	80S
	N49W	49N
B5	N14W	6S
	N66W	65N
	N32E	83N
B6	Not Measured	
B7	N59E	6N
	N21E	77S
	N88W	90N
	N41E	90N

Table C-2
Fracture Orientation
Field Measurements
Alcoa-Badin,NC

B8

N16E	4N
N42E	78S
N80E	73S
N3E	78S

B9

N41E	68S

B10

N60E	6N
N40E	80S
N38W	84S
N32W	87S

B11

N44E	7N
N44E	78N
N52W	82N
N15W	88N

B12

N54W	16S
N25W	64N
N51W	53S
N41E	86S

B13

N64E	18N
N29W	76N
N86E	43N
N29W	76N
N74W	78N
N78E	90N

B14 Not Measured

B15

N44E	72S
N56W	73N
N74W	59S

B16

N60E	6N
N40E	77N
N26E	86N
N6E	90E
N14W	74N
N2W	70N

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Table C-2
Fracture Orientation
Field Measurements
Alcoa-Badin,NC

C

N46E	

Dip Not Measured, Poor Exposure

D1

N46E	66N
N64E	68N
N74W	85S
N34E	88N

D2

N71E	24N
N51E	65N
N40W	90N
N85E	73N

D3

N69E	15N
N58E	76N
N14E	72S
N14W	86N
N80E	84S

E

N48E	28N
N20W	82N
N46E	78N
N58E	90S
N22W	84N

F

N59W	85S
N38E	34S
N41E	58N
N	86N

F1

N50W	83S

G1

N41E	33S
N49E	44N
N12W	88S
N68W	88N

G2

N40	44N
N29W	86S
N48E	60S

G3

20071210-5059 FERC PDF (Unofficial) 12/10/2007 03:37:56 PM

Table C-2
Fracture Orientation
Field Measurements
Alcoa-Badin,NC

N54E	16N
N59E	82N
N13E	85S
N76W	73N

H

N86E	5N
N56E	62S
N76W	55N

I

N41E	5-7N
N60E	80N
N32W	85-90S
N59W	80-85S
N74W	50-60N
N42W	40-50S

J

N28E	75-80N
N61E	80N
N1W	90
N6E	65W

K

N51E	10N
N28W	83S
N81E	86N

L

N40E	13N
N42W	78S
N76W	55N
N39E	47S
N44E	86S

M

N62E	27N
N66W	83S
N65E	72S

N

N60E	17N
N83E	82N
N17W	87N

O

N54W	6S
N56E	82N
N2W	77S
N1W	80N

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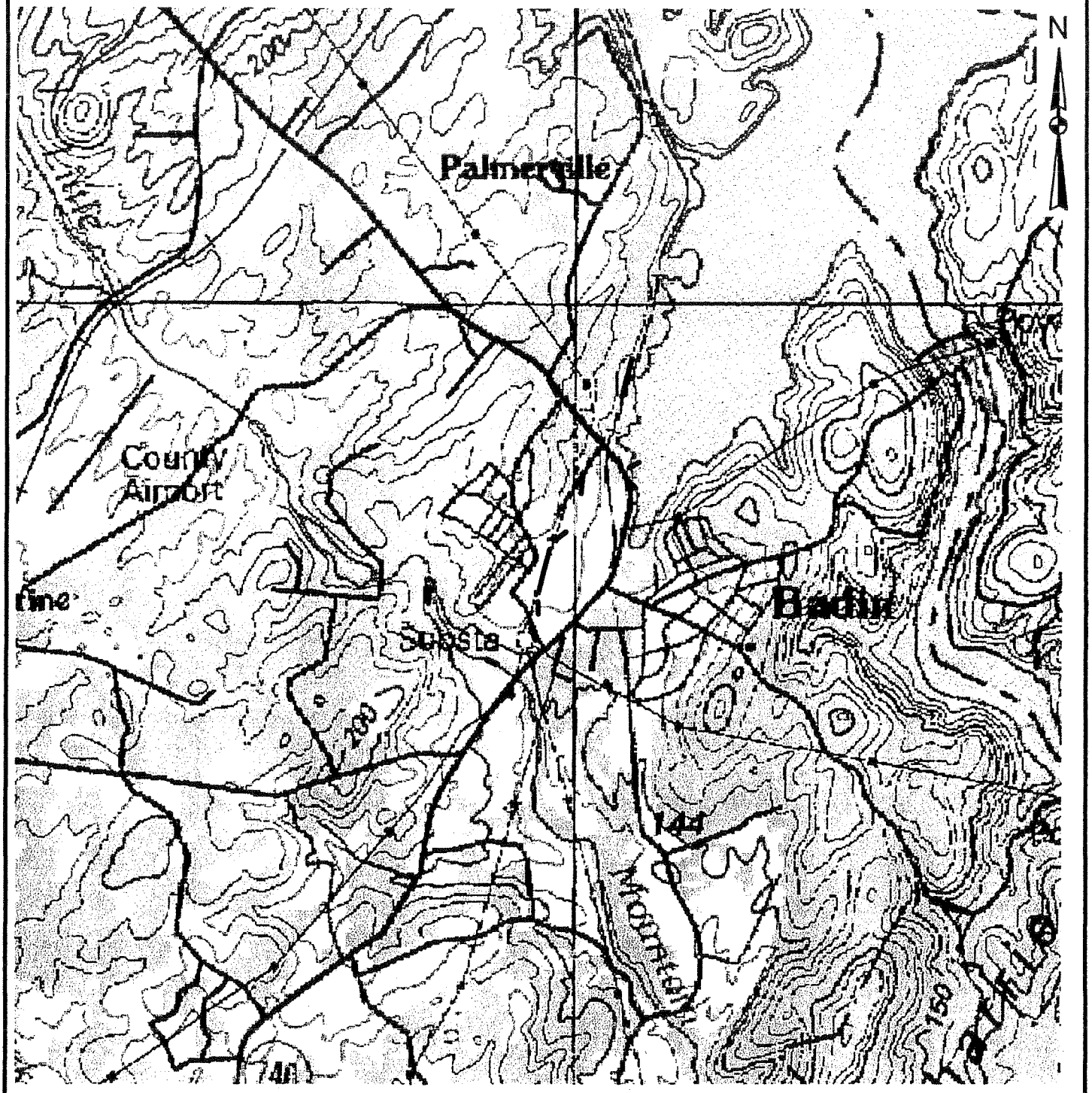
J:\PROJECTS\ALCOA\BADIN\120006.1E\ARCVIEW\RESID-WELLS.APR (outcrop layout)



Produced by the United States Geological Survey

Compiled from USGS 1:24 000-scale topographic maps dated 1956-1981. Planimetry revised from aerial photographs taken 1983-84 and other source data. Revised information not field checked. Map edited 1985

Projection and 10 000-meter grid, zone 17
Universal Transverse Mercator
25 000-foot grid ticks based on North Carolina coordinate system and South Carolina coordinate system, north zone
1927 North American Datum
To place on the predicted North American Datum 1983, move the projection lines 11 meters south and 18 meters west

There may be private inholdings within the boundaries of the National or State reservations shown on this map

CONTOUR INTERVAL 10 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ELEVATIONS SHOWN TO THE NEAREST METER

LEGEND:

Bedrock Outcrop

Charlotte
NORTH CAROLINA
SOUTH CAROLINA
1:100 000-scale metric topographic map

3000 0 3000 Feet

Bedrock Outcrop Locations

Alcoa-Badin Works
Badin, North Carolina

PROJECT: 120006	BY: M.W.	Figure C-3
DATE: March 2001	CHECKED:	

MFG, Inc.
environmental consulting and engineering services

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APPENDIX D

Historic Groundwater Elevation Data, Groundwater Quality Data, and Seep Quality Data

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D-1 Plant Area

Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	MW-FO-2 MW-FO-2GB 10/22/98	MW-FO-2 ME-FO-2FTB 10/22/98	MW-FO-2 MW-F0-2-2739 9/30/99	MW-FO-2 MW-F0-2-2739D 9/30/99
N-Nitrosodiphenylamine/Diphenylamine		< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosomethylethylamine		NA	NA	< 0.01	< 0.01
N-Nitrosomorpholine		NA	NA	< 0.01	< 0.01
N-Nitrosopiperidine		NA	NA	< 0.01	< 0.01
N-Nitrosopyrrolidine		NA	NA	< 0.01	< 0.01
Pentachlorophenol		< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene		< 0.01	< 0.01	< 0.01	< 0.01
Phenol		< 0.01	< 0.01	< 0.01	< 0.01
P-Nitroaniline		< 0.05	< 0.05	< 0.05	< 0.05
Pyrene		< 0.01	< 0.01	< 0.01	< 0.01

Notes:
(a) VOCs = volatile organic compounds
(b) mg/l = milligrams per liter
(c) < = not detected at indicated detection limit
(d) SVOCs = semi-volatile organic compounds

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	MW-FO-2	MW-FO-2	MW-FO-2	MW-FO-2
Sample Designation	MW-FO-2GB	ME-FO-2FTB	MW-F0-2-2739	MW-F0-2-2739D
Sample Date	10/22/98	10/22/98	9/30/99	9/30/99
Parameter				
Bis(2-Chloroethyl)Ether	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroisopropyl)Ether	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Ethylhexyl)Phthalate	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	< 0.01	< 0.01	NA	NA
Chrysene	< 0.01	< 0.01	< 0.01	< 0.01
Diallate	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	< 0.01	< 0.01	< 0.01	< 0.01
Diethyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01
Dimethoate	NA	NA	< 0.02	< 0.02
Dimethyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01
Di-n-Butyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01
Di-n-Octylphthalate	< 0.01	< 0.01	< 0.01	< 0.01
Dinoseb	NA	NA	< 0.02	< 0.02
Disulfoton	NA	NA	< 0.05	< 0.05
Ethyl methanesulfonate	NA	NA	< 0.01	< 0.01
Famphur	NA	NA	< 0.1	< 0.1
Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorocyclopentadiene	< 0.01	< 0.01	< 0.05	< 0.05
Hexachloroethane	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorophene	NA	NA	<	<
Hexachloropropene	NA	NA	< 0.1	< 0.1
Indeno(1,2,3-Cd)Pyrene	< 0.01	< 0.01	< 0.01	< 0.01
Methapyrilene	NA	NA	< 0.05	< 0.05
Methyl methanesulfonate	NA	NA	< 0.01	< 0.01
Methyl parathion	NA	NA	< 0.05	< 0.05
Naphthalene	< 0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiethylamine	NA	NA	< 0.01	< 0.01
N-Nitrosodimethylamine	NA	NA	< 0.01	< 0.01
N-Nitrosodi-n-butylamine	NA	NA	< 0.01	< 0.01
N-Nitroso-Di-N-Propylamine	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiphenylamine	NA	NA	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	MW-FO-2	MW-FO-2	MW-FO-2	MW-FO-2
Sample Designation	MW-FO-2GB	ME-FO-2FTB	MW-F0-2-2739	MW-F0-2-2739D
Sample Date	10/22/98	10/22/98	9/30/99	9/30/99
Parameter				
2-Methyl-4,6-Dinitrophenol	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol (O-Cresol)	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	NA	NA	< 0.02	< 0.02
3,3'-Dichlorobenzidine	< 0.02	< 0.02	< 0.05	< 0.05
3,3'-Dimethylbenzidine	NA	NA	< 0.05	< 0.05
3,5,5-Trimethyl-2-Cyclohexen-1-One	< 0.01	< 0.01	< 0.01	< 0.01
3-Methylcholanthrene	NA	NA	< 0.02	< 0.02
3-Methylphenol & 4-Methylphenol	NA	NA	< 0.02	< 0.02
3-Methylphenol/4-Methylphenol	< 0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	< 0.05	< 0.05	< 0.05	< 0.05
4-Bromophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-Methylphenol	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloroaniline	< 0.02	< 0.02	< 0.01	< 0.01
4-Chlorophenyl Phenyl Ether	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitrophenol	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroquinoline-1-oxide	NA	NA	< 0.1	< 0.1
5-Nitro-o-toluidine	NA	NA	< 0.02	< 0.02
7,12-Dimethylbenz(a)anthracene	NA	NA	< 0.02	< 0.02
a,a-Dimethylphenethylamine	NA	NA	< 0.05	< 0.05
Acenaphthene	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	< 0.01	< 0.01	< 0.01	< 0.01
Acetophenone	NA	NA	< 0.01	< 0.01
Aniline	NA	NA	< 0.01	< 0.01
Anthracene	< 0.01	< 0.01	< 0.01	< 0.01
Aramite	NA	NA	< 0.02	< 0.02
Benzo(b)Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Anthracene	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Pyrene	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)Perylene	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)Fluoranthene	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	NA	NA	< 0.01	< 0.01
Benzyl Butyl Phthalate	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroethoxy)Methane	< 0.01	< 0.01	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	MW-FO-2 MW-FO-2GB 10/22/98	MW-FO-2 ME-FO-2FTB 10/22/98	MW-FO-2 MW-F0-2-2739 9/30/99	MW-FO-2 MW-F0-2-2739D 9/30/99
Dibromomethane		NA	NA	< 0.005	< 0.005
Dichlorodifluoromethane		NA	NA	< 0.01	< 0.01
Dichloromethane		0.35	< 0.005	< 0.005	< 0.005
Ethyl Methacrylate		NA	NA	< 0.005	< 0.005
Ethylbenzene		< 0.005	< 0.005	< 0.005	< 0.005
Iodomethane		NA	NA	< 0.005	< 0.005
Isobutyl Alcohol		NA	NA	< 0.2	< 0.2
Methacrylonitrile		NA	NA	< 0.005	< 0.005
Methyl Methacrylate		NA	NA	< 0.005	< 0.005
Propionitrile		NA	NA	< 0.02	< 0.02
Styrene		< 0.005	< 0.005	< 0.005	< 0.005
Tetrachloroethene		< 0.005	< 0.005	< 0.005	< 0.005
Toluene		< 0.005	< 0.005	< 0.005	< 0.005
Trans-1,2-Dichloroethene		NA	NA	< 0.0025	< 0.0025
Trans-1,3-Dichloropropene		< 0.005	< 0.005	< 0.005	< 0.005
Trans-1,4-Dichloro-2-Butene		NA	NA	< 0.005	< 0.005
Trichloroethylene		< 0.005	< 0.005	< 0.005	< 0.005
Vinyl Acetate		NA	NA	< 0.01	< 0.01
Vinyl Chloride		< 0.01	< 0.01	< 0.01	< 0.01
Xylene (Total)		< 0.005	< 0.005	< 0.005	< 0.005
SVOCs[(d)]					
1,2,4,5-Tetrachlorobenzene		NA	NA	< 0.01	< 0.01
1,2,4-Trichlorobenzene		< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene		< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trinitrobenzene		NA	NA	< 0.05	< 0.05
1,3-Dichlorobenzene		< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene		< 0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol		< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol		< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol		< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol		< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrophenol		< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene		< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dinitrotoluene		< 0.01	< 0.01	< 0.01	< 0.01
2-Chloronaphthalene		< 0.01	< 0.01	< 0:01	< 0.01
2-Chlorophenol		< 0.01	< 0.01	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID Sample Designation Sample Date Parameter	MW-FO-2 MW-FO-2GB 10/22/98	MW-FO-2 ME-FO-2FTB 10/22/98	MW-FO-2 MW-F0-2-2739 9/30/99	MW-FO-2 MW-F0-2-2739D 9/30/99
VOCs[a](mg/l)[b]				
1,1,1,2-Tetrachloroethane	NA	NA	< 0.005[c]	< 0.005
1,1,1-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane	NA	NA	< 0.005	< 0.005
1,2-Dibromo-3-Chloropropane	NA	NA	< 0.01	< 0.01
1,2-Dibromoethane	NA	NA	< 0.005	< 0.005
1,2-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dioxane	NA	NA	< 0.5	< 0.5
2-Butanone	< 0.025	< 0.025	< 0.02	< 0.02
2-Hexanone	< 0.025	< 0.025	< 0.02	< 0.02
4-Methyl-2-Pentanone	< 0.025	< 0.025	< 0.02	< 0.02
Acetone	< 0.05	< 0.05	< 0.02	< 0.02
Acetonitrile	NA	NA	< 0.1	< 0.1
Acrolein	NA	NA	< 0.1	< 0.1
Acrylonitrile	NA	NA	< 0.1	< 0.1
Allyl Chloride	NA	NA	< 0.01	< 0.01
Benzene	< 0.005	< 0.005	< 0.005	< 0.005
Bromodichloromethane	< 0.005	< 0.005	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005	< 0.005	< 0.005
Bromomethane	< 0.01	< 0.01	< 0.01	< 0.01
Carbon Disulfide	< 0.005	< 0.005	< 0.005	< 0.005
Carbon Tetrachloride	< 0.005	< 0.005	< 0.005	< 0.005
Chlorobenzene	< 0.005	< 0.005	< 0.005	< 0.005
Chloroethane	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	< 0.01	< 0.01	< 0.01	< 0.01
Chloroprene	NA	NA	< 0.005	< 0.005
Cis-1,2-Dichloroethene	NA	NA	< 0.0025	< 0.0025
Cis-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	< 0.005	< 0.005	< 0.005	< 0.005

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-2 B016-2-J 12/19/94	B016-MW-2 B016-MW-2 10/12/99	B016-MW-3 B016-MW-3-2779 10/4/99	MW-FO-2 MW-FO-2 10/22/98	MW-FO-2 MW-FO-2BB 10/22/98	MW-FO-2 MW-FO-2D 10/22/98
N-Nitrosodiphenylamine/Diphenylamine		NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosomethylethylamine		NA	< 200	< 0.01	NA	NA	NA
N-Nitrosomorpholine		NA	< 200	< 0.01	NA	NA	NA
N-Nitrosopiperidine		NA	< 200	< 0.01	NA	NA	NA
N-Nitrosopyrrolidine		NA	< 200	< 0.01	NA	NA	NA
Pentachlorophenol		NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene		NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Phenol		NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
P-Nitroaniline		NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene		NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01

Notes:
(a) VOCs = volatile organic compounds
(b) mg/l = milligrams per liter
(c) <= not detected at indicated detection limit
(d) SVOCs = semi-volatile organic compounds

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter / Well ID / Sample Designation / Sample Date	B016-MW-2 B016-2-J 12/19/94	B016-MW-2 B016-MW-2 10/12/99	B016-MW-3 B016-MW-3-2779 10/4/99	MW-FO-2 MW-FO-2 10/22/98	MW-FO-2 MW-FO-2BB 10/22/98	MW-FO-2 MW-FO-2D 10/22/98
Bis(2-Chloroethyl)Ether	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroisopropyl)Ether	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Ethylhexyl)Phthalate	NA	600	< 0.01	0.038	< 0.01	0.045
Carbazole	NA	< 200	NA	< 0.01	< 0.01	< 0.01
Chrysene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Diallate	NA	< 400	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Diethyl Phthalate	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Dimethoate	NA	< 400	< 0.02	NA	NA	NA
Dimethyl Phthalate	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Di-n-Butyl Phthalate	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Di-n-Octylphthalate	NA	360	< 0.01	< 0.01	< 0.01	< 0.01
Dinoseb	NA	< 400	< 0.02	NA	NA	NA
Disulfoton	NA	< 1000	< 0.05	NA	NA	NA
Ethyl methanesulfonate	NA	< 200	< 0.01	NA	NA	NA
Famphur	NA	< 2000	< 0.1	NA	NA	NA
Fluoranthene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorocyclopentadiene	NA	< 1000	< 0.05	< 0.01	< 0.01	< 0.01
Hexachloroethane	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorophene	NA	<	<	NA	NA	NA
Hexachloropropene	NA	< 2000	< 0.1	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Methapyrilene	NA	< 1000	< 0.05	NA	NA	NA
Methyl methanesulfonate	NA	< 200	< 0.01	NA	NA	NA
Methyl parathion	NA	< 1000	< 0.05	NA	NA	NA
Naphthalene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiethylamine	NA	< 200	< 0.01	NA	NA	NA
N-Nitrosodimethylamine	NA	< 200	< 0.01	NA	NA	NA
N-Nitrosodi-n-butylamine	NA	< 200	< 0.01	NA	NA	NA
N-Nitroso-Di-N-Propylamine	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodiphenylamine	NA	< 200	< 0.01	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	B016-MW-2	B016-MW-2	B016-MW-3	MW-FO-2	MW-FO-2	MW-FO-2
Sample Designation	B016-2-J	B016-MW-2	B016-MW-3-2779	MW-FO-2	MW-FO-2BB	MW-FO-2D
Sample Date	12/19/94	10/12/99	10/4/99	10/22/98	10/22/98	10/22/98
Parameter						
2-Methyl-4,6-Dinitrophenol	NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol (O-Cresol)	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	NA	< 400	< 0.02	NA	NA	NA
3,3'-Dichlorobenzidine	NA	< 1000	< 0.05	< 0.02	< 0.02	< 0.02
3,3'-Dimethylbenzidine	NA	< 1000	< 0.05	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
3-Methylcholanthrene	NA	< 400	< 0.02	NA	NA	NA
3-Methylphenol & 4-Methylphenol	NA	NA	< 0.02	NA	NA	NA
3-Methylphenol/4-Methylphenol	NA	NA	< 0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
4-Bromophenyl Phenyl Ether	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-Methylphenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloroaniline	NA	< 200	< 0.01	< 0.02	< 0.02	< 0.02
4-Chlorophenyl Phenyl Ether	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitrophenol	NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroquinoline-1-oxide	NA	< 2000	< 0.1	NA	NA	NA
5-Nitro-o-toluidine	NA	< 400	< 0.02	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	< 400	< 0.02	NA	NA	NA
a,a-Dimethylphenethylamine	NA	< 1000	< 0.05	NA	NA	NA
Acenaphthene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Acetophenone	NA	< 200	< 0.01	NA	NA	NA
Aniline	NA	< 200	< 0.01	NA	NA	NA
Anthracene	NA		< 0.0011	< 0.01	< 0.01	< 0.01
Aramite	NA	< 400	< 0.02	NA	NA	NA
Benzo(b)Fluoranthene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Anthracene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)Pyrene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)Perylene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)Fluoranthene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	NA	< 200	< 0.01	NA	NA	NA
Benzyl Butyl Phthalate	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-Chloroethoxy)Methane	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter / Well ID / Sample Designation / Sample Date	B016-MW-2 B016-2-J 12/19/94	B016-MW-2 B016-MW-2 10/12/99	B016-MW-3 B016-MW-3-2779 10/4/99	MW-FO-2 MW-FO-2 10/22/98	MW-FO-2 MW-FO-2BB 10/22/98	MW-FO-2 MW-FO-2D 10/22/98
Dibromomethane	NA	< 0.005	< 0.005	NA	NA	NA
Dichlorodifluoromethane	NA	< 0.01	< 0.01	NA	NA	NA
Dichloromethane	< 0.01	0.7	< 0.005	< 0.005	< 0.005	< 0.005
Ethyl Methacrylate	NA	< 0.005	< 0.005	NA	NA	NA
Ethylbenzene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Iodomethane	NA	< 0.005	< 0.005	NA	NA	NA
Isobutyl Alcohol	NA	< 0.2	< 0.2	NA	NA	NA
Methacrylonitrile	NA	< 0.005	< 0.005	NA	NA	NA
Methyl Methacrylate	NA	< 0.005	< 0.005	NA	NA	NA
Propionitrile	NA	< 0.02	< 0.02	NA	NA	NA
Styrene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Tetrachloroethene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Trans-1,2-Dichloroethene	< 0.01	< 0.0025	< 0.0025	NA	NA	NA
Trans-1,3-Dichloropropene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Trans-1,4-Dichloro-2-Butene	NA	< 0.005	< 0.005	NA	NA	NA
Trichloroethylene	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl Acetate	NA	< 0.01	< 0.01	NA	NA	NA
Vinyl Chloride	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene (Total)	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SVOCs[(d)]						
1,2,4,5-Tetrachlorobenzene	NA	< 200	< 0.01	NA	NA	NA
1,2,4-Trichlorobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trinitrobenzene	NA	< 1000	< 0.05	NA	NA	NA
1,3-Dichlorobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrophenol	NA	< 1000	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dinitrotoluene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2-Chloronaphthalene	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	NA	< 200	< 0.01	< 0.01	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-2 B016-2-J 12/19/94	B016-MW-2 B016-MW-2 10/12/99	B016-MW-3 B016-MW-3-2779 10/4/99	MW-FO-2 MW-FO-2 10/22/98	MW-FO-2 MW-FO-2BB 10/22/98	MW-FO-2 MW-FO-2D 10/22/98
VOCs[a](mg/l)[b]							
1,1,1,2-Tetrachloroethane		NA	< 0.005	< 0.005	NA	NA	NA
1,1,1-Trichloroethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2-Trichloroethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane		NA	< 0.005	< 0.005	NA	NA	NA
1,2-Dibromo-3-Chloropropane		NA	< 0.01	< 0.01	NA	NA	NA
1,2-Dibromoethane		NA	< 0.005	< 0.005	NA	NA	NA
1,2-Dichloroethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dioxane		NA	< 0.5	< 0.5	NA	NA	NA
2-Butanone		< 0.1	< 20	< 0.02	< 0.025	< 0.025	< 0.025
2-Hexanone		< 0.01	< 0.02	< 0.02	< 0.025	< 0.025	< 0.025
4-Methyl-2-Pentanone		< 0.01	< 0.02	< 0.02	< 0.025	< 0.025	< 0.025
Acetone		< 0.1	< 0.02	< 0.02	< 0.05	< 0.05	< 0.05
Acetonitrile		NA	< 0.1	< 0.1	NA	NA	NA
Acrolein		NA	< 0.1	< 0.1	NA	NA	NA
Acrylonitrile		NA	< 0.1	< 0.1	NA	NA	NA
Allyl Chloride		NA	< 0.01	< 0.01	NA	NA	NA
Benzene		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromodichloromethane		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromoform		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromomethane		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon Disulfide		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Carbon Tetrachloride		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chlorobenzene		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloroethane		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform		0.024	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloroprene		NA	< 0.005	< 0.005	NA	NA	NA
Cis-1,2-Dichloroethene		NA	NA	< 0.0025	NA	NA	NA
Cis-1,3-Dichloropropene		< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane		NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-2 B016-2-C 12/17/92	B016-MW-2 B016-2-K 9/21/93	B016-MW-2 B016-2-L 12/1/93	B016-MW-2 B016-2-F 4/25/94	B016-MW-2 B016-2-H 6/28/94	B016-MW-2 B016-2-I 8/31/94
N-Nitrosodiphenylamine/Diphenylamine		NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine		NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine		NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine		NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine		NA	NA	NA	NA	NA	NA
Pentachlorophenol		NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA
Phenol		NA	NA	NA	NA	NA	NA
P-Nitroaniline		NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA

Notes:
(a) VOCs = volatile organic compounds
(b) mg/l = milligrams per liter
(c) <= not detected at indicated detection limit
(d) SVOCs = semi-volatile organic compounds

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2
Sample Designation	B016-2-C	B016-2-K	B016-2-L	B016-2-F	B016-2-H	B016-2-I
Sample Date	12/17/92	9/21/93	12/1/93	4/25/94	6/28/94	8/31/94
Parameter						
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA
Diethyl Phthalate	NA	NA	NA	NA	NA	NA
Dimethoate	NA	NA	NA	NA	NA	NA
Dimethyl Phthalate	NA	NA	NA	NA	NA	NA
Di-n-Butyl Phthalate	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	NA	NA	NA	NA	NA	NA
Dinoseb	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-butylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-Di-N-Propylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID / Sample Designation / Sample Date / Parameter	B016-MW-2 B016-2-C 12/17/92	B016-MW-2 B016-2-K 9/21/93	B016-MW-2 B016-2-L 12/1/93	B016-MW-2 B016-2-F 4/25/94	B016-MW-2 B016-2-H 6/28/94	B016-MW-2 B016-2-I 8/31/94
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylphenol (O-Cresol)	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Methylphenol & 4-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene	NA	NA	NA	NA	NA	NA
Benzo(a)Anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)Perylene	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date					
	B016-MW-2 / B016-2-C / 12/17/92	B016-MW-2 / B016-2-K / 9/21/93	B016-MW-2 / B016-2-L / 12/1/93	B016-MW-2 / B016-2-F / 4/25/94	B016-MW-2 / B016-2-H / 6/28/94	B016-MW-2 / B016-2-I / 8/31/94
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Dichloromethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ethyl Methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	< 0.005	< 0.0072	< 0.005	< 0.0072	< 0.0072	< 0.0072
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	< 0.005	NA	NA	NA
Tetrachloroethene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	< 0.005	< 0.005	< 0.005	< 0.006	< 0.006	< 0.006
Trans-1,2-Dichloroethene	NA	NA	NA	< 0.005	< 0.005	< 0.005
Trans-1,3-Dichloropropene	< 0.005	< 0.005	NA	< 0.005	< 0.005	< 0.005
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA	NA
Trichloroethylene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl Acetate	NA	NA	NA	NA	NA	NA
Vinyl Chloride	< 0.01	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Xylene (Total)	NA	NA	< 0.005	NA	< 0.005	< 0.005
SVOCs[(d)]						
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2	B016-MW-2
Sample Designation	B016-2-C	B016-2-K	B016-2-L	B016-2-F	B016-2-H	B016-2-I
Sample Date	12/17/92	9/21/93	12/1/93	4/25/94	6/28/94	8/31/94
Parameter						
VOCs[a](mg/l)[b]						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.0069	< 0.005	< 0.0069	< 0.0069	< 0.0069
1,1,2-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005	< 0.005	< 0.006	< 0.006	< 0.006
1,4-Dioxane	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	< 0.1	NA	NA	NA
2-Hexanone	NA	NA	< 0.05	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	< 0.05	NA	NA	NA
Acetone	NA	NA	< 0.1	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA	NA
Benzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromodichloromethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromomethane	< 0.01	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Carbon Disulfide	NA	NA	< 0.005	NA	NA	NA
Carbon Tetrachloride	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chlorobenzene	< 0.005	< 0.005	< 0.005	< 0.006	< 0.006	< 0.006
Chloroethane	< 0.01	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Chloroform	0.01	< 0.005	0.006	< 0.005	< 0.005	0.0099
Chloromethane	< 0.01	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Chloroprene	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	NA	NA	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter / Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-H 6/28/94	B016-MW-1 B016-1-I 8/31/94	B016-MW-1 B016-1-J 12/19/94	B016-MW-1 B016-MW-1-2749 10/1/99	B016-MW-2 B016-2-E 8/31/92	B016-MW-2 B016-2-B 10/22/92
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosomorpholine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosopiperidine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	< 0.01	NA	NA
Pentachlorophenol	NA	NA	NA	< 0.05	NA	< 0.05
Phenanthrene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Phenol	NA	NA	NA	< 0.01	NA	< 0.01
P-Nitroaniline	NA	NA	NA	< 0.05	< 0.01	< 0.05
Pyrene	NA	NA	NA	< 0.01	< 0.01	< 0.01

Notes:
(a) VOCs = volatile organic compounds
(b) mg/l = milligrams per liter
(c) <= not detected at indicated detection limit
(d) SVOCs = semi-volatile organic compounds

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter / Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-H 6/28/94	B016-MW-1 B016-1-I 8/31/94	B016-MW-1 B016-1-J 12/19/94	B016-MW-1 B016-MW-1-2749 10/1/99	B016-MW-2 B016-2-E 8/31/92	B016-MW-2 B016-2-B 10/22/92
Bis(2-Chloroethyl)Ether	NA	NA	NA	< 0.01	< 0.01	< 0.01
Bis(2-Chloroisopropyl)Ether	NA	NA	NA	< 0.01	< 0.01	< 0.01
Bis(2-Ethylhexyl)Phthalate	NA	NA	NA	< 0.01	0.003	< 0.01
Carbazole	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Diallate	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Dibenzofuran	NA	NA	NA	< 0.01	< 0.01	< 0.01
Diethyl Phthalate	NA	NA	NA	< 0.01	< 0.01	< 0.01
Dimethoate	NA	NA	NA	< 0.02	NA	NA
Dimethyl Phthalate	NA	NA	NA	< 0.01	< 0.01	< 0.01
Di-n-Butyl Phthalate	NA	NA	NA	< 0.01	0.002	0.003
Di-n-Octylphthalate	NA	NA	NA	< 0.01	< 0.01	< 0.01
Dinoseb	NA	NA	NA	< 0.02	NA	NA
Disulfoton	NA	NA	NA	< 0.05	NA	NA
Ethyl methanesulfonate	NA	NA	NA	< 0.01	NA	NA
Famphur	NA	NA	NA	< 0.1	NA	NA
Fluoranthene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Fluorene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Hexachlorocyclopentadiene	NA	NA	NA	< 0.05	< 0.01	< 0.01
Hexachloroethane	NA	NA	NA	< 0.01	< 0.01	< 0.01
Hexachlorophene	NA	NA	NA	<	NA	NA
Hexachloropropene	NA	NA	NA	< 0.1	NA	NA
Indeno(1,2,3-Cd)Pyrene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Methapyrilene	NA	NA	NA	< 0.05	NA	NA
Methyl methanesulfonate	NA	NA	NA	< 0.01	NA	NA
Methyl parathion	NA	NA	NA	< 0.05	NA	NA
Naphthalene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Nitrobenzene	NA	NA	NA	< 0.01	< 0.01	< 0.01
N-Nitrosodiethylamine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	< 0.01	NA	NA
N-Nitrosodi-n-butylamine	NA	NA	NA	< 0.01	NA	NA
N-Nitroso-Di-N-Propylamine	NA	NA	NA	< 0.01	< 0.01	< 0.01
N-Nitrosodiphenylamine	NA	NA	NA	< 0.01	NA	NA

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Historical Groundwater Data
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VOCs and SVOCs
Alcoa Badin, NC Works RFI

Well ID	B016-MW-1	B016-MW-1	B016-MW-1	B016-MW-1	B016-MW-2	B016-MW-2
Sample Designation	B016-1-H	B016-1-I	B016-1-J	B016-MW-1-2749	B016-2-E	B016-2-B
Sample Date	6/28/94	8/31/94	12/19/94	10/1/99	8/31/92	10/22/92
Parameter						
2-Methyl-4,6-Dinitrophenol	NA	NA	NA	< 0.05	NA	< 0.05
2-Methylnaphthalene	NA	NA	NA	< 0.01	< 0.01	< 0.01
2-Methylphenol (O-Cresol)	NA	NA	NA	< 0.01	NA	< 0.01
2-Nitroaniline	NA	NA	NA	< 0.05	< 0.01	< 0.05
2-Nitrophenol	NA	NA	NA	< 0.01	NA	< 0.01
2-Picoline	NA	NA	NA	< 0.02	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	< 0.05	< 0.01	< 0.02
3,3'-Dimethylbenzidine	NA	NA	NA	< 0.05	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One	NA	NA	NA	< 0.01	< 0.01	< 0.01
3-Methylcholanthrene	NA	NA	NA	< 0.02	NA	NA
3-Methylphenol & 4-Methylphenol	NA	NA	NA	< 0.02	NA	NA
3-Methylphenol/4-Methylphenol	NA	NA	NA	< 0.01	NA	NA
3-Nitroaniline	NA	NA	NA	< 0.05	< 0.01	< 0.05
4-Bromophenyl Phenyl Ether	NA	NA	NA	< 0.01	< 0.01	< 0.01
4-Chloro-3-Methylphenol	NA	NA	NA	< 0.01	NA	< 0.02
4-Chloroaniline	NA	NA	NA	< 0.01	< 0.01	< 0.02
4-Chlorophenyl Phenyl Ether	NA	NA	NA	< 0.01	< 0.01	< 0.01
4-Nitrophenol	NA	NA	NA	< 0.05	NA	< 0.05
4-Nitroquinoline-1-oxide	NA	NA	NA	< 0.1	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	< 0.02	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	< 0.02	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	< 0.05	NA	NA
Acenaphthene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Acenaphthylene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Acetophenone	NA	NA	NA	< 0.01	NA	NA
Aniline	NA	NA	NA	< 0.01	NA	NA
Anthracene	NA	NA	NA	< 0.0011	< 0.01	< 0.01
Aramite	NA	NA	NA	< 0.02	NA	NA
Benzo(b)Fluoranthene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Benzo(a)Anthracene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Benzo(a)Pyrene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)Perylene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Benzo(k)Fluoranthene	NA	NA	NA	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	NA	NA	NA	< 0.01	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	< 0.01	< 0.01	< 0.01
Bis(2-Chloroethoxy)Methane	NA	NA	NA	< 0.01	< 0.01	< 0.01

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Table D.1-5
Historical Groundwater Data
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VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-H 6/28/94	B016-MW-1 B016-1-I 8/31/94	B016-MW-1 B016-1-J 12/19/94	B016-MW-1 B016-MW-1-2749 10/1/99	B016-MW-2 B016-2-E 8/31/92	B016-MW-2 B016-2-B 10/22/92
Dibromomethane		NA	NA	NA	< 0.005	NA	NA
Dichlorodifluoromethane		NA	NA	NA	< 0.01	NA	NA
Dichloromethane		< 0.005	< 0.005	< 0.01	< 0.005	0.001	< 0.005
Ethyl Methacrylate		NA	NA	NA	< 0.005	NA	NA
Ethylbenzene		< 0.0072	< 0.0072	< 0.01	< 0.005	< 0.005	< 0.005
Iodomethane		NA	NA	NA	< 0.005	NA	NA
Isobutyl Alcohol		NA	NA	NA	< 0.2	NA	NA
Methacrylonitrile		NA	NA	NA	< 0.005	NA	NA
Methyl Methacrylate		NA	NA	NA	< 0.005	NA	NA
Propionitrile		NA	NA	NA	< 0.02	NA	NA
Styrene		NA	NA	< 0.01	< 0.005	< 0.005	< 0.005
Tetrachloroethene		< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Toluene		< 0.006	< 0.006	< 0.01	< 0.005	< 0.005	< 0.005
Trans-1,2-Dichloroethene		< 0.005	< 0.005	< 0.01	< 0.0025	NA	NA
Trans-1,3-Dichloropropene		< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Trans-1,4-Dichloro-2-Butene		NA	NA	NA	< 0.005	NA	NA
Trichloroethylene		< 0.005	< 0.005	< 0.01	< 0.005	< 0,005	< 0.005
Vinyl Acetate		NA	NA	NA	< 0.01	NA	NA
Vinyl Chloride		< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01
Xylene (Total)		< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
SVOCs[(d)]							
1,2,4,5-Tetrachlorobenzene		NA	NA	NA	< 0.01	NA	NA
1,2,4-Trichlorobenzene		NA	NA	NA	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene		< 0.005	< 0.005	NA	< 0.01	< 0.01	< 0.01
1,3,5-Trinitrobenzene		NA	NA	NA	< 0.05	NA	NA
1,3-Dichlorobenzene		< 0.005	< 0.005	NA	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene		< 0.005	< 0.005	NA	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol		NA	NA	NA	< 0.01	NA	< 0.01
2,4,6-Trichlorophenol		NA	NA	NA	< 0.01	NA	< 0.01
2,4-Dichlorophenol		NA	NA	NA	< 0.01	NA	< 0.01
2,4-Dimethylphenol		NA	NA	NA	< 0.01	NA	< 0.01
2,4-Dinitrophenol		NA	NA	NA	< 0.05	NA	< 0.05
2,4-Dinitrotoluene		NA	NA	NA	< 0.01	< 0.01	< 0.01
2,6-Dinitrotoluene		NA	NA	NA	< 0.01	< 0.01	< 0.01
2-Chloronaphthalene		NA	NA	NA	< 0.01	< 0.01	< 0.01
2-Chlorophenol		NA	NA	NA	< 0.01	NA	< 0.01

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter / Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-H 6/28/94	B016-MW-1 B016-1-I 8/31/94	B016-MW-1 B016-1-J 12/19/94	B016-MW-1 B016-MW-1-2749 10/1/99	B016-MW-2 B016-2-E 8/31/92	B016-MW-2 B016-2-B 10/22/92
VOCs[a](mg/l)[b]						
1,1,1,2-Tetrachloroethane	NA	NA	NA	< 0.005[c]	NA	NA
1,1,1-Trichloroethane	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0069	< 0.0069	< 0.01	< 0.005	< 0.005	< 0.005
1,1,2-Trichloroethane	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane	NA	NA	NA	< 0.005	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	< 0.01	NA	NA
1,2-Dibromoethane	NA	NA	NA	< 0.005	NA	NA
1,2-Dichloroethane	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane	< 0.006	< 0.006	< 0.01	< 0.005	< 0.005	< 0.005
1,4-Dioxane	NA	NA	NA	< 0.5	NA	NA
2-Butanone	NA	NA	< 0.1	< 0.02	< 0.01	< 0.01
2-Hexanone	NA	NA	< 0.01	< 0.02	< 0.01	< 0.01
4-Methyl-2-Pentanone	NA	NA	< 0.01	< 0.02	< 0.01	< 0.01
Acetone	NA	NA	< 0.1	< 0.02	< 0.01	< 0.01
Acetonitrile	NA	NA	NA	< 0.1	NA	NA
Acrolein	NA	NA	NA	< 0.1	NA	NA
Acrylonitrile	NA	NA	NA	< 0.1	NA	NA
Allyl Chloride	NA	NA	NA	< 0.01	NA	NA
Benzene	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Bromodichloromethane	0.0051	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Bromomethane	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01
Carbon Disulfide	NA	NA	< 0.01	< 0.005	< 0.005	< 0.005
Carbon Tetrachloride	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Chlorobenzene	< 0.006	< 0.006	< 0.01	< 0.005	< 0.005	< 0.005
Chloroethane	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform	0.032	0.045	0.021	< 0.005	0.005	0.018
Chloromethane	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01
Chloroprene	NA	NA	NA	< 0.005	NA	NA
Cis-1,2-Dichloroethene	NA	NA	NA	< 0.0025	NA	NA
Cis-1,3-Dichloropropene	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	< 0.005
Dibromochloromethane	NA	NA	NA	< 0.005	NA	NA

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Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date					
	B016-MW-1 B016-1-E 8/31/92	B016-MW-1 B016-1-B 10/22/92	B016-MW-1 B016-1-C 12/17/92	B016-MW-1 B016-1-K 9/21/93	B016-MW-1 B016-1-L 12/1/93	B016-MW-1 B016-1-F 4/25/94
N-Nitrosodiphenylamine/Diphenylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	< 0.05	NA	NA	NA	NA
Phenanthrene	< 0.01	< 0.01	NA	NA	NA	NA
Phenol	NA	< 0.01	NA	NA	NA	NA
P-Nitroaniline	< 0.01	< 0.05	NA	NA	NA	NA
Pyrene	< 0.01	< 0.01	NA	NA	NA	NA

Notes:
(a) VOCs = volatile organic compounds
(b) mg/l = milligrams per liter
(c) <= not detected at indicated detection limit
(d) SVOCs = semi-volatile organic compounds

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-E 8/31/92	B016-MW-1 B016-1-B 10/22/92	B016-MW-1 B016-1-C 12/17/92	B016-MW-1 B016-1-K 9/21/93	B016-MW-1 B016-1-L 12/1/93	B016-MW-1 B016-1-F 4/25/94
Bis(2-Chloroethyl)Ether		< 0.01	< 0.01	NA	NA	NA	NA
Bis(2-Chloroisopropyl)Ether		< 0.01	< 0.01	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate		0.003	0.007	NA	NA	NA	NA
Carbazole		NA	NA	NA	NA	NA	NA
Chrysene		< 0.01	< 0.01	NA	NA	NA	NA
Diallate		NA	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene		< 0.01	< 0.01	NA	NA	NA	NA
Dibenzofuran		< 0.01	< 0.01	NA	NA	NA	NA
Diethyl Phthalate		< 0.01	< 0.01	NA	NA	NA	NA
Dimethoate		NA	NA	NA	NA	NA	NA
Dimethyl Phthalate		< 0.01	< 0.01	NA	NA	NA	NA
Di-n-Butyl Phthalate		0.001	0.004	NA	NA	NA	NA
Di-n-Octylphthalate		< 0.01	< 0.01	NA	NA	NA	NA
Dinoseb		NA	NA	NA	NA	NA	NA
Disulfoton		NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate		NA	NA	NA	NA	NA	NA
Famphur		NA	NA	NA	NA	NA	NA
Fluoranthene		< 0.01	< 0.01	NA	NA	NA	NA
Fluorene		< 0.01	< 0.01	NA	NA	NA	NA
Hexachlorobenzene		< 0.01	< 0.01	NA	NA	NA	NA
Hexachlorobutadiene		< 0.01	< 0.01	NA	NA	NA	NA
Hexachlorocyclopentadiene		< 0.01	< 0.01	NA	NA	NA	NA
Hexachloroethane		< 0.01	< 0.01	NA	NA	NA	NA
Hexachlorophene		NA	NA	NA	NA	NA	NA
Hexachloropropene		NA	NA	NA	NA	NA	NA
Indeno(1,2,3-Cd)Pyrene		< 0.01	< 0.01	NA	NA	NA	NA
Methapyrilene		NA	NA	NA	NA	NA	NA
Methyl methanesulfonate		NA	NA	NA	NA	NA	NA
Methyl parathion		NA	NA	NA	NA	NA	NA
Naphthalene		< 0.01	< 0.01	NA	NA	NA	NA
Nitrobenzene		< 0.01	< 0.01	NA	NA	NA	NA
N-Nitrosodiethylamine		NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine		NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-butylamine		NA	NA	NA	NA	NA	NA
N-Nitroso-Di-N-Propylamine		< 0.01	< 0.01	NA	NA	NA	NA
N-Nitrosodiphenylamine		NA	NA	NA	NA	NA	NA

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VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date	B016-MW-1 B016-1-E 8/31/92	B016-MW-1 B016-1-B 10/22/92	B016-MW-1 B016-1-C 12/17/92	B016-MW-1 B016-1-K 9/21/93	B016-MW-1 B016-1-L 12/1/93	B016-MW-1 B016-1-F 4/25/94
2-Methyl-4,6-Dinitrophenol		NA	< 0.05	NA	NA	NA	NA
2-Methylnaphthalene		< 0.01	< 0.01	NA	NA	NA	NA
2-Methylphenol (O-Cresol)		NA	< 0.01	NA	NA	NA	NA
2-Nitroaniline		< 0.01	< 0.05	NA	NA	NA	NA
2-Nitrophenol		NA	< 0.01	NA	NA	NA	NA
2-Picoline		NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine		< 0.01	< 0.02	NA	NA	NA	NA
3,3'-Dimethylbenzidine		NA	NA	NA	NA	NA	NA
3,5,5-Trimethyl-2-Cyclohexen-1-One		< 0.01	< 0.01	NA	NA	NA	NA
3-Methylcholanthrene		NA	NA	NA	NA	NA	NA
3-Methylphenol & 4-Methylphenol		NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol		NA	NA	NA	NA	NA	NA
3-Nitroaniline		< 0.01	< 0.05	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether		< 0.01	< 0.01	NA	NA	NA	NA
4-Chloro-3-Methylphenol		NA	< 0.02	NA	NA	NA	NA
4-Chloroaniline		< 0.01	< 0.02	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether		< 0.01	< 0.01	NA	NA	NA	NA
4-Nitrophenol		NA	< 0.05	NA	NA	NA	NA
4-Nitroquinoline-1-oxide		NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine		NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene		NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine		NA	NA	NA	NA	NA	NA
Acenaphthene		< 0.01	< 0.01	NA	NA	NA	NA
Acenaphthylene		< 0.01	< 0.01	NA	NA	NA	NA
Acetophenone		NA	NA	NA	NA	NA	NA
Aniline		NA	NA	NA	NA	NA	NA
Anthracene		< 0.01	< 0.01	NA	NA	NA	NA
Aramite		NA	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene		< 0.01	< 0.01	NA	NA	NA	NA
Benzo(a)Anthracene		< 0.01	< 0.01	NA	NA	NA	NA
Benzo(a)Pyrene		< 0.01	< 0.01	NA	NA	NA	NA
Benzo(g,h,i)Perylene		< 0.01	< 0.01	NA	NA	NA	NA
Benzo(k)Fluoranthene		< 0.01	< 0.01	NA	NA	NA	NA
Benzyl Alcohol		NA	NA	NA	NA	NA	NA
Benzyl Butyl Phthalate		< 0.01	< 0.01	NA	NA	NA	NA
Bis(2-Chloroethoxy)Methane		< 0.01	< 0.01	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date					
	B016-MW-1 / B016-1-E / 8/31/92	B016-MW-1 / B016-1-B / 10/22/92	B016-MW-1 / B016-1-C / 12/17/92	B016-MW-1 / B016-1-K / 9/21/93	B016-MW-1 / B016-1-L / 12/1/93	B016-MW-1 / B016-1-F / 4/25/94
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Dichloromethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ethyl Methacrylate	NA	NA	NA	NA	NA	NA
Ethylbenzene	< 0.005	< 0.005	< 0.005	< 0.0072	< 0.005	< 0.0072
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutyl Alcohol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methyl Methacrylate	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA
Styrene	< 0.005	< 0.005	NA	NA	< 0.005	NA
Tetrachloroethene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.006
Trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 0.005
Trans-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005	< 0.005	NA	< 0.005
Trans-1,4-Dichloro-2-Butene	NA	NA	NA	NA	NA	NA
Trichloroethylene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl Acetate	NA	NA	NA	NA	NA	NA
Vinyl Chloride	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.005
Xylene (Total)	< 0.005	< 0.005	NA	NA	< 0.005	NA
SVOCs[(d)]						
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	< 0.01	< 0.01	NA	NA	NA	NA
1,2-Dichlorobenzene	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	NA	< 0.01	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	< 0.01	NA	NA	NA	NA
2,4-Dichlorophenol	NA	< 0.01	NA	NA	NA	NA
2,4-Dimethylphenol	NA	< 0.01	NA	NA	NA	NA
2,4-Dinitrophenol	NA	< 0.05	NA	NA	NA	NA
2,4-Dinitrotoluene	< 0.01	< 0.01	NA	NA	NA	NA
2,6-Dinitrotoluene	< 0.01	< 0.01	NA	NA	NA	NA
2-Chloronaphthalene	< 0.01	< 0.01	NA	NA	NA	NA
2-Chlorophenol	NA	< 0.01	NA	NA	NA	NA

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Table D.1-5
Historical Groundwater Data
AOC-A and SWMU No. 42
VOCs and SVOCs
Alcoa Badin, NC Works RFI

Parameter	Well ID / Sample Designation / Sample Date					
	B016-MW-1 / B016-1-E / 8/31/92	B016-MW-1 / B016-1-B / 10/22/92	B016-MW-1 / B016-1-C / 12/17/92	B016-MW-1 / B016-1-K / 9/21/93	B016-MW-1 / B016-1-L / 12/1/93	B016-MW-1 / B016-1-F / 4/25/94
VOCs[a](mg/l)[b]						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	< 0.005	< 0.005	< 0.005	< 0.0069	< 0.005	< 0.0069
1,1,2-Trichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	< 0.005	NA
1,2-Dichloroethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichloropropane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.006
1,4-Dioxane	NA	NA	NA	NA	NA	NA
2-Butanone	< 0.01	< 0.01	NA	NA	< 0.1	NA
2-Hexanone	< 0.01	< 0.01	NA	NA	< 0.05	NA
4-Methyl-2-Pentanone	< 0.01	< 0.01	NA	NA	< 0.05	NA
Acetone	< 0.01	< 0.01	NA	NA	< 0.1	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Allyl Chloride	NA	NA	NA	NA	NA	NA
Benzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromodichloromethane	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromoform	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bromomethane	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.005
Carbon Disulfide	< 0.005	< 0.005	NA	NA	< 0.005	NA
Carbon Tetrachloride	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chlorobenzene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.006
Chloroethane	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.005
Chloroform	0.003	0.016	0.014	< 0.005	0.009	< 0.005
Chloromethane	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.005
Chloroprene	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	NA	NA	NA	NA	NA	NA

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Table D.1 - 4
Historical Groundwater Data
Main Plant Area
Free Cyanide
Alcoa Badin, NC Works RFI

Date	MW-23	MW-24	MW-25	MW-25A	MW-26	MW-27
2/10/92	---	---	---	---	---	---
5/20/92	---	---	---	---	---	---
8/1992	---	---	---	---	---	---
11/17/92	---	---	---	---	---	---
3/2/93	---	---	---	---	---	---
6/21/93	---	---	---	---	---	---
10/20/93	---	---	---	---	---	---
2/23/94	---	---	---	---	---	---
5/18/94	---	---	---	---	---	---
8/10/94	---	---	---	---	---	---
11/7/94	---	---	---	---	---	---
6/13/95	9.1	---	---	---	---	---
6/20/96	10.3	---	---	---	---	---
7/23/96	---	---	---	0.571	0.171	0.08
9/18/96	37	---	25	---	0.22	0.08
12/2/96	---	---	4	0.1	0.22	0.03
4/1998	4.7	1.6	0.58	0.21	0.17	0.023
9/1999	---	0.023	0.063	0.064	0.076	0.046
1/4/00	---	---	0.031	0.063	0.013	---

All results are in mg/l.

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Table D.1 - 4
Historical Groundwater Data
Main Plant Area
Free Cyanide
Alcoa Badin, NC Works RFI

Date	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20A	MW-21	MW-22
2/10/92	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	---	---	---
5/20/92	< 0.01	0.055	< 0.01	< 0.01	< 0.01	---	---	---
8/1992	< 0.01	3.500	< 0.01	< 0.01	< 0.01	---	---	---
11/17/92	< 0.01	0.050	0.010	0.010	< 0.01	---	---	---
3/2/93	< 0.01	0.064	< 0.01	< 0.01	< 0.01	---	---	---
6/21/93	0.016	0.011	< 0.01	0.010	0.010	---	---	---
10/20/93	< 0.02	0.130	< 0.02	< 0.02	< 0.02	---	---	---
2/23/94	< 0.02	0.010	< 0.02	< 0.02	< 0.02	---	---	---
5/18/94	< 0.02	0.210	< 0.02	0.010	< 0.02	---	---	---
8/10/94	< 0.02	0.014	< 0.02	< 0.02	< 0.02	---	---	---
11/7/94	< 0.02	0.041	< 0.02	< 0.02	< 0.02	---	---	---
6/13/95	---	---	---	---	---	0.31	0.09	< 0.005
6/20/96	0.01	1.5	---	< 0.01	< 0.01	---	---	---
7/23/96	---	---	---	---	---	---	---	---
9/18/96	---	1.3	---	< 0.01	< 0.01	0.17	0.15	59
12/2/96	---	0.42	---	< 0.01	< 0.01	---	---	---
4/1998	< 0.01	0.27	< 0.01	< 0.01	< 0.01	< 0.01	0.051	5.1
9/1999	---	0.570	< 0.005	< 0.005	< 0.005	0.005	0.111	0.085
1/4/00	---	0.369	< 0.005	< 0.005	< 0.005	---	---	---

All results are in mg/l.

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Table D.1 - 4
Historical Groundwater Data
Main Plant Area
Free Cyanide
Alcoa Badin, NC Works RFI

Date	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14
2/10/92	< 0.01	< 0.01	0.011	< 0.01	< 0.01	0.058	< 0.01	< 0.01
5/20/92	< 0.01	0.010	0.020	0.010	< 0.01	0.010	< 0.01	< 0.01
8/1992	< 0.01	0.010	0.010	< 0.01	< 0.01	0.041	< 0.01	< 0.01
11/17/92	0.010	0.031	0.300	0.014	0.010	0.072	0.010	0.010
3/2/93	< 0.01	0.010	0.051	0.010	0.011	0.026	< 0.01	< 0.01
6/21/93	0.010	0.010	0.016	< 0.01	< 0.01	0.071	< 0.01	< 0.01
10/20/93	< 0.02	0.036	0.052	< 0.02	< 0.02	0.018	< 0.02	< 0.02
2/23/94	< 0.02	0.300	0.080	< 0.02	< 0.02	0.240	< 0.02	< 0.02
5/18/94	< 0.02	0.010	0.010	< 0.02	< 0.02	0.016	< 0.02	< 0.02
8/10/94	< 0.02	0.010	0.061	< 0.02	< 0.02	0.018	< 0.02	< 0.02
11/7/94	< 0.02	0.010	0.010	< 0.02	< 0.02	0.031	< 0.02	< 0.02
6/13/95	< 0.005	---	---	---	---	---	---	---
6/20/96	---	0.22	3.6	< 0.01	---	---	< 0.005	---
7/23/96	---	---	---	---	---	---	---	---
9/18/96	---	0.18	6.5	< 0.01	< 0.02	---	< 0.01	---
12/2/96	---	0.14	---	< 0.01	< 0.01	0.34	---	---
4/1998	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.082	< 0.01	< 0.01
9/1999	< 0.005	0.291	0.494	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1/4/00	---	0.075	0.420	< 0.005	---	---	---	---

All results are in mg/l.

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Table D.1 - 4
Historical Groundwater Data
Main Plant Area
Free Cyanide
Alcoa Badin, NC Works RFI

Date	MW-1	MW-2	MW-2A	MW-3	MW-4	MW-5	MW-6	MW-6A
2/10/92	0.370	0.160	< 0.01	< 0.01	0.010	< 0.01	< 0.01	< 0.01
5/20/92	0.890	0.250	0.010	0.073	0.016	< 0.01	0.010	< 0.01
8/1992	0.038	0.013	0.010	0.010	0.010	< 0.01	0.100	0.010
11/17/92	0.110	0.180	0.010	0.013	0.021	0.010	0.068	0.010
3/2/93	0.180	0.095	0.010	0.010	0.010	0.010	0.010	0.010
6/21/93	0.010	0.049	0.010	0.010	0.010	0.010	0.086	< 0.01
10/20/93	0.094	0.270	0.010	0.010	0.010	0.010	0.010	< 0.02
2/23/94	0.440	0.600	0.039	0.037	0.030	0.010	0.210	< 0.02
5/18/94	0.110	0.160	0.010	0.010	0.140	0.010	0.013	< 0.02
8/10/94	0.110	0.140	0.010	0.010	0.022	0.010	0.240	0.013
11/7/94	0.012	0.013	0.010	0.010	0.010	0.010	0.010	0.010
6/13/95	---	4	0.2	---	---	---	6.8	0.01
6/20/96	0.31	9.8	0.09	---	2.7	0.14	---	0.01
7/23/96	---	---	---	---	---	---	---	---
9/18/96	0.22	4.2	0.21	0.04	0.45	0.17	38	0.02
12/2/96	0.42	7.7	0.04	0.03	---	---	5.5	---
4/1998	1	< 0.01	< 0.01	< 0.01	0.45	0.093	< 0.01	< 0.01
9/1999	0.056	0.075	< 0.005	< 0.005	0.027	0.042	< 0.005	< 0.005
1/4/00	---	---	---	---	0.360	0.019	---	---

All results are in mg/l.

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Table D.1 - 3
Historical Groundwater Data
Main Plant Area
Total Cyanide
Alcoa Badin, NC Works RFI

Date	MW-25	MW-25A	MW-26	MW-27
5/17/90	---	---	---	---
9/5/90	---	---	---	---
2/10/92	---	---	---	---
5/20/92	---	---	---	---
8/1992	---	---	---	---
11/17/92	---	---	---	---
3/2/93	---	---	---	---
6/21/93	---	---	---	---
10/20/93	---	---	---	---
2/23/94	---	---	---	---
5/18/94	---	---	---	---
8/10/94	---	---	---	---
11/7/94	---	---	---	---
6/13/95	---	---	---	---
6/20/96	---	---	---	---
7/23/96	4.95	0.476	0.186	---
9/18/96	0.31	0.76	0.75	---
12/2/96	0.57	0.79	0.07	---
4/1998	0.99	0.58	0.076	---
10/1998	0.63	0.63	0.11	---
9/1999	1.1	0.42	0.1	5.8
1/2000	0.76	0.53	0.042	---

All results are in mg/l.

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Table D.1 - 3
Historical Groundwater Data
Main Plant Area
Total Cyanide
Alcoa Badin, NC Works RFI

Date	MW-18	MW-19	MW-2	MW-20	MW-20A	MW-21	MW-22	MW-23	MW-24
5/17/90	---	---	34	---	---	---	---	---	---
9/5/90	---	---	---	---	---	---	---	---	---
2/10/92	< 0.01	< 0.01	12	---	---	---	---	---	---
5/20/92	< 0.01	< 0.01	16	---	---	---	---	---	---
8/1992	< 0.01	< 0.01	26	---	---	---	---	---	---
11/17/92	< 0.01	< 0.01	20	---	---	---	---	---	---
3/2/93	< 0.01	< 0.01	20	---	---	---	---	---	---
6/21/93	< 0.01	< 0.01	25	---	---	---	---	---	---
10/20/93	< 0.01	< 0.01	31	---	---	---	---	---	---
2/23/94	0.02	0.03	24	---	---	---	---	---	---
5/18/94	< 0.01	< 0.01	24	---	---	---	---	---	---
8/10/94	< 0.01	< 0.01	24	---	---	---	---	---	---
11/7/94	< 0.01	< 0.01	39	---	---	---	---	---	---
6/13/95	---	---	24.3	0.81	0.23	21.5	15.9	---	---
6/20/96	---	---	14.6	---	---	---	2.15	---	---
7/23/96	---	---	---	---	---	---	---	---	---
9/18/96	---	---	38	0.19	0.15	86	57	36	34
12/2/96	---	---	73	---	0.06	65	38.3	97.2	17.8
4/1998	< 0.01	< 0.01	49	0.82	0.23	30	22	19	3
10/1998	---	---	56	---	0.21	23	---	---	32
9/1999	< 0.01	< 0.01	52.4	Dry	0.29	16.8	16.2	Dry	24.2
1/2000	< 0.01	< 0.01	---	---	---	---	---	---	---

All results are in mg/l.

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Table D.1 - 3
Historical Groundwater Data
Main Plant Area
Total Cyanide
Alcoa Badin, NC Works RFI

Date	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17
5/17/90	---	---	---	---	---	---	---	---	---
9/5/90	5.8	< 0.1	< 0.1	2	1.9	< 0.1	< 0.1	---	---
2/10/92	10	< 0.01	< 0.01	1.6	< 0.01	< 0.01	< 0.01	2.9	< 0.01
5/20/92	9.9	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	2.4	< 0.01
8/1992	< 0.01	< 0.01	< 0.01	1.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
11/17/92	7.6	0.024	< 0.01	1.2	< 0.01	< 0.01	< 0.01	2.4	< 0.01
3/2/93	< 0.01	< 0.01	< 0.01	2.5	< 0.01	< 0.01	< 0.01	0.33	< 0.01
6/21/93	8.8	0.015	< 0.01	1.8	< 0.01	< 0.01	0.017	< 0.01	0.013
10/20/93	8.4	< 0.01	< 0.01	1.4	< 0.01	< 0.01	< 0.01	3.4	0.041
2/23/94	5.8	< 0.01	< 0.01	0.97	0.025	< 0.01	< 0.01	< 0.01	< 0.01
5/18/94	< 0.01	< 0.01	< 0.01	1.2	0.02	< 0.01	< 0.01	1.8	< 0.01
8/10/94	6	< 0.01	< 0.01	1.1	< 0.01	< 0.01	< 0.01	1.6	< 0.01
11/7/94	< 0.01	< 0.01	< 0.01	0.85	< 0.01	< 0.01	< 0.01	0.29	< 0.01
6/13/95	---	---	---	---	---	---	---	---	---
6/20/96	7.3	---	---	---	---	---	---	2.1	---
7/23/96	---	---	---	---	---	---	---	---	---
9/18/96	9.1	---	---	---	---	---	---	1.8	---
12/2/96	7.6	---	---	0.4	---	---	---	1.61	---
4/1998	1.1	< 0.01	< 0.01	0.36	< 0.01	< 0.01	< 0.01	1.1	< 0.01
10/1998	8.6	0.0074	< 0.005	0.33	< 0.005	0.0087	0.0062	2.5	---
9/1999	5.5	< 0.01	< 0.01	0.49	< 0.01	0.1	---	2.3	< 0.01
1/2000	4	< 0.01	---	---	---	---	---	2.2	< 0.01

All results are in mg/l.

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Table D.1 - 3
Historical Groundwater Data
Main Plant Area
Total Cyanide
Alcoa Badin, NC Works RFI

Date	MW-1	MW-2A	MW-3	MW-4	MW-5	MW-6	MW-6A	MW-7	MW-8
5/17/90	0.22	---	0.029	12	< 0.02	---	---	---	---
9/5/90	---	0.17	---	---	---	20		< 0.1	0.39
2/10/92	0.84	0.21	0.013	15	< 0.01	7.2	< 0.01	< 0.01	0.63
5/20/92	0.89	< 0.01	< 0.01	12	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8/1992	1.4	< 0.01	< 0.01	< 0.01	< 0.01	28	< 0.01	< 0.01	< 0.01
11/17/92	0.34	0.2	0.042	5.2	< 0.01	33	< 0.01	< 0.01	0.65
3/2/93	0.87	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
6/21/93	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	25	< 0.01	< 0.01	< 0.01
10/20/93	2.6	< 0.01	0.17	< 0.01	< 0.01	26	< 0.01	< 0.01	0.84
2/23/94	0.86	0.13	0.3	12	< 0.01	22	< 0.01	0.023	0.31
5/18/94	0.57	0.17	0.14	7.3	< 0.01	29	< 0.01	< 0.01	0.56
8/10/94	0.5	< 0.01	< 0.01	9.2	< 0.01	23	0.021	< 0.01	< 0.01
11/7/94	0.49	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
6/13/95	---	0.26	---	---	---	22.2	0.02	< 0.005	---
6/20/96	0.37	0.19	---	7.8	0.21	18.7	---	---	0.84
7/23/96	---	---	---	---	---	---	---	---	---
9/18/96	0.22	0.21	0.04	5.5	0.18	59	0.02	---	0.44
12/2/96	0.79	0.19	0.03	0.25	0.03	50.4	---	---	0.5
4/1998	2.6	0.2	< 0.01	0.94	0.26	18	0.02	< 0.01	0.31
10/1998	---	0.17	---	6.3	0.22	17	0.023	---	---
9/1999	4.4	0.21	0.014	4.3	0.2	0.48	0.02	< 0.01	0.86
1/2000	---	---	---	0.19	0.092	---	---	---	0.56

All results are in mg/l.

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Table D.1 - 2
Historical Groundwater Data
Main Plant Area
Fluoride
Alcoa Badin, NC Works RFI

Date	MW-6A	MW-7	MW-8	MW-9
5/17/90	---	---	---	---
9/5/90	---	4.2	8.8	38
2/10/92	0.96	2.4	9.4	71
5/20/92	1.8	0.72	23	37
8/1992	0.83	1.9	3.7	38
11/17/92	0.36	1.4	7.9	33
3/2/93	0.19	0.38	5.9	15
6/21/93	0.27	0.29	5.5	37
10/20/93	0.44	0.36	9.3	42
2/23/94	0.16	0.1	5.9	24
5/18/94	5	0.24	4.4	44
8/10/94	0.41	0.67	7.8	34
11/7/94	0.59	0.32	10	44
6/13/95	0.2	< 0.1	---	---
6/20/96	0.2	0.02	12.3	60.6
7/23/96	---	---	---	---
9/18/96	0.23	---	8	48
12/2/96	0.44	---	10	39
4/1998	0.31	< 0.2	5.1	35
10/1998	< 0.2	---	---	6
9/1999	0.28	< 0.1	15.7	45

All results are in mg/l.

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Table D.1 - 2
Historical Groundwater Data
Main Plant Area
Fluoride
Alcoa Badin, NC Works RFI

Date	MW-25	MW-25A	MW-26	MW-27	MW-2A	MW-3	MW-4	MW-5	MW-6
5/17/90	---	---	---	---	---	22	97	6.4	---
9/5/90	---	---	---	---	0.62	---	---	---	600
2/10/92	---	---	---	---	1.5	4.1	220	1.7	210
5/20/92	---	---	---	---	0.7	5.6	140	3.8	805
8/1992	---	---	---	---	0.34	5	110	0.82	1200
11/17/92	---	---	---	---	0.43	6.2	56	1.1	1200
3/2/93	---	---	---	---	0.62	17	49	1.4	990
6/21/93	---	---	---	---	0.6	13	78	0.94	1400
10/20/93	---	---	---	---	1	7.8	140	1.4	2200
2/23/94	---	---	---	---	0.61	9.9	89	8.3	620
5/18/94	---	---	---	---	0.59	6.8	89	1.4	1500
8/10/94	---	---	---	---	0.55	20	58	1.8	1600
11/7/94	---	---	---	---	0.67	16	140	1.6	1400
6/13/95	---	---	---	---	0.8	---	---	---	2470
6/20/96	---	---	---	---	0.69	---	131	3.7	2740
7/23/96	72.8	3.4	13.4	---	---	---	---	---	---
9/18/96	21	6.6	9.8	---	0.8	3.2	84	2.5	2000
12/2/96	25	8	11	---	0.74	4.2	48	3.2	2400
4/1998	35	7.6	< 0.2	---	0.95	3.8	320	3.5	2700
10/1998	2.7	0.58	1.2	---	< 0.2	---	8.7	0.24	240
9/1999	88.3	6.5	12.2	439	1	3.2	81.5	2.6	3700

All results are in mg/l.

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Table D.1 - 2
Historical Groundwater Data
Main Plant Area
Fluoride
Alcoa Badin, NC Works RFI

Date	MW-18	MW-19	MW-2	MW-20	MW-20A	MW-21	MW-22	MW-23	MW-24
5/17/90	---	---	47	---	---	---	---	---	---
9/5/90	---	---	---	---	---	---	---	---	---
2/10/92	13	0.72	15	---	---	---	---	---	---
5/20/92	0.86	0.45	18	---	---	---	---	---	---
8/1992	0.11	0.2	12	---	---	---	---	---	---
11/17/92	0.72	2	23	---	---	---	---	---	---
3/2/93	0.026	0.87	15	---	---	---	---	---	---
6/21/93	0.78	0.3	20	---	---	---	---	---	---
10/20/93	0.42	0.18	90	---	---	---	---	---	---
2/23/94	0.12	0.36	21	---	---	---	---	---	---
5/18/94	0.59	2.4	26	---	---	---	---	---	---
8/10/94	0.52	0.28	34	---	---	---	---	---	---
11/7/94	0.53	0.13	38	---	---	---	---	---	---
6/13/95	---	---	41	< 160	0.5	2830	1380	---	---
6/20/96	0.02	0.03	70.1	---	---	---	2140	---	---
7/23/96	---	---	---	---	---	---	---	---	---
9/18/96	---	---	63	84	0.58	2600	2000	8500	840
12/2/96	0.36	0.37	71	---	0.84	4200	2200	12000	1700
4/1998	< 0.2	< 0.2	74	190	0.77	2900	2100	2400	620
10/1998	---	---	17	---	< 0.2	230	---	---	80
9/1999	0.1	< 0.1	216	Dry	0.58	1710	2340	Dry	1250

All results are in mg/l.

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Table D.1 - 2
Historical Groundwater Data
Main Plant Area
Fluoride
Alcoa Badin, NC Works RFI

Date	MW-1	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17
5/17/90	0.38	---	---	---	---	---	---	---	---
9/5/90	---	3.3	3.1	11	0.8	5	2.5	---	---
2/10/92	0.34	1.9	2	11	0.71	7	0.61	23	0.51
5/20/92	3.8	4.6	6	8.9	1.1	6.9	1	10	1.7
8/1992	< 0.1	1.4	0.37	10	0.28	1.9	0.31	9.5	0.01
11/17/92	0.13	1.7	0.72	8.9	0.34	5.7	0.28	25	1.1
3/2/93	0.16	1.2	0.95	19	0.19	6.2	0.45	12	0.75
6/21/93	0.29	1.6	0.62	8.6	0.28	6.9	1.2	11	0.92
10/20/93	0.86	1.9	0.96	13	1.9	7.9	1.7	8.1	0.82
2/23/94	0.13	2.6	0.82	4.6	< 0.1	7.1	2.4	13	0.13
5/18/94	< 0.1	2.1	0.72	9.9	0.53	8	0.65	11	0.29
8/10/94	0.15	1.8	0.68	9.4	0.21	8.6	0.44	14	< 0.1
11/7/94	0.22	2.9	0.53	11	1.3	8.4	2.1	11	0.29
6/13/95	---	---	---	---	---	---	---	---	---
6/20/96	0.02	2			0.02	14	0.22	14.7	0.02
7/23/96	---	---	---	---	---	---	---	---	---
9/18/96	---	2	0.45	---	---	8	0.24	17	---
12/2/96	---	3.2	0.8	19	---	12	1.6	33	---
4/1998	< 0.2	1.3	0.68	29	< 0.2	7.3	0.35	11	< 0.2
10/1998	---	< 0.2	< 0.2	2.2	< 0.2	0.49	< 0.2	1.2	---
9/1999	< 0.1	1.6	0.64	20	< 0.1	6.9	---	15.5	< 0.1

All results are in mg/l.

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Table D.1 - 1
Historical Groundwater Elevations
Plant Area
Alcoa Badin, NC Works RFI

Date	PZ-3	PZ-4	PZ-5	PZ-6
5/17/90	---	---	---	---
7/20/90	---	---	---	---
8/15/90	---	---	---	---
9/12/90	---	---	---	---
10/11/90	---	---	---	---
11/14/90	---	---	---	---
12/17/90	---	---	---	---
2/1/91	---	---	---	---
3/1/91	---	---	---	---
4/1/91	---	---	---	---
5/1/91	---	---	---	---
6/1/91	---	---	---	---
7/1/91	---	---	---	---
10/29/91	---	---	---	---
12/11/91	---	---	---	---
1/20/92	---	---	---	---
2/10/92	---	---	---	---
3/24/92	---	---	---	---
4/27/92	---	---	---	---
5/21/92	---	---	---	---
6/23/92	---	---	---	---
8/13/92	---	---	---	---
10/26/92	---	---	---	---
11/17/92	---	---	---	---
1/29/93	---	---	---	---
3/3/93	---	---	---	---
6/21/93	---	---	---	---
10/1/93	---	---	---	---
2/22/94	---	---	---	---
5/18/94	---	---	---	---
8/10/94	---	---	---	---
11/7/94	---	---	---	---
6/13/95	521.69	520.66	---	---
6/21/95	522.73	520.73	---	---
6/26/95	521.19	520.71	---	---
7/3/95	524.26	520.79	---	---
7/13/95	524.23	520.69	---	---
7/24/95	524.19	520.65	---	---
8/3/95	524.31	520.62	---	---
9/29/95	524.24	521	---	---
10/2/95	524.21	520.9	---	---
4/24/96	524.09	520.93	---	---
6/19/96	---	---	---	---
7/22/96	---	---	510.91	510.43
8/16/96	527.24	---	511.2	510.51
8/30/96	526.93	---	510.45	509.23
9/16/96	527.22	---	510.91	510.43
12/3/96	525.97	519.27	511.8	510.48
2/19/97	528.93	520.58	523.9	518.77
7/24/97	524.75	518.67	523.9	518.77
5/1/98	---	---	---	---
10/19/98	523.39	---	---	507.96
9/1999	---	---	---	---

All water elevationsAll water elevations are in feet above mean sea level.

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Table D.1 - 1
Historical Groundwater Elevations
Plant Area
Alcoa Badin, NC Works RFI

Date	MW-22	MW-23	MW-24	MW-25	MW-25A	MW-26	PZ-1	PZ-2
5/17/90	---	---	---	---	---	---	---	---
7/20/90	---	---	---	---	---	---	---	---
8/15/90	---	---	---	---	---	---	---	---
9/12/90	---	---	---	---	---	---	---	---
10/11/90	---	---	---	---	---	---	---	---
11/14/90	---	---	---	---	---	---	---	---
12/17/90	---	---	---	---	---	---	---	---
2/1/91	---	---	---	---	---	---	---	---
3/1/91	---	---	---	---	---	---	---	---
4/1/91	---	---	---	---	---	---	---	---
5/1/91	---	---	---	---	---	---	---	---
6/1/91	---	---	---	---	---	---	---	---
7/1/91	---	---	---	---	---	---	---	---
10/29/91	---	---	---	---	---	---	---	---
12/11/91	---	---	---	---	---	---	---	---
1/20/92	---	---	---	---	---	---	---	---
2/10/92	---	---	---	---	---	---	---	---
3/24/92	---	---	---	---	---	---	---	---
4/27/92	---	---	---	---	---	---	---	---
5/21/92	---	---	---	---	---	---	---	---
6/23/92	---	---	---	---	---	---	---	---
8/13/92	---	---	---	---	---	---	---	---
10/26/92	---	---	---	---	---	---	---	---
11/17/92	---	---	---	---	---	---	---	---
1/29/93	---	---	---	---	---	---	---	---
3/3/93	---	---	---	---	---	---	---	---
6/21/93	---	---	---	---	---	---	---	---
10/1/93	---	---	---	---	---	---	---	---
2/22/94	---	---	---	---	---	---	---	---
5/18/94	---	---	---	---	---	---	---	---
8/10/94	---	---	---	---	---	---	---	---
11/7/94	---	---	---	---	---	---	---	---
6/13/95	516.43	---	---	---	---	---	526.59	525.17
6/21/95	516.46	---	---	---	---	---	526.48	524.76
6/26/95	516.44	---	---	---	---	---	526.34	524.47
7/3/95	516.46	---	---	---	---	---	526.48	524.49
7/13/95	516.39	---	---	---	---	---	526.49	524.64
7/24/95	516.34	---	---	---	---	---	526.38	524.2
8/3/95	516.31	---	---	---	---	---	526.3	523.74
9/29/95	516.37	---	---	---	---	---	526.82	523.85
10/2/95	516.32	---	---	---	---	---	526.66	524.04
4/24/96	516.43	523.14	520.59	---	---	---	526.2	524.29
6/19/96	516.37	---	---	---	---	---	---	---
7/22/96	516.44	524.45	519.68	508.14	508.29	508.04	---	---
8/16/96	516.38	522.41	519.33	509.35	509.35	509.32	529.49	523.79
8/30/96	516.35	523.72	519.58	507.94	507.87	507.76	529.06	523.8
9/16/96	516.44	524.45	519.68	508.14	508.29	508.04	529.67	524.68
12/3/96	516.51	523.12	519.5	508.6	508.58	508.52	528.34	523
2/19/97	516.48	526	519.81	514.45	515.02	510.92	531.77	525.43
7/24/97	517.07	522.22	519.33	510.74	510.28	509.56	529.3	523
5/1/98	516.67	527.68	519.9	509.81	509.39	509.71	---	---
10/19/98	516.31	---	518.89	507.28	507.25	507.14	526.14	---
9/1999	516.53	---	518.83	506.75	506.85	506.59	---	---

All water elevationsAll water elevations are in feet above mean sea level.

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Table D.1 - 1
Historical Groundwater Elevations
Plant Area
Alcoa Badin, NC Works RFI

Date	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-20A	MW-21
5/17/90	---	---	---	---	---	---	---	---
7/20/90	---	---	---	---	---	---	---	---
8/15/90	---	---	---	---	---	---	---	---
9/12/90	511.91	---	---	---	---	---	---	---
10/11/90	---	---	---	---	---	---	---	---
11/14/90	---	---	---	---	---	---	---	---
12/17/90	---	---	---	---	---	---	---	---
2/1/91	510.65	508.58	---	---	---	---	---	---
3/1/91	511.85	508.89	---	---	---	---	---	---
4/1/91	511.78	509.16	---	---	---	---	---	---
5/1/91	511.86	509.08	---	---	---	---	---	---
6/1/91	511.8	508.42	---	---	---	---	---	---
7/1/91	511.75	507.79	---	---	---	---	---	---
10/29/91	511.84	508.61	---	---	---	---	---	---
12/11/91	511.79	507.52	---	---	---	---	---	---
1/20/92	511.97	508.16	508.29	521.54	515.55	---	---	---
2/10/92	511.99	507.42	507.56	522.39	515.49	---	---	---
3/24/92	512.3	509.02	509.16	527.27	517.19	---	---	---
4/27/92	512.23	509.74	509.78	527.59	517.33	---	---	---
5/21/92	512.13	508.3	508.14	522.99	515.71	---	---	---
6/23/92	512.25	508.64	508.75	525.77	516.98	---	---	---
8/13/92	511.99	506.87	507.6	521.68	515.38	---	---	---
10/26/92	511.98	508.29	508.2	522.12	515.51	---	---	---
11/17/92	512.19	508.93	509.02	527.93	517.44	---	---	---
1/29/93	512.25	509.48	509.74	527.92	517.55	---	---	---
3/3/93	512.16	508.57	508.76	524.8	516.51	---	---	---
6/21/93	512.12	507.71	507.22	521.11	515.34	---	---	---
10/1/93	511.74	507.64	507.14	519.29	514.63	---	---	---
2/22/94	512.48	509.03	509.73	525.82	516.72	---	---	---
5/18/94	512.39	508.57	508.28	521.7	515.43	---	---	---
8/10/94	512.45	508.57	508.65	525.79	516.83	---	---	---
11/7/94	512.24	508.36	508.34	521.9	515.45	---	---	---
6/13/95	---	---	---	---	---	528.07	525.67	516.96
6/21/95	---	---	---	---	---	528.18	524.78	516.92
6/26/95	---	---	---	523.55	---	527.95	523.92	516.89
7/3/95	---	---	---	523.25	516.16	527.82	524.71	516.94
7/13/95	---	---	---	523.38	516	527.86	524.65	517
7/24/95	---	---	---	523.09	515.77	528.12	523.86	516.97
8/3/95	---	---	---	522.47	515.5	527.73	523.33	516.87
9/29/95	512.41	506.67	507.34	529.99	518.5	527.28	526.27	516.78
10/2/95	512.37	504.51	504.76	527.78	517.49	527.51	525.87	516.87
4/24/96	514.41	507.92	508	523.06	515.92	527.75	524.68	517.07
6/19/96	512.01	508.9	508.18	521.87	515.24	---	---	---
7/22/96	512.84	508.32	508.74	525.03	516.36	526.08	---	517.01
8/16/96	512.53	509.6	509.47	528.96	518	526.27	525.79	516.65
8/30/96	512.38	507.92	507.76	524.78	515.96	526.66	524.92	516.82
9/16/96	512.44	508.32	508.74	526.77	516.36	526.09	525.99	517.01
12/3/96	512.09	508.85	509.42	524.31	516.53	525	524.19	516.72
2/19/97	512.36	508.37	508.92	---	---	525	528.43	---
7/24/97	513.16	510.97	511.4	534.14	522.29	525	524.91	516.55
5/1/98	512.6	510.18	510.37	528.43	517.44	528.02	528.65	517.3
10/19/98	512.17	507.27	507.14	521.89	515.38	---	521.48	515.79
9/1999	---	506.97	508.12	521.81	515.64	---	521.36	515.8

All water elevationsAll water elevations are in feet above mean sea level.

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Table D.1 - 1
Historical Groundwater Elevations
Plant Area
Alcoa Badin, NC Works RFI

Date	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14
5/17/90	---	---	---	---	---	---	---	---
7/20/90	---	---	---	---	---	---	---	---
8/15/90	---	---	---	---	---	---	---	---
9/12/90	538.08	509.35	509.43	510.26	529.88	517.41	524.75	514.72
10/11/90	---	---	---	---	---	---	---	---
11/14/90	---	---	---	---	---	---	---	---
12/17/90	---	---	---	---	---	---	---	---
2/1/91	547.93	510.34	510.37	510.61	529.69	518.25	530.4	514.42
3/1/91	551.85	510.64	510.45	511.04	530.51	518.94	534.85	515.71
4/1/91	548.13	511.63	510.9	512.31	529.89	517.58	530.33	514.29
5/1/91	547.99	510.97	510.74	511.06	529.51	518.2	530.68	515.12
6/1/91	544.78	510.09	510.11	509.83	528.12	517.37	528.93	514.38
7/1/91	542.82	514.09	509.1	508.67	527.07	516.66	526.05	513
10/29/91	541.17	509.4	509.4	509.85	527.24	516.06	525.25	511.91
12/11/91	538.5	509.31	509.08	509.41	528.42	517.32	525.78	512.5
1/20/92	540.77	509.6	509.48	509.22	529.26	517.36	528.76	513.56
2/10/92	541.46	509.4	509.14	509.93	529.25	517.23	529.34	513.51
3/24/92	551.43	511.37	510.88	511.59	530.88	518.18	536.28	515.38
4/27/92	549.07	511.36	511.37	512.02	530.59	518.59	531.96	515.47
5/21/92	545.85	509.99	509.49	510.14	530.1	517.77	528.77	514.35
6/23/92	546.42	511.19	511	511.29	530.18	518.08	531.01	515.65
8/13/92	540.48	511.67	509.75	510.5	526.84	516.78	526	513.68
10/26/92	541.56	509.66	509.45	509.7	527.36	517.94	526.46	513.67
11/17/92	546.55	510.66	510.75	511.06	530.12	518.78	531.71	514.59
1/29/93	552.3	511.63	511.51	512.49	530.61	518.28	533.68	516.63
3/3/93	546.55	510.43	510.28	511.12	529.82	518.05	531.71	515.93
6/21/93	542.53	509.97	509.48	509.23	527.16	517.6	526.96	514.13
10/1/93	534.57	508.82	508.65	508.27	525.95	517.74	545.5	512.38
2/22/94	549.61	511.49	510.75	511.43	530.04	518.51	533.73	516.36
5/18/94	544.02	510.14	509.92	509.89	527.57	517.97	528.42	514.15
8/10/94	548.73	510.48	510.72	511.05	529.89	519.19	533.05	515.18
11/7/94	542.18	509.78	509.65	510.28	527.62	518.82	527.43	515.3
6/13/95	549.41	---	---	---	530.03	519.57	532.75	---
6/21/95	547.75	---	---	---	---	---	---	---
6/26/95	546.99	---	509.84	---	528.67	519.67	529.66	---
7/3/95	547.07	---	511.69	---	529.06	519.75	531.96	---
7/13/95	548.05	---	510.68	---	529.11	519.74	531.04	---
7/24/95	546.59	---	509.69	---	528.5	519.66	529.38	---
8/3/95	544.98	---	510.01	---	528.03	519.57	528.57	---
9/29/95	547.75	510.56	510.86	511.03	530.36	519.92	533.64	515.59
10/2/95	548.15	510	509.82	508.69	530.06	519.69	532.61	515.05
4/24/96	546.55	510.03	509.7	510.93	528.64	519.65	528.09	515.61
6/19/96	541.87	510.13	510.11	511.38	---	---	527.82	515.02
7/22/96	---	510.42	510.55	511.62	533.83	---	529.98	515.79
8/16/96	545.33	511.33	512	513.14	533.98	---	527.28	516.5
8/30/96	545.25	509.95	509.86	510.62	532.18	---	525.81	515.27
9/16/96	546.67	510.42	510.55	511.62	533.83	---	527.28	515.79
12/3/96	544.27	511.53	511.68	513.17	532.38	519.26	524.93	515.84
2/19/97	550.01	511.93	511.62	---	537.97	520.66	531.16	516.68
7/24/97	542.64	517.14	516.37	518.49	538.09	519.33	523.52	518.06
5/1/98	551.17	512.79	512.72	513.08	537.9	520.34	534.11	516.39
10/19/98	537.03	509.5	509.39	508.71	528.94	518	523.41	514.49
9/1999	536.19	512.28	511.27	512.03	529.14	515.24	523.04	515.47

All water elevationsAll water elevations are in feet above mean sea level.

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Table D.1 - 1
Historical Groundwater Elevations
Plant Area
Alcoa Badin, NC Works RFI

Date	MW-1	MW-2	MW-2A	MW-3	MW-4	MW-5	MW-6	MW-6A
5/17/90	528.95	520.98	---	524.64	---	509.16	---	---
7/20/90	525.99	518.57	---	523.99	---	508.4	---	---
8/15/90	525.09	517.95	---	523.94	---	508.21	---	---
9/12/90	526.2	517.95	517.03	523.91	---	508.47	512.52	---
10/11/90	530.24	518.3	---	525.42	---	509.99	---	---
11/14/90	528.73	520.19	---	524.21	---	509.13	---	---
12/17/90	528.39	519.77	---	524.19	---	508.3	---	---
2/1/91	528.92	520.15	518.85	524.17	---	509.31	512.69	---
3/1/91	531.26	521.32	520.24	524.67	---	508.89	513.17	---
4/1/91	529.54	520.24	519.14	524.34	---	508.97	513.21	---
5/1/91	529.14	520.25	519.3	524.34	---	508.95	512.87	---
6/1/91	528.11	517.84	518.51	523.99	---	508.27	513.01	---
7/1/91	526.38	518.35	517.55	523.78	---	507.85	513.19	---
10/29/91	525.69	---	517.16	523.68	---	508.67	513.41	---
12/11/91	525.44	517.57	517.09	525.36	---	507.61	513.44	---
1/20/92	528.56	521.11	518.57	525.84	---	508.2	513.61	518.18
2/10/92	529.01	521.6	518.52	525.75	---	507.53	513.74	518.02
3/24/92	533.01	522.86	520.8	527.29	---	508.89	514.57	520.1
4/27/92	529.98	520.98	519.66	526.64	---	509.55	514.4	519.07
5/21/92	527.96	519.7	518.29	526.06	---	508.37	514.31	517.74
6/23/92	529.43	520.46	519.21	526.98	---	508.56	514.63	518.69
8/13/92	526.25	518.4	517.37	525.04	---	507.98	514.3	516.92
10/26/92	526.55	518.25	517.64	525.22	---	508.4	514.24	517.31
11/17/92	529.62	518.92	519.25	526.81	---	508.75	514.66	518.71
1/29/93	531.67	521.44	520.31	526.81	---	509.28	514.97	519.84
3/3/93	530.23	520.69	519.33	525.98	---	508.46	514.95	518.96
6/21/93	527.15	519.95	517.69	524.88	---	509.72	514.83	517.39
10/1/93	523.65	516.43	515.57	523.22	---	507.79	514.16	515.44
2/22/94	531.64	521.21	519.93	526.01	---	508.88	514.84	519.41
5/18/94	529.16	519.45	518.53	525.03	---	508.54	514.84	518.02
8/10/94	531.46	521.25	520.04	526.43	---	508.71	515.05	519.38
11/7/94	527.98	518.72	518.01	524.74	---	508.46	514.92	517.58
6/13/95	531.44	521.35	520.01	526.34	514.04	---	515.28	519.54
6/21/95	---	520.69	519.41	---	514.83	---	515.3	519.15
6/26/95	529.71	520.29	519.1	525.36	513.6	---	515.25	518.68
7/3/95	532.01	520.72	519.45	525.66	517.27	---	515.35	519.04
7/13/95	530.81	520.79	519.48	525.75	513.93	---	515.3	519.03
7/24/95	529.59	520.07	518.89	525.38	513.71	---	515.27	518.49
8/3/95	528.94	519.61	518.54	525.06	513.76	---	515.24	518.19
9/29/95	532.15	521.06	519.92	527.24	516.36	507.13	515.3	519.45
10/2/95	531.16	521.01	519.72	526.53	514.03	505.16	515.28	519.26
4/24/96	529.63	519.91	518.96	524.99	513.35	508.02	515.5	518.46
6/19/96	528.14	518.93	518.31	---	512.97	508.64	515.37	518.02
7/22/96	529.59	519.56	---	528.78	514.02	508.32	515.36	---
8/16/96	529.52	519.97	519.47	528.79	515.49	508.77	515.35	519.05
8/30/96	528.75	518.98	518.89	527.86	513.91	508.06	515.29	518.47
9/16/96	529.59	519.56	519.87	528.78	514.02	508.32	515.36	519.09
12/3/96	529.5	519.08	518.54	527.17	516.15	508.73	515.31	518.09
2/19/97	531.2	520.8	521.41	531.68	515.6	---	515.5	520.14
7/24/97	530.56	520.78	518.78	528.27	519.6	510.26	515.87	518.51
5/1/98	532.37	522.03	520.82	531.06	517.35	509.77	515.69	520.34
10/19/98	525.15	517.3	517.07	525.75	513.05	507.48	515.13	516.83
9/1999	525.2	518.11	518.02	525.01	517.97	507.54	515.47	517.04

All water elevations are in feet above mean sea level.

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D-2 Alcoa/Badin Landfill

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Table D.2 - 1
Historical Groundwater Elevations
SWMU No.2: Alcoa/Badin Landfill
Alcoa Badin, NC Works RFI

Date	ABL-MW-1	ABL-MW-2	ABL-MW-3	ABL-MW-4	ABL-MW-5	ABL-MW-6
6/6/91	---	---	474.76	469.12	464.36	---
6/7/91	520.34	511.61	---	---	---	508.72
7/1/91	518.8	511.61	474.72	469	464.37	508.41
8/1/91	518.8	513.4	474.72	469.62	464.68	511.58
9/3/91	520.34	511.61	474.76	469.12	464.36	508.72
10/3/91	518.21	511.16	473.38	469.56	464.62	510.37
12/1/91	515.75	507.43	474.54	469.5	464.46	505.94
1/1/92	516.25	507.98	474.77	469.52	464.55	505.29
2/1/92	517.71	509.51	475.04	469.63	464.74	506.59
3/1/92	522	513.74	475.97	469.83	465.08	512.51
4/1/92	523.25	513.39	475.22	469.68	464.77	513.66
6/1/92	521.01	512.1	475.12	469.65	464.79	511.09
8/1/92	517.1	508.37	474.61	469.15	464.3	507.06
9/1/92	515.7	507.35	474.15	468.72	463.97	506.1
10/1/92	516.6	508.04	474.48	469.21	464.42	507.73
12/8/92	519.79	511.28	475.01	469.62	464.74	510.9
2/17/93	522.1	513.89	475.43	469.79	464.94	510.73
3/17/93	523.28	514.45	475.15	469.57	464.86	515.54
5/6/93	523.14	514.64	475.52	469.76	464.96	511.15
8/9/93	517.11	508.66	474.71	468.93	464.15	506.46
12/1/93	514.56	506.59	474.72	469.22	464.41	506.78
3/17/94	523.28	514.45	475.15	469.57	464.86	515.54
5/11/94	519.18	511.01	474.9	469.33	464.5	508.58
8/30/94	521.35	513.33	475.02	469.42	464.88	512.98
12/15/94	519.27	511.65	475.58	469.72	465.88	509.02
6/1/96	519.07	509.7	474.84	468.85	464.27	509.22
9/25/96	521.35	512.46	475.1	469.27	464.77	513.87
12/5/96	521.11	511.89	475.28	469.62	464.91	512.32
5/1/98	522.01	512.12	475.62	467.36	463.09	511.26
10/21/98	512.78	504.42	474.06	466.5	462.48	505.5
9/23/99	---	---	475.22	468.18	464.4	---
9/24/99	516.96	507.83	---	---	---	509.76

All water elevations are feet above means sea level.

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Table D.2 - 2
Historical Grounwater Data
Fluoride
SWMU No. 2: Alcoa/Badin Landfill
Alcoa Badin, NC Works RFI

Date	ABL-MW-1	ABL-MW-2	ABL-MW-3	ABL-MW-4	ABL-MW-5	ABL-MW-6
06/07/91	0.115	< 0.1	0.111	< 0.1	0.136	0.356
07/15/91	0.2	< 0.1	0.2	0.2	0.1	0.4
10/03/91	0.2	< 0.1	0.2	0.2	0.1	0.2
09/16/92	< 0.2	< 0.2	0.209	< 0.2	< 0.2	0.731
12/08/92	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
02/17/93	0.12	< 0.1	0.18	0.11	< 0.1	0.17
05/06/93	0.2	< 0.1	0.2	0.1	0.1	0.2
08/09/93	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.55
12/01/93	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
03/07/94	< 0.2	< 0.2	0.51	< 0.2	0.51	< 0.2
05/11/94	< 0.2	< 0.2	< 0.2	< 0.2	0.3	< 0.2
08/30/94	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
12/15/94	< 0.2	< 0.2	0.2	0.1	1.2	0.1
06/26/96	0.06	< 0.02	0.17	0.13	0.28	0.1
09/25/96	< 0.2	< 0.2	0.21	< 0.2	< 0.2	0.24
12/05/96	< 0.2	< 0.2	0.23	< 0.2	0.25	0.21
04/23/98	< 0.2	< 0.2	< 0.2	< 0.2	0.28	0.23
10/21/98	< 0.2	---	< 0.2	< 0.2	< 0.2	---
09/24/99	< 0.1	< 0.1	< 0.1	0.98	0.15	< 0.1

All results are in mg/l.

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Table D.2 - 3
Historical Groundwater Data
Total Cyanide
SWMU No. 2: Alcoa/Badin Landfill
Alcoa Badin, NC Works RFI

Date	ABL-MW-1	ABL-MW-2	ABL-MW-3	ABL-MW-4	ABL-MW-5	ABL-MW-6
6/7/91	< 0.005	< 0.005	< 0.005	< 0.005	0.068	< 0.005
7/15/91	< 0.005	< 0.005	< 0.005	0.030	0.190	< 0.005
9/16/92	< 0.01	< 0.01	< 0.01	0.065	0.220	< 0.01
12/8/92	< 0.01	< 0.01	< 0.01	0.021	0.242	< 0.01
2/17/93	< 0.01	< 0.01	< 0.01	< 0.01	0.140	< 0.01
5/6/93	< 0.01	< 0.01	< 0.01	< 0.01	0.240	< 0.01
8/9/93	< 0.01	< 0.01	< 0.01	< 0.01	0.031	< 0.01
12/1/93	< 0.01	< 0.01	< 0.01	< 0.01	0.282	< 0.01
3/7/94	< 0.01	< 0.01	< 0.01	< 0.01	0.113	< 0.01
5/11/94	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.086
8/30/94	< 0.01	< 0.01	< 0.01	0.014	0.188	< 0.01
12/15/94	< 0.01	< 0.01	< 0.01	0.047	0.021	< 0.01
6/26/96	< 0.005	< 0.005	< 0.005	0.052	0.239	< 0.005
9/25/96	< 0.01	< 0.01	< 0.01	0.032	0.250	< 0.01
12/5/96	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.240
4/22/98	< 0.01	< 0.01	< 0.01	0.022	0.130	< 0.01
10/21/98	< 0.005	---	< 0.005	0.016	0.310	---
9/24/99	< 0.01	< 0.01	0.011	0.036	0.042	< 0.01
1/5/00	< 0.01	< 0.01	< 0.01	0.016	0.250	< 0.01

All results are in mg/l.

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Table D.2 - 4
Historical Groundwater Data
Free Cyanide
SWMU No. 2: Alcoa/Badin Landfill
Alcoa Badin, NC Works RFI

Date	ABL-MW-1	ABL-MW-2	ABL-MW-3	ABL-MW-4	ABL-MW-5	ABL-MW-6
6/1991	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
7/15/91	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
9/16/92	< 0.01	< 0.01	< 0.01	< 0.01	0.029	< 0.01
12/8/92	< 0.01	< 0.01	< 0.01	< 0.01	0.288	< 0.01
2/17/93	< 0.01	< 0.01	< 0.01	0.013	0.032	< 0.01
5/6/93	< 0.01	< 0.01	< 0.01	< 0.01	0.068	< 0.01
8/9/93	< 0.01	< 0.01	< 0.01	< 0.01	0.031	< 0.01
12/1/93	< 0.01	< 0.01	0.013	< 0.01	0.019	< 0.01
3/7/94	< 0.01	< 0.01	< 0.01	< 0.01	0.024	< 0.01
5/11/94	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8/30/94	< 0.01	0.012	< 0.01	< 0.01	0.017	< 0.01
12/15/94	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
6/26/96	< 0.005	< 0.005	< 0.005	0.044	0.131	< 0.005
9/25/96	< 0.01	< 0.01	< 0.01	0.016	0.11	< 0.01
12/5/96	< 0.01	< 0.01	< 0.01	< 0.01	0.13	< 0.01
4/1998	< 0.01	< 0.01	< 0.01	< 0.01	0.013	< 0.01
9/1999	< 0.005	< 0.005	< 0.005	< 0.005	0.0059	< 0.005
1/2000	< 0.005	< 0.005	< 0.005	< 0.005	0.0579	< 0.005

All results are in mg/l.

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D-3 Old Brick Landfill

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Table D.3 - 1
Historical Groundwater Elevations
SWMU No. 3: Old Brick Landfill
Alcoa Badin, NC Works RFI

Date	OBL-MW-1	OBL-MW-2	OBL-MW-3	OBL-MW-4	OBL-MW-5
6/8/91	587.61	557.81	508.84	512.7	553.47
7/1/91	587.3	556.7	509.08	512.31	552.49
8/1/91	588	556.7	509.08	512.33	553.24
9/3/91	587.61	557.81	508.84	512.7	553.47
12/1/91	588.33	552.95	506.44	511.15	550.5
1/1/92	587.89	552.78	508.92	511.54	549.89
2/1/92	587.92	552.69	508.81	511.34	549.55
3/1/92	588.23	552.77	509.48	513.1	551.64
4/1/92	588.57	553.18	510.78	514.17	553.35
6/1/92	589.14	553.55	509.78	513.53	552.66
8/1/92	589.43	553.03	509.23	511.82	551.13
9/1/92	588.84	552.88	509	511.43	550.27
10/1/92	588.48	551.62	509.16	511.59	549.89
12/8/92	588.16	552.31	509.84	518.65	550.54
2/17/93	588.27	552.42	509.62	513.59	552.52
3/17/93	589.51	552.2	510.3	513.67	551.64
5/6/93	591.58	553.25	511.5	517.22	557.52
8/9/93	591.82	554.8	509.09	512.01	552.91
12/1/93	590.69	552.44	509.41	511.54	549.73
3/17/94	589.51	552.2	510.3	513.67	551.64
5/11/94	589.02	552.4	509.59	512.59	551.21
8/30/94	589.22	552.51	510.02	513.36	552.11
12/1/94	588.53	552.46	509.32	512.04	549.69
12/15/94	588.53	552.46	509.32	512.04	549.69
6/24/96	593.27	553.04	509.23	512.81	554.1
9/24/96	592.6	552.79	509.26	512.6	553.47
12/6/96	592.78	552.61	510.51	513.21	552.17
5/1/98	592.74	551.2	497.36	505.58	554.71
10/21/98	592.39	549.81	505.28	507.99	549.59
9/25/99	586.83	549.39	504.3	506.63	545.53

All water elevations are in feet above mean sea level.

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Table D.3 - 2
Historical Groundwater Data
Fluoride
SWMU No. 3: Old Brick Landfill
Alcoa Badin, NC Works RFI

Date	OBL-MW-1	OBL-MW-2	OBL-MW-3	OBL-MW-4	OBL-MW-5
6/1991	< 0.1	< 0.1	< 0.1	0.495	< 0.1
7/15/91	< 0.1	< 0.1	< 0.1	0.9	< 0.1
9/16/92	< 0.2	< 0.2	< 0.2	0.669	< 0.2
12/8/92	< 0.01	< 0.2	< 0.2	< 0.2	< 0.2
2/17/93	< 0.1	< 0.1	< 0.1	0.95	< 0.1
5/6/93	< 0.1	< 0.1	< 0.1	0.6	< 0.1
8/9/93	< 0.2	< 0.2	< 0.2	0.8	< 0.2
12/1/93	< 0.2	< 0.2	< 0.2	0.31	< 0.2
3/7/94	< 0.2	< 0.2	< 0.2	1.13	0.4
5/11/94	< 0.2	< 0.2	< 0.2	1.19	< 0.2
8/30/94	< 0.2	< 0.2	< 0.2	0.95	< 0.2
12/15/94	< 0.2	< 0.2	< 0.2	0.9	< 0.2
6/26/96	< 0.02	0.02	< 0.02	1.03	0.08
9/25/96	< 0.2	< 0.2	< 0.2	0.79	< 0.2
12/5/96	< 0.2	< 0.2	< 0.2	1	< 0.2
4/23/98	< 0.2	< 0.2	< 0.2	0.87	< 0.2
10/1998	---	< 0.2	< 0.2	< 0.2	---
9/25/99	< 0.1	< 0.1	< 0.1	0.93	< 0.1

All results are in mg/l.

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Table D.3 - 3
Historical Groundwater Data
Total Cyanide
SWMU No. 3: Old Brick Landfill
Alcoa Badin, NC Works RFI

Date	OBL-MW-1	OBL-MW-2	OBL-MW-3	OBL-MW-4	OBL-MW-5
6/1991	< 0.005	1.81	1.05	0.49	< 0.005
7/15/91	< 0.005	2.50	0.91	0.32	0.01
9/16/92	< 0.01	3.10	1.00	0.62	< 0.01
12/8/92	< 0.2	2.46	1.99	0.95	< 0.01
2/17/93	< 0.01	3.84	1.86	0.96	< 0.01
5/6/93	< 0.01	2.11	0.67	0.42	< 0.01
8/9/93	< 0.01	2.24	1.10	0.44	< 0.01
12/1/93	< 0.01	2.31	0.09	0.64	< 0.01
3/7/94	---	2.28	0.44	0.85	---
5/11/94	< 0.01	1.86	0.09	0.46	< 0.01
8/30/94	< 0.01	1.67	0.89	0.20	< 0.01
12/15/94	< 0.01	1.70	0.86	0.40	< 0.01
6/26/96	< 0.005	1.90	0.71	0.35	< 0.005
9/25/96	< 0.01	1.80	0.78	0.35	< 0.01
12/5/96	< 0.01	1.66	0.66	0.38	< 0.01
4/23/98	< 0.01	1.80	0.37	0.27	< 0.01
10/1998	---	1.80	0.53	0.36	---
9/25/99	< 0.01	1.10	0.26	0.38	< 0.01
1/7/00	< 0.01	0.20	0.17	0.16	< 0.01

All results are in mg/l.

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Table D.3 - 4
Historical Groundwater Data
Free Cyanide
SWMU No. 3: Old Brick Landfill
Alcoa Badin, NC Works RFI

Date	OBL-MW-1	OBL-MW-2	OBL-MW-3	OBL-MW-4	OBL-MW-5
6/8/91	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
7/15/91	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
9/16/92	< 0.01	0.102	0.026	0.011	< 0.01
12/8/92	< 0.01	0.072	0.034	0.011	< 0.01
2/17/93	< 0.01	0.213	0.06	< 0.01	< 0.01
5/6/93	< 0.01	0.096	< 0.01	< 0.01	< 0.01
8/9/93	< 0.01	0.015	0.104	0.012	< 0.01
12/1/93	< 0.01	0.132	0.061	0.015	< 0.01
3/7/94	< 0.01	0.479	< 0.01	0.012	< 0.01
5/11/94	< 0.01	0.068	0.047	0.019	< 0.01
8/30/94	< 0.01	0.114	0.04	0.031	< 0.01
12/15/94	< 0.01	0.15	0.08	0.017	< 0.01
6/26/96	< 0.005	0.632	0.134	0.113	< 0.005
9/25/96	< 0.01	0.52	0.3	0.1	< 0.01
12/5/96	< 0.01	1.07	0.11	0.12	< 0.01
4/23/98	< 0.01	0.41	0.06	0.034	< 0.01
9/25/99	< 0.005	0.0054	0.151	0.022	< 0.005
1/7/00	< 0.005	0.573	0.0992	0.0946	< 0.005

All results are in mg/l.

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Table D.2-6
Alcoa Badin Landfill Seep Flow
Alcoa Badin, NC Works RFI

Alcoa-Badin Landfill Seep Discharge													
Date	Seep #1	Seep #2	Seep #3	Seep #4	Seep #5	Weir Height (ft)	ABL East Seep (Seep #1) (gpm)	Seep #2 (gpm)	ABL Middle Seep (Seep #3) (gpm)	Seep #4 (gpm)	ABL West Seep (Seep #5) (gpm)	Seep #6 (gpm)	Total Seep Flow (gpm)
1/6/97	3.00	0.00	6.83	3.50	5.50	10.17	5.28	0.00	2.32	4.53	2.88	1.56	10.49
1/13/97	4.00	0.00	2.00	2.00	4.00	9.00	3.96	0.00	7.93	7.93	3.96	1.76	15.85
1/29/97	1.63	0.00	2.63	1.50	2.00	14.00	9.72	0.00	6.03	10.57	7.93	1.13	23.68
2/12/97	2.00	0.00	8.33		3.50	11.17	7.93	0.00	1.90	washed	4.53	1.42	14.36
3/31/97	3.33	0.00	8.33		3.66		4.76	0.00	1.90	washed	4.33	bypass	10.99
4/24/97	1.37	0.00	2.90		2.37		11.57	0.00	5.47	washed	6.69	bypass	23.72
5/28/97	4.00	0.00			5.00		3.96	0.00	washed	washed	3.17	bypass	7.13
6/24/97	3.00	0.00	0.00		12.00		5.28	0.00	0.00	washed	1.32	bypass	6.60
7/21/97	3.17	0.00	0.00		50.67		5.00	0.00	0.00	washed	0.31	bypass	5.31
8/29/97		0.00	0.00		20.33		washed	0.00	0.00	washed	0.78	bypass	0.78
9/30/97		0.00	5.17		0.00		washed	0.00	3.07	washed	0.00	bypass	3.07
10/23/97	3.00	0.00	35.66		31.66		5.28	0.00	0.44	washed	0.50	bypass	6.23
11/17/97	2.57	0.00	17.00		8.00		6.17	0.00	0.93	washed	1.98	bypass	9.08
12/15/97	3.33	0.00	18.00		8.83		4.76	0.00	0.88	washed	1.80	bypass	7.44
1/21/98	1.70	30.00	5.67		6.33		9.32	0.53	2.80		2.50		15.15
2/25/98	1.63	102.67	7.67		5.50		9.72	0.15	2.07		2.88		14.83
3/26/98	2.37	0.00	12.00		7.83		6.69	0.00	1.32		2.02		10.03
4/30/98	2.60	0.00	32.67		10.67		6.10	0.00	0.49		1.49		8.07
5/26/98	11.00	0.00	0.00		20.33		1.44	0.00	0.00		0.78		2.22
6/15/98	6.67	0.00	0.00		21.00		2.38	0.00	0.00		0.75		3.13
7/20/98	21.67	0.00	0.00		64.00		0.73	0.00	0.00		0.25		0.98
8/24/98	16.33	0.00	0.00		0.00		0.97	0.00	0.00		0.00		0.97
9/23/98	19.00	0.00	0.00		107.67		0.83	0.00	0.00		0.15		0.98
10/23/98	12.33	0.00	0.00		0.00		1.29	0.00	0.00		0.00		1.29
11/10/98	10.33	0.00	0.00		60.00		1.53	0.00	0.00		0.26		1.80
12/7/98	11.00	0.00	161.00		58.67		1.44	0.00	0.10		0.27		1.81
1/11/99	8.00	0.00	39.67		17.33		1.98	0.00	0.40		0.91		3.30
2/10/99	7.00	0.00	19.67		13.33		2.26	0.00	0.81		1.19		4.26
3/29/99	6.67	0.00	22.00		17.00		2.38	0.00	0.72		0.93		4.03
4/19/99	8.00	0.00	0.00		33.67		1.98	0.00	0.00		0.47		2.45
5/28/99	8.67	0.00	0.00		48.33		1.83	0.00	0.00		0.33		2.16
6/23/99	8.00	0.00	0.00		29.00		1.98	0.00	0.00		0.55		2.53
7/20/99	12.67	0.00	0.00		0.00		1.25	0.00	0.00		0.00		1.25
8/11/99	14.33	0.00	0.00		0.00		1.11	0.00	0.00		0.00		1.11
9/22/99	14.00	0.00	0.00		0.00		1.13	0.00	0.00		0.00		1.13
10/28/99	7.00	0.00	0.00		11.33		2.26	0.00	0.00		1.40		3.66
11/17/99	10.66	0.00	0.00		23.66		1.49	0.00	0.00		0.67		2.16
12/30/99	11.66	0.00	42.66		18.66		1.36	0.00	0.37		0.85		2.58
1/1/00							No data collected						
2/8/00	5.00	28.00	6.67		10.33		3.17	0.57	2.38		1.53		7.65
3/29/00	5.37	75.00	6.33		14.33		2.95	0.21	2.50		1.11		6.77
4/24/00	6.33	0.00	94.33		13.00		2.50	0.00	0.17		1.22		3.89
5/19/00	9.17	0.00	0.00		61.33		1.73	0.00	0.00		0.26		1.99
6/27/00						0.11	Combined Seep Discharge Pipe Measurement						4.50
7/21/00						0.10	Combined Seep Discharge Pipe Measurement						3.55
8/16/00						0.09	Combined Seep Discharge Pipe Measurement						2.73
9/22/00						0.10	Combined Seep Discharge Pipe Measurement						3.55
10/31/00						0.09	Combined Seep Discharge Pipe Measurement						2.73
11/1/00						Not measured	Combined Seep Discharge Pipe Measurement						#N/A
12/1/00						Not measured	Combined Seep Discharge Pipe Measurement						#N/A
1/1/01						0.07	Combined Seep Discharge Pipe Measurement						1.46
2/1/01							Combined Seep Discharge Pipe Measurement						#N/A
3/1/01							Combined Seep Discharge Pipe Measurement						#N/A

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Table D.2-5
Alcoa Badin Landfill Seep Data
Alcoa Badin, NC Works RFI

	LMC Upstream			LMC Downstream			ABL Middle Seep			ABL East Seep / Seep Pipe Discharge			ABL West Seep		
date	total CN (ug/L)	Free CN (ug/L)	total F (mg/L)	total CN (ug/L)	Free CN (ug/L)	total F (mg/L)	total CN (ug/L)	Free CN (ug/L)	total F (mg/L)	total CN (ug/L)	Free CN (ug/L)	total F (mg/L)	total CN (ug/L)	Free CN (ug/L)	total F (mg/L)
9/24/96	< 5.0	< 5.0	0.20	< 5.0	< 5.0	0.97	24	14	33						
1/6/97	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.30	< 5.0	< 5.0	19						
2/12/97	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.22	< 5.0	< 5.0	13						
3/31/97	< 10.0	< 10.0	< 0.10	< 10.0	< 10.0	0.40	< 10.0	< 10.0	18						
4/24/97	< 10.0	< 10.0	< 0.10	< 10.0	< 10.0	0.30	12	12	15						
5/28/97	< 5.0	< 5.0	0.15	< 5.0	< 5.0	0.56	30	24	0						
6/24/97	< 5.0	< 5.0	0.13	13	< 5.0	2.7		dry	0						
7/21/97	< 5.0	< 5.0	0.13	13	< 5.0	1.1		dry	0	59	25	29			
8/29/97	< 5.0	< 5.0	0.13	< 5.0	< 5.0	2.9		dry		< 5.0	0	28			
9/30/97	< 5.0	< 5.0	0.13	< 5.0	< 5.0	0.26	26.8	26.8	21						
10/23/97	< 5.0	< 5.0	0.11	< 5.0	< 5.0	0.29	983	957	18						
11/17/97	< 5.0	< 5.0	0.11	< 5.0	< 5.0	0.18	27.1	< 5.0	12						
12/15/97	< 5.0	< 5.0	0.10	< 5.0	< 5.0	0.20	24	< 5.0	13						
1/21/98	< 5.0	< 5.0	0.14	< 5.0	< 5.0	0.23	5.1	< 5.0	15						
2/25/98	< 5.0	< 5.0	0.15	< 5.0	< 5.0	0.18	15	< 5.0	11						
3/26/98	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.12	< 5.0	< 5.0	13						
4/30/98	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.13	11	< 5.0	16						
5/26/98	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.17		dry		12	< 5.0	18			
6/15/98	< 5.0	< 5.0	< 0.10	< 5.0	< 5.0	0.33		dry		< 5.0	< 5.0	20			
	WAD Cyanide (ug/L)			WAD Cyanide (ug/L)				dry		WAD Cyanide (ug/L)			WAD Cyanide (ug/L)		
7/20/98	< 10	< 10	< 0.10	< 10	< 10	2.1		dry		< 10	< 10	23	410	< 10	0.69
8/24/98	< 5	< 5	0.17	9.4	<5.0	1.4		dry		< 5.0	6.4	24		dry	
9/23/98	< 5	< 5	0.15	12	7.2	1.4		dry		14	15	21	5.6	5	0.31
10/23/98	< 5	5.1	0.15	7.5	< 5.0	0.70		dry		11	6.5	15		dry	
11/10/98	< 5	< 5	0.16	6.9	6.3	0.50		dry		22	25	16	5.7	< 5.0	0.54
12/7/98	< 5	< 5	0.10	< 5.0	< 5.0	0.33	73	11	4.4	61	23	14	< 5.0	< 5.0	0.44
1/11/99	< 5	< 5	0.10	< 5.0	< 5.0	0.16	26	6.2	13	58	21	13	< 5.0	< 5.0	0.37
2/10/99	< 5	< 5	0.10	< 5.0	< 5.0	0.16	16	< 5.0	18	48	14	12	< 5.0	< 5.0	0.40
3/29/99	< 5	< 5	< 0.10	< 5.0	< 5.0	< 0.10	14	< 5.0	14	29	14	12	< 5.0	< 5.0	0.39
4/19/99	< 5	< 5	< 0.10	< 5.0	< 5.0	0.14		dry		34	11	15	< 5.0	< 5.0	0.40
5/28/99	< 5	< 5	< 0.10	6.5	< 5.0	0.76		dry		11	8.2	15	< 5.0	< 5.0	0.50
6/23/99	< 5	< 5	0.12	< 5.0	< 5.0	0.24		dry		24	< 5.0	13	< 5.0	< 5.0	0.46
7/20/99	< 5	< 5	0.13	< 5.0	< 5.0	0.69		dry		28	16	14		dry	
8/11/99	< 5	< 5	0.11	8.2	5.6	0.99		dry		46	13	19		dry	
9/22/99	< 5	5.7	0.15	<5.0	<5.0	0.42		dry		56	16	17		dry	
10/28/99	< 5	< 5	< 0.10	<5.0	<5.0	0.22		dry		45	10	14	< 5.0	< 5.0	0.31
11/17/99	< 5	< 5	0.13	<5.0	<5.0	0.33		dry		43	< 5.0	15	< 5.0	< 5.0	0.44
12/30/99	< 5	< 5	0.13	<5.0	<5.0	0.23	18	< 5.0	16	31	11	15	< 5.0	< 5.0	0.40
1/1/00															
2/8/00	< 5	< 5	< 0.10	<5.0	<5.0	0.11	15	< 5.0	14	34	7.9	11	< 5.0	< 5.0	0.11
3/29/00	< 5	< 5	< 0.10	<5.0	<5.0	0.12	14	5.7	16	40	13	14	5.3	< 5.0	0.46
4/24/00	< 5	< 5	< 0.10	<5.0	<5.0	0.17	9.4	< 5.0	22	24	< 5.0	16	< 5.0	< 5.0	0.49
5/19/00	5	< 5	< 0.10	<5.0	<5.0	0.34		dry		9	11	18	< 5.0	< 5.0	0.51
6/27/00	< 5	< 5	0.13	<5.0	<5.0	0.41				< 5.0	9.3	24			
7/21/00	< 5	< 5	0.19	<5.0	<5.0	0.84				< 5.0	5.1	22			
8/16/00	< 5	< 5	0.12	7.1	<5.0	1.00				7.6	10	27			
9/22/00	< 5	< 5	0.14	<5.0	<5.0	0.52				5.8	7.6	24			
10/31/00	<5.0	<5.0	0.21	<5.0	<5.0	0.25				< 5.0	5.0	18			
11/1/00	Not sampled														
12/1/00	Not sampled														
1/4/01	<5.0	<5.0	0.17	<5.0	<5.0	0.32				8.1	< 5.0	16			

Notes: 1. Blank cells indicates Not Sampled.
2. Free CN analytical method is Cyanide Amenable to Chlorination (EPA 335.2) through June 1998.
3. Free CN analytical method is Weak Acid Dissociable Cyanide (SM 4500-I) since July 1998.

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APPENDIX E

Supplemental Information to RFI Risk Assessment Methodology

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APPENDIX E
SUPPLEMENTAL INFORMATION
ON RFI SITE-SPECIFIC RISK ASSESSMENT METHODOLOGY

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APPENDIX E

Section E-1 Exposure Assessment

E-1.1 Identification Of Exposure Pathways

E-1.2 Quantification Of Exposures

E-1.2.1 The Concept of Dose

E-1.2.2 General Algorithms for Calculating Exposure Dose

E-1.2.3 Exposure Factors for Specific Receptors

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E-1 Exposure Assessment

Exposure is defined in risk assessment (USEPA, 1992a) as contact with constituents in environmental media at the outer boundaries of the body, such as the gastrointestinal (GI) tract (for ingestion route), lung (for inhalation route) and skin (for the dermal route). Exposure assessment is the process of measuring or estimating the intensity, frequency and duration of human exposure to an agent in the environment. This section discusses the mechanisms by which receptors may potentially come in contact with COIs in environmental media and estimates the degree of contact between potential human receptors and these constituents. The salient features of the site and the surrounding area that might influence human exposure are described and potentially exposed populations identified. This qualitative information (e.g., preliminary exposure analysis for the individual SWMUs/AOCs; Table 3-2 in this RFI Report) is then integrated with estimates of exposure point concentrations (EPCs) and intake assumptions to quantitatively estimate exposure (dose) in the site-specific risk assessments of SWMUs/AOCs that require quantitative risk evaluation.

The exposure assessment generally follows the recommendations for conducting an exposure assessment provided by USEPA in RAGS (USEPA, 1989), and the more recent guidance in USEPA's Guidance for Exposure Assessment (USEPA, 1997a). In accordance with USEPA (1989), an exposure assessment consists of the following steps:

- Characterization of the exposure setting (physical environment and potential receptors);
- Identification of exposure pathways (constituent sources, points of release, and exposure routes); and
- Quantification of pathway-specific exposures (exposure point concentrations and intake assumptions).

The exposure assessment considered current and reasonably expected future land use at the site. This is consistent with the ANPR "Corrective Action for Releases From Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule" (USEPA, 1996a), which references the criteria from USEPA's Land Use in the CERCLA Remedy Selection Process (USEPA, 1995). Current land use associated with SWMUs and AOCs is industrial and has been since 1915. Surrounding land uses are commercial, residential and recreational. For the landfill areas, development for alternative future land uses is restricted since

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the objective is to manage the landfill cover to assure its integrity against future releases. Section 3.4.1 of the RFI Report presents a preliminary exposure analysis that considers the environmental setting and potential receptors associated with individual SWMUs/AOCs. The remainder of Appendix E-1 presents methods carried out in the quantitative site-specific risk assessments for SWMUs/AOCs that exceeded the screening-level risk evaluations and for which complete exposure pathways are possible. The SWMUs/AOCs that were subject to quantitative, site-specific risk assessments are SWMU 35, SWMU 44, SWMU 11, SWMU 46, and Badin Lake east of the plant.

E-1.1 Identification Of Exposure Pathways

This section describes the potential pathways by which the receptors could be exposed to constituents located at or released from the SWMUs/AOCs. An exposure pathway is a description of the mechanism by which an individual may come into contact with constituents in the environment. In accordance with USEPA Risk Assessment Guidance (1989), the significant potential exposure pathways applicable to the site have been identified and incorporated into the risk assessment.

An exposure pathway is defined by four elements (USEPA, 1989):

- A source and mechanism of constituent release to the environment (e.g., historic landfill with migrating leachate);
- An environmental receiving or transport medium (e.g., soil, groundwater) for the released constituent;
- A point of potential contact with the medium of interest (e.g., exposed surface soil or air); and
- An exposure route (e.g., ingestion, dermal contact, or inhalation) at the contact point.

An exposure pathway is considered "complete" if all elements are present. The characterization of the potential exposure pathways at the site, and whether each pathway is complete, is presented in the risk assessment sections of the SWMU/AOC discussions in Section 4 of this RFI Report.

The media of interest for the site evaluated in this risk assessment are surface soil, subsurface soil, groundwater, surface water and sediment.

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E-1.2 Quantification Of Exposures

Potential exposure to constituents in the environment is directly proportional to concentrations of the constituents in environmental media (e.g., soil and air) and characteristics of exposure (e.g., frequency and duration). This risk assessment presents the reasonable maximum exposure (RME) exposure estimate, as recommended in USEPA guidance RAGS (USEPA, 1989). The RME is the "maximum exposure that is reasonably expected to occur at a site," and USEPA has indicated that factors included in estimating exposure that includes a combination of both average and 95th percentile values (USEPA, 1989).

The following sections describe the concept of exposure dose, algorithms used to quantitatively estimate dose from potential exposure to constituents in environmental media, exposure factors applied to the receptors evaluated in the site-specific risk assessments of SWMUs/AOCs, the methods and rationale used to estimate site-specific exposure point concentrations (EPCs), and the model applied to estimate COI concentrations in air from particulate emissions from surface soil.

E-1.2.1 The Concept of Dose

The term "dose" can be defined in a variety of ways; however, for the purpose of quantitative regulatory risk assessment, dose is the quantification of exposure to constituents in environmental media. For risk assessment purposes, potential dose and absorbed (internal) dose are the most relevant. Potential (or administered) dose is the amount of constituent (concentration) in material that is ingested, inhaled, or applied to the skin and is available for absorption. Internal dose is the amount of constituent actually crossing the absorption barrier (i.e., the amount absorbed). The type of dose estimate used in a risk assessment is dependent on the route of exposure, the route of administration in the toxicity study used to derive the toxicity criterion, and the manner in which absorption information was used in deriving the toxicity criterion. In the risk characterization, dose estimates are combined with toxicity criteria to estimate risk. It is important that this calculation be made with analogous estimates. As indicated, a potential dose for an environmental exposure is analogous to an administered dose in a toxicity study and internal dose is analogous to an absorbed dose. Typically, ingestion and inhalation pathways are evaluated with the administered dose, and exposure is quantified by multiplying exposure concentrations by an intake rate (ingestion or inhalation rate, respectively). Dermal exposure, conversely, is evaluated not for intake but for uptake of the chemical. For this

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pathway with constituents in soil, an absorbed dose is calculated from the product of exposure concentration, dermal absorption factor and exposed surface area.

Doses are presented in this risk assessment as a dose rate per unit body weight (mg/kg/day). The "Average Daily Dose" (ADD) or "Lifetime Average Daily Dose" (LADD) is the general parameter used to quantify exposure doses in site risk assessments. The ADD is used as a standard measure for characterizing long-term non-carcinogenic effects. The LADD addresses exposures that may occur over varying durations, which are averaged over a 70-year human lifetime; these are used in estimating potential carcinogenic risks. Algorithms for calculating ADD and LADD for complete exposure pathways that are evaluated in the site-specific risk assessments of Section 4 are provided in the next section.

E-1.2.2 General Algorithms for Calculating Exposure Dose

The site-specific risk assessments evaluated the following potentially complete exposure pathways: incidental ingestion of COIs in soil, dermal contact with COIs in soil or sediment, and inhalation of airborne particulates released from soil. Examples of the general algorithms for calculating doses for these exposure pathways are presented below.

E-1.2.2.1 Incidental Ingestion of COIs in Soil

The ADD or LADD via incidental ingestion of COIs in soil is calculated using the following equation:

$$ADD \text{ or } LADD = \frac{Cs \times IR \times EF \times ED \times CF}{BW \times AT_{(nc,c)}}$$

Where:

Cs	=	COI concentration in soil (mg/kg)
IR	=	incidental ingestion rate of soil (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor for soils (10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days) for ADD (non-carcinogenic effects): AT_{nc}= ED x 365 days for LADD (carcinogenic effects): AT_c= 70 years x 365 days

This pathway is evaluated quantitatively for the following receptors:

Industrial Worker Receptors - Soil

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Construction Worker - Soil

Youth Trespasser – Soil

The exposure assumptions applied to these scenarios are presented in section E-1.2.3.

E-1.2.2.2 Dermal Contact with COIs in Soil or Sediment

The dose calculated for dermal contact with COIs in soil or sediment is calculated using the following equation:

$$ADD \text{ or } LADD = \frac{Cs \times SA \times AF \times EF \times ED \times CF \times DAF}{BW \times AT_{(nc,c)}}$$

Where:

Cs	=	COI concentration in soil or sediment (mg/kg)
SA	=	skin surface area exposed (cm^2/event)
AF	=	soil-skin adherence factor (mg/cm^2)
EF	=	exposure frequency (events/year)
ED	=	exposure duration (years)
CF	=	conversion factor (10^{-6} kg/mg)
DAF	=	dermal absorption factor - chemical-specific (Table E-2)
BW	=	body weight (kg)
AT	=	averaging time (days) for ADD (non-carcinogenic effects): AT_{nc}= ED x 365 days for LADD (carcinogenic effects): AT_c= 70 years x 365 days

This pathway is evaluated quantitatively for the following receptors:

Industrial Worker Receptors - Soil

Construction Worker - Soil

Youth Trespasser - Soil

Swimmer Receptors (Adult and Child) – Sediment

The exposure assumptions applied to these scenarios are presented in section E-1.2.3.

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E-1.2.2.3 Inhalation of COIs Associated with Airborne Soil Particles

The dose for inhalation of COIs associated with airborne particles released from soil is calculated using the following equation:

$$\text{ADD or LADD} = \frac{C_a \times InhR \times ET \times EF \times ED}{BW \times AT_{(nc,c)}}$$

Where:

Ca	=	concentration of COI in air (mg/m^3), estimated with EPA PEF model (EPA, 1996b; Section E-1.4)
$Inh\ R$	=	inhalation rate (m^3/day)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days) for ADD (non-carcinogenic effects): AT_{nc}= ED x 365 days for LADD (carcinogenic effects): AT_c= 70 years x 365 days

This pathway is evaluated for the following receptors:

Industrial Worker Receptors

Construction Worker

Youth Trespasser

Off-Site Residential Receptors (Adult and Child)

The exposure assumptions applied to these scenarios are presented in section E-1.2.3.

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E-1.2.3 Exposure Factors for Specific Receptors

Future Full-time Industrial Worker. Under current conditions, none of the SWMUs/AOCs are used as active process areas where workers would be present on a full-time basis. Under future conditions, a full-time industrial scenario may be relevant. Exposure factors for future full-time workers include the following:

EF	=	250 days per year (assumes full-time employment: 5 days per week, 50 weeks per year; i.e., 52 weeks minus 2 weeks vacation. USEPA, 1989).
ED	=	25 years (an upperbound estimate of how long a person is employed in one location. USEPA, 1989).
ET	=	8 hours/day (standard work day)
IR	=	50 mg/day (USEPA, 1997a)
SA	=	2000 cm^2/event ("typical case", assumes head and hands. USEPA, 1992a)
AF	=	0.08 mg/cm^2 (average adherence factor for 5 groups of groundskeeper receptors. USEPA, 1997a)
DAF	=	Chemical-specific Factors (Table E-2)
Inh R	=	2.5 m^3/hr (for heavy outdoor activity. USEPA, 1997a)
BW	=	70 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year for noncarcinogens (USEPA, 1989)
AT_c	=	70 years x 365 days/year for carcinogens (USEPA, 1989)

Infrequent Industrial Worker. This receptor is assumed to be in specific SWMU/AOC areas on a less than full-time basis. Exposure factors for this receptor are the following:

EF	=	SWMU-specific (but less than for full-time industrial)
ED	=	25 years (an upperbound estimate of how long a person is employed in one location. USEPA, 1989).
ET	=	8 hour/day (standard work day)
IR	=	50 mg/day (USEPA, 1997a)

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SA	=	2000 cm^2/event ("typical case", assumes head and hands. USEPA, 1992a)
AF	=	0.08 mg/cm^2 (average adherence factor for 5 groups of groundskeeper receptors. USEPA, 1997a)
DAF	=	Chemical-specific (Table E-2)
Inh R	=	2.5 m^3/hr (for heavy outdoor activity. USEPA, 1997a)
BW	=	70 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

Construction Worker. The construction worker scenario is not specifically addressed by current USEPA guidance. On the basis of professional judgment, the construction worker is estimated to be present on the site for a project lasting a maximum of three to four work months for the RME scenario. Thus, the following exposure assumptions were applied in this risk assessment.

EF	=	90 days/year (Professional judgment)
ED	=	1 year (assumed to be a one-time project.)
ET	=	8 hour/day (standard work day)
IR	=	50 mg/day (USEPA, 1997a)
SA	=	2000 cm^2/event ("typical case", assumes head and hands. USEPA, 1992a)
AF	=	0.24 mg/cm^2 (USEPA, 1997a)
DAF	=	Chemical-specific (Table E-2)
Inh R	=	2.5 m^3/hr (for heavy outdoor activity. USEPA, 1997a)
BW	=	70 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

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Off-Site Residential Adult. The residential adult is assumed to dwell in the vicinity of the site and may be exposed to site constituents through airborne migration of particulate emissions to off-site areas. The following assumptions were applied to this scenario.

EF	=	350 days/year (USEPA, 1991)
ED	=	30 years (90^{th} percentile years at one residence (USEPA, 1989))
ET	=	24 hour/day
Inh R	=	0.6 m^3/hr (Average daily inhalation rate for men and women, for chronic exposure, USEPA, 1997a)
BW	=	70 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

Off-Site Residential Child. The child is assumed to be 0-6 years of age.

EF	=	350 days/year
ED	=	6 years (0-6 years of age)
ET	=	24 hour/day
Inh R	=	0.3 m^3/hr (average daily rate for children ages 0-8, for chronic exposure, USEPA, 1997a)
BW	=	15 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

Youth Trespasser – The trespasser receptor is evaluated for SWMU 44 because this area is part of Alcoa's property, outside of the plant fence, and along the road between the plant and Badin Lake. The trespasser is assumed to be a youth age 9 to 15.

EF	=	18 days/yr (2 days/mo, 9 non-winter mo/yr) – (Professional judgment)
ET	=	1 hr/day – (Professional judgment)

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ED	=	6 years
IR	=	50 mg/day (half daily ingestion rate of 100 mg/day – USEPA, 1989)
SA	=	4500 cm^2/event (average SA of lower legs, forearms, and hands for girls and boys ages 9-15) – (USEPA, 1997a)
AF	=	0.05 mg/cm^2 (average adherence from three groups of soccer players, USEPA, 1997a)
DAF	=	Chemical-specific (Table E-2)
Inh R	=	1.2 m^3/hr (for moderate exertion – Table 5-23 - USEPA, 1997a)
BW	=	43 kg (USEPA, 1997a)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

Adult Swimmer – The swimmer receptors are evaluated for potential exposure to sediment in Badin Lake while swimming within the swimming cove defined by buoy lines to the northeast of the plant.

EF	=	36 days/yr (2 days/wk, every week from mid-May to mid-September) – (Professional judgment)
ED	=	30 years (assumed to be local resident – USEPA, 1989)
SA	=	1050 cm^2/event (average SA of adult feet) – (USEPA, 1997a)
AF	=	0.2 mg/cm^2 (1/3 the adherence factor of reed gatherers because Badin Lake sediments are sandy and less likely to adhere) – (USEPA, 1997a)
DAF	=	Chemical-specific (Table E-2)
BW	=	70 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

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Young Child Swimmer – This receptor is assumed to be a young child (age 0-6 years) that accompanies the adult to the swimming cove in Badin Lake east of the plant.

EF	=	36 days/yr (2 days/wk, every week from mid-May to mid-September) – (Professional judgment)
ED	=	6 years (0-6 years)
SA	=	550 cm^2/event (average SA of 0-6 year old child's feet) – (USEPA, 1997a)
AF	=	0.2 mg/cm^2 (1/3 the adherence factor of reed gatherers because Badin Lake sediments are sandy and less likely to adhere) – (USEPA, 1997a)
DAF	=	Chemical-specific (Table E-2)
BW	=	15 kg (USEPA, 1989)
AT_{nc}	=	ED x 365 days/year
AT_c	=	70 years x 365 days/year

E-1.3 Exposure Point Concentrations (EPCs)

The levels of constituents at exposure points are generally referred to as EPCs, and the analytical results for samples from a given area are combined to derive a single EPC for each constituent. An EPC represents the level of an individual COI to which potential receptors may be exposed. With the exception of ambient air concentrations, EPCs in the RFI site-specific risk assessments were statistically calculated from sampling data.

The concentrations of constituents at specific exposure points will vary over space and time. However, a single estimate of an EPC is needed for deterministic risk assessment calculations according to agency guidance (USEPA, 1989, 1992b). This single value is used to represent the average concentration to which a person would be exposed over the area and duration of the chronic exposure that is assumed in the risk assessment. The most appropriate estimate of the representative concentration to which a receptor will be exposed over an extended period of time is the mean concentration (USEPA, 1992b). Because the true mean concentration of a constituent can never be known, an estimate of the mean based on the collection of samples is made using the 95% upper confidence limit (95% UCL). If the 95% UCL exceeds the maximum detected concentration, then the maximum detected concentration is applied as the

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RME EPC. The following describes the statistical approaches used to calculate the mean and 95% UCL of the mean for COIs in specific environmental media.

The data for each COI in a specific exposure medium were tested for fit to a normal distribution with the Shapiro-Wilk test (Gilbert, 1987). If the data fit a normal distribution, the 95% UCL of the arithmetic mean of the normal distribution (USEPA, 1992b) was then calculated as the representative concentration for exposure of receptors. If the data exhibit significant lack of fit to a normal distribution, the data were transformed using the natural logarithm and tested for fit to a lognormal distribution with the Shapiro-Wilk test. If the data fit a lognormal distribution or was nonparametric, then USEPA (1999) guidance was followed to calculate the 95% UCL using a nonparametric means (i.e., Jackknife method).

E-1.4 Particulate Emission Factor

Air concentrations of constituents released from soil are calculated with simple emissions and dispersion models provided in USEPA Soil Screening Guidance (1996b). The particulate emission factor (PEF) that was utilized in the site-specific risk assessments of SWMUs/AOCS was adopted from the USEPA's Soil Screening Guidance: Technical Background Document (EPA, 1996b). The particulate emission factor relates the concentration of COIs in soil with the concentration of fugitive dust particles in the air due to wind erosion. This factor is conservative as it is based on an "unlimited reservoir" model and does not assume any depletion of constituents in the soil.

As stated in the guidance, this model is most sensitive to the threshold friction velocity, which is a function of the mode of the size distribution of the surface soil aggregates. The mode soil aggregate size determines how much wind is needed before dust is generated at a site. For this reason a conservative mode soil aggregate size of 500 μm was selected in calculating the default PEF. A mode soil aggregate size of 500 μm yields an uncorrected threshold friction velocity of 0.5 m/s. However, the threshold friction velocity should be corrected to account for the presence of nonerodible elements. These include clumps of grass or stones (larger than about 1 cm in diameter) on the surface that will consume part of the shear stress of the wind which otherwise would be transferred to erodible soil.

As a result, a default value of 1.25 was selected in the model to represent the ratio of corrected to uncorrected threshold friction velocity to be conservative. This equates to a corrected

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threshold friction velocity of 0.635 m/s and an equivalent windspeed of 11.3 m/s at a height of 7 meters.

The PEF is calculated according to the following equation:

$$PEF\ (m^3/kg) = Q/C \times \frac{3600\ s/h}{(0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x))}$$

Where:

- Q/C = inverse of the mean concentration at center of square source (90.8 g/m^2-s per kg/m^3) – USEPA, 1996b default for 0.5 acre site
- V = fraction of vegetative cover (unitless) – 0.5 unless construction, then 0
- U_m = mean annual windspeed (4.69 m/s) – USEPA, 1996b default
- Ut = equivalent threshold value of windspeed at 7 m (11.3 m/s) – USEPA, 1996b default
- F(x) = function dependent on Um/Ut derived using Cowherd et al. (0.194 - unitless) USEPA, 1996b default

The Q/C term represents the dispersion of the particulates into the atmosphere. In USEPA validation of the model, calculated Q/C values have been found to approximate closely true conditions for both on-site and near-field receptors. This term is dependent on the site's size and meteorological conditions. However, for the purposes of the site-specific risk assessments, the default value of 90.80 g/m^2-s per kg/m^3, which is based on a site area of 0.5 acres (or approximately 100 ft^2) was selected to be conservative. Applying the default Q/C for on-site dispersion to the off-site residential scenarios is especially conservative for a two main reasons. The first is that the prevailing wind direction tends to be from the southwesterly direction, and there no residences that lie to the northeast of the plant. Second, even the closest residences lie approximately 600 feet from the nearest SWMU (that is, from SWMU 46 to houses in the southwest direction). The other SWMUs lie from 1200 to 2000 feet from these residences or residences to the north west of the plant. Therefore, the dispersion area for off-site locations would be significantly greater than 0.5 acres (or approximately 100 ft^2).

Using the default values for each of the above criteria (as specified in the guidance) the PEF of 1.32×10^9 m^3/kg was obtained. This value was utilized in all scenarios with the exception of those for construction workers at SWMUs 35, 11, and 46, where the default value of 0.5 for fraction of vegetative cover was conservatively changed to zero as it might be reasonably

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expected that no cover is present during construction activities. The PEF for the construction scenario is 6.6×10^{8} m^3/kg.

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E-2 Toxicity Assessment

The toxicity assessment provides a description of the relationship between a dose of a chemical and the anticipated incidence of an adverse health effect (Preuss and Ehrlich, 1987). The purpose of toxicity assessment is to provide a quantitative estimate of the inherent toxicity of COIs to incorporate into the risk characterization. Toxicity values are derived from the quantitative dose response association and are correlated with the quantitative exposure assessment in the risk characterization step of risk assessment. The toxicity assessment, as with the other components of risk assessment, introduces uncertainty into the process. For example, much of the current understanding about the dose-response relationship of the COIs identified in the SWMU/AOC-specific risk assessments of this RFI is based on data collected from studies of animals (usually rodents), and theories about how humans respond to environmental doses of constituents. Environmentally relevant exposure concentrations are typically much lower than experimental exposure concentrations. Therefore, extrapolation from high dose to low dose is necessary.

For risk assessment purposes, toxic constituent effects are separated into two categories of toxicity: carcinogenic effects and non-carcinogenic effects. This division relates to the currently held USEPA policy position that the mechanisms of action for these endpoints differ. The USEPA has required that potentially carcinogenic chemicals be treated as if minimum threshold doses do not exist (USEPA, 1986), whereas non-carcinogenic effects are recognized as threshold phenomena. In the absence of information to the contrary, the current USEPA policy for potential carcinogens only allows for zero risk at zero dose. Thus, for all environmental doses, some level of risk is assumed to be present. More recent scientific evidence indicates that this simplistic assumption is not accurate for many carcinogenic responses. The USEPA has produced Proposed Guidelines for Carcinogen Risk Assessment (1996c), which is intended to revise its 1986 cancer risk assessment guidelines (USEPA, 1986) to account for this new information. However, these changes are being integrated into the USEPA process as an ongoing effort and are not reflected in current cancer slope factor (CSF) derivations for COIs identified in the Badin RFI.

Constituents that are believed to be carcinogenic may also have non-cancer effects. Potential health risks for these constituents are evaluated for both cancer and other types of effects as described below.

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It is widely accepted that non-carcinogenic biological effects of chemical substances occur only after a threshold dose is achieved (Klaasen, 1996). This threshold concept of non-carcinogenic effects assumes that a range of exposures up to some defined threshold can be tolerated without appreciable risk of harm. Adverse effects may be minimized at concentrations below the threshold by pharmacokinetic processes such as decreased absorption, distribution to non-target organs, metabolism to less toxic chemical forms, and excretion (Klaasen, 1996).

The following sections describe the approaches used to evaluate the toxicity of the COIs associated with the Site (identified in Section 4).

- Section E-2.1 presents the basis for deriving toxicity values for potential carcinogens (CSFs or unit risks) and discusses the toxicity of potential carcinogenic COIs for the Badin RFI.
- Section E-2.2 follows with the methodology for deriving non-carcinogenic toxicity values (RfDs or reference concentration) and discusses the non-carcinogenic health effects of COIs.
- Section E-2.3 provides toxicity profiles and details of the critical studies on which reference doses (RfDs) and CSFs of the RFI COIs are based.

E-2.1 Health Effects Criteria for Potential Carcinogens

USEPA uses a two-step process for evaluating potential carcinogenic effects of constituents. First, the available scientific data are reviewed to determine if there is an association between the constituent and cancer in humans or animals. Based on this review, the substance is assigned a weight-of-evidence classification reflecting the likelihood that the chemical is a human carcinogen. Second, a CSF or unit risk is calculated for constituents considered to be known or probable human carcinogens.

Constituents have been classified as either Group A, B1, B2, C, D, or E, which are defined as follows (USEPA, 1986). (It should be noted that this approach is not retained in the revised Guidelines on Carcinogenicity Assessment [1996c].)

- Group A constituents (known human carcinogens) are agents for which there is sufficient evidence to support a causal association between exposure to the agents in humans and cancer.

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- Group B1 constituents (probable human carcinogens) are agents for which there is limited evidence of carcinogenicity in humans.
- Group B2 constituents (probable human carcinogens) are agents for which there is sufficient evidence of carcinogenicity in animals but inadequate or no evidence in humans.
- Group C constituents (possible human carcinogens) are agents for which there is limited evidence of carcinogenicity in animals and inadequate or no human data.
- Group D constituents (not classifiable as to human carcinogenicity) are agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.
- Group E constituents (evidence of non-carcinogenicity in humans) are agents for which there is no evidence of carcinogenicity from human or animal studies, or both.

Potential carcinogenic effects resulting from human exposure to constituents are estimated quantitatively using CSFs, which represent the theoretical increased risk per milligram of constituent intake per kilogram body weight per day $(mg/kg\text{-}day)^{-1}$ or unit risks, which are the theoretical increased risk per exposure concentration. CSFs or unit risks are typically derived for Group A, B1, and B2 carcinogens. CSFs or unit risks are used to estimate a theoretical upper-bound lifetime probability of an individual developing cancer as a result of exposure to a potential carcinogen.

CSFs or unit risks are derived by the USEPA from the results of chronic animal bioassays, human epidemiological studies or both. The COIs identified for the Badin RFI include potentially carcinogenic PAHs and PCBs. These are all considered B2 carcinogens and their CSFs are derived from animal studies. Animal bioassays are usually conducted at dose levels that are much higher than those likely to be produced by human exposure to environmental media. Such high levels are used in order to detect possible adverse effects in the relatively small test populations used in the studies. Therefore, uncertainty exists in the form of high to low dose extrapolation.

Because humans are generally exposed at lower doses, the high-dose data from animal studies are extrapolated to low-doses using mathematical models. Most commonly, the linearized multistage model is used to estimate the 95% UCL linear slope at low extrapolated doses that is consistent with the data. This model assumes that the effect of the carcinogenic agent on tumor formation seen at high doses in animal data can be extrapolated downward to the origin in a linear

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manner. USEPA's Guidelines for Carcinogen Risk Assessment (1986) recommended that the linearized multistage model be employed in the absence of adequate information to the contrary, and that, in general, models that incorporate low-dose linearity are preferred. The 95% UCL slope of the dose-response curve (or exposure response curve, for unit risk calculations) is subjected to various adjustments, and an inter-species scaling factor is usually applied to derive a CSF for humans. Dose-response data derived from human epidemiological studies are fitted to dose-time-response curves on a case-by-case basis.

In both types of analyses, conservative (i.e., health protective) assumptions are applied, and the models are believed to provide rough estimates of the upper limits on potential carcinogenic potency. The actual risks associated with exposure to a potential carcinogen are not likely to exceed the risks estimated and may be much lower or even zero.

USEPA has developed CSFs for the oral route of exposure and unit risks for oral and inhalation routes of exposure for constituents that are considered potential carcinogens. Potentially carcinogenic COIs for completed exposure pathways of the Badin RFI are: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, Aroclor 1248, Aroclor 1254, and Aroclor 1260. The oral CSFs of the COIs are presented in Table E-3. Section E-2.3 below contains discussion about the critical studies used to derive the CSFs of these COIs.

E-2.2 Health Effects Criteria for Non-Carcinogenic Constituents

As explained earlier in this section, non-carcinogenic biological effects are considered to be threshold phenomena. Adverse effects are not expected at a range of exposures and resulting doses below the threshold dose. The threshold dose for a compound is usually estimated from the no observed adverse effect level (NOAEL) or the lowest observed adverse effect level (LOAEL) if a NOAEL is not available, as determined from animal studies or human data. The NOAEL is the highest dose at which no adverse effects are discernible, while the LOAEL is the lowest dose at which adverse effects are detectable.

Potential non-carcinogenic effects resulting from human exposure to constituents are generally estimated quantitatively using RfDs. Oral RfD values are developed by the USEPA RfD Work Group on the basis of a wide array of non-carcinogenic health effects. The RfD is an

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estimate of the daily maximum level of exposure to human populations (including sensitive subpopulations) that is likely to be without an appreciable risk of deleterious effects during a lifetime (USEPA, 1989). RfDs are expressed in units of daily dose (mg/kg-day) and incorporate uncertainty factors to account for limitations in the quality or quantity of available data. RfDs for COIs in the Badin RFI risk assessment are derived from animal studies. A RfD is derived from a NOAEL or LOAEL using these uncertainty factors. The RfD provides a target against which human intakes of constituents resulting from exposure to environmental media are compared.

USEPA has derived both chronic and subchronic RfDs: subchronic RfDs are appropriate for evaluating exposure periods of greater than two weeks but less than seven years, while chronic RfDs are intended for evaluating long-term exposure (i.e., greater than seven years). The receptors applicable to the Badin RFI for the most part have chronic or nearly chronic (e.g., 6 years) exposure durations. The exception is the construction worker, whose exposure duration is assumed to be less than 1 year. Therefore, a subchronic RfD was applied to the construction worker, if it was available for a specific COI. There is a subchronic RfD for Aroclor 1254 (USEDPA, 1997b).

As was the case for carcinogenic toxicity criteria, non-carcinogenic toxicity criteria are only available for oral and inhalation exposures. The oral RfDs for COIs identified for site-specific risk assessments of SWMUs/AOCs are presented in Table E-4. The only such COI for which a USEPA-derived or provisional RfD is available is Aroclor 1254. Section E-2.3 provides brief discussions of the critical studies and sensitive noncancer health effects associated with Aroclor 1254 as well as the predominant COIs in groundwater, cyanide and fluoride.

E-2.3 COI Toxicity Profiles

Benzo(a)pyrene

IRIS (USEPA, 2000a) does not provide a RfD or reference concentration for B(a)P. IRIS does provide a CSF for the oral route of exposure. This section presents discussions on toxicity criteria that are available for B(a)P and the critical studies upon which they are based.

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Carcinogenic Classification

B(a)P is classified as a probable human carcinogen (group B2). USEPA considers there to be sufficient evidence that B(a)P is carcinogenic in animals as there are animal studies associating this constituent with carcinogenicity following administration by oral, intratracheal, inhalation, and dermal routes. B(a)P must be activated to its carcinogenic metabolite (typically by oxidation by P450 enzymes), and this activation can occur at the site of administration or at another site following systemic distribution.

Oral Cancer Slope Factor

IRIS (USEPA, 2000a) gives an oral cancer slope factor for B(a)P of 7.3 $(mg/kg\text{-}day)^{-1}$, which is the geometric mean of the range of oral slope factors from four slope factors derived from Neal and Rigdon (1967) and Brune et al. (1981), rodent feeding studies. In the Neal and Rigdon study (1967), B(a)P was administered in diet at concentrations of 0, 1, 10, 20, 30, 40, 50, 100, and 250 ppm to male and female CFW mice. Treatment time varied from 1 to 197 days. Stomach tumors were observed in mice consuming 20 or more ppm of B(a)P. Incidence was apparently related both to the dose and the number of administered doses. In the Brune et al. study (1981), groups of 32 each male and female Sprague-Dawley rats were administered 0, 6, or 39 mg/kg/year B(a)P in diet. There was a dose related increase in forestomach tumors in these rats.

USEPA's confidence in the data is medium, as it considers "the data to be less than optimal, but acceptable."

Other Potentially Carcinogenic PAHs

USEPA has derived a CSF for B(a)P, but not for the other six potentially carcinogenic PAH COPCs: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All of these except for chrysene were identified as COIs in the risk assessment.

The other potentially carcinogenic PAHs are also classified as B2, probable human carcinogens based on sufficient animal data. Each of these constituents has been associated with tumorigenesis at various sites (e.g., lung, liver, skin) following different modes of administration (USEPA, 2000a). In this risk assessment, the theoretical cancer

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risks resulting from exposure to carcinogenic PAHs have been evaluated using B(a)P toxicity equivalence factors (TEFs).

TEFs reflect the relative potency of the different potentially carcinogenic PAHs. Relative potencies were derived for various PAHs from analysis of experimental data from concurrent testing of B(a)P and other potentially carcinogenic PAHs (USEPA, 1993). These studies yielded a relative potency of the other PAHs in terms of the potency of B(a)P, for which a cancer slope factor is available. These estimates for a particular PAH were consistent across studies. The TEFs obtained from the most reliable studies (USEPA, 1993) were used in this risk assessment and are shown below.

Potentially Carcinogenic PAH	B(a)P TEF
benzo(a)anthracene	0.1
benzo(b)fluoranthene	0.1
benzo(k)fluoranthene	0.01
chrysene	0.001
dibenz(a,h)anthracene	1
indeno(1,2,3-cd)pyrene	0.1

The B(a)P TEFs were applied in this risk assessment in the following manner. CSFs for the other potentially carcinogenic PAHs were derived by multiplying the respective TEF by the CSF for B(a)P.

Polychlorinated Biphenyls (PCBs)

PCBs are classified as B2, probable human carcinogens based on animal data (USEPA, 2000a). Data for human carcinogenicity are considered to be inadequate by USEPA, whereas the animal carcinogenicity data are considered to be sufficient for this class of constituent (USEPA, 2000a). With regard to noncarcinogenic health effects, a RfD for PCBs, per se, is not available from USEPA. However, RfDs for some individual aroclors (including COI Aroclor 1254), have been derived by USEPA (USEPA, 2000a).

Oral Cancer Slope Factor

USEPA references two specific studies (Brunner et al., 1996; Norback and Weltman, 1985) in the derivation of its CSFs for PCBs as well as other supporting studies in rat and mouse. In the primary study of Sprague-Dawley rats by Brunner, groups of 50 each male

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and female were dosed in diet with 25, 50, or 100 ppm Aroclor 1260 or 1254; 50 or 100 ppm Aroclor 1242; or 50, 100, or 200 ppm Aroclor 1016. The study included an additional 100 rats of each sex as controls. The researchers found a statistically significant increase in liver tumors in females exposed to any of the aroclors and in male rats exposed to 1260. The Norback and Weltman study consisted of Sprague-Dawley rats being fed a diet containing Aroclor 1260 in corn oil at 100 ppm for 16 months, followed by a 50 ppm diet for an additional eight months, and then a basal diet for five months. Control animals were fed a diet containing corn oil for 18 months, and then a basal diet for five months. A high incidence of liver tumors (41/46 treated rats vs. 1/45 controls; data reflect data reevaluation by Moore et al., 1994) was found in female rats. Other studies also reported increased incidences of hepatocellular carcinomas following exposure to high lifetime doses of various PCB congeners (Kimbrough et al., 1975; NCI, 1978; Schaeffer et al., 1984).

In its most recent approach to deriving CSFs for PCBs, USEPA proposes a "Tiers of Human Slope Factors for Environmental PCBs." In the first tier are PCBs that are considered to be of greater toxicity or persistence. USEPA presents upper-bound and central-estimate slope factors of 2 $(mg/kg\text{-}day)^{-1}$ and 1 $(mg/kg\text{-}day)^{-1}$, respectively. These values are to be applied to the following exposures: food chain exposure, sediment or soil ingestion, dust or aerosol inhalation, dermal exposure if an absorption factor has been used, with dioxin-like or persistent congeners, and for early-life exposure.

The next tier is for less toxic and persistent PCBs. The upper-bound slope factor is 0.4 $(mg/kg\text{-}day)^{-1}$ and the central-estimate slope factor is 0.3 $(mg/kg\text{-}day)^{-1}$. These may be applied to ingestion of water-soluble congeners, inhalation of volatilized congeners, and dermal exposure when no absorption factor has been applied.

The final tier is for the PCBs lowest in toxicity and persistence. These are mixtures that are verified to have less than 1/2% PCB congeners with greater than 4 chlorines. The upper-bound and central-estimate values are 0.07 and 0.04 $(mg/kg\text{-}day)^{-1}$, respectively.

The exposure scenarios included in this risk assessment fit the first tier criteria (e.g., ingestion of soil, inhalation of dust, and dermal exposure with absorption adjustment). Therefore, the CSF of 2 $(mg/kg\text{-}day)^{-1}$ is used in the quantitative risk evaluation.

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Aroclor 1254:

Chronic Oral RfD

The USEPA does not provide a RfD for PCBs as a group, but has provided them for individual aroclors. Of the aroclor COIs in this risk assessment, only Aroclor 1254 has a USEPA-derived oral RfD (USEPA, 2000a). This value is applied to Aroclors 1248 and 1260, as well, in this risk assessment. The RfD for Aroclor 1254 of 0.00002 mg/kg-day is based on a long-term toxicity study in rhesus monkeys, results of which have been presented in a number of scientific papers (Arnold et al., 1993a,b; Tryphonas et al., 1989, 1991a, b). Dosages of 0, 5, 20, 40, or 80 ug/kg-day of Aroclor 1254 were administered (in gelatin capsules in a vehicle of 1:1 glycerol and corn oil) to groups of 16 adult female rhesus monkeys each. A LOAEL of 5 ug/kg-day was established based on the following effects: tearing and inflammation of eyelid Meibomian glands, nail changes, and immunological suppression. A 10x uncertainty factor was applied to the LOAEL for intraspecific variability, and another 3x factor was included for interspecific variability.

Subchronic Oral RfD

HEAST (USEPA, 1997b) presents a subchronic oral RfD for Aroclor 1254 of 0.00005 mg/kg-day, and this value is applied for the construction worker whose exposure duration is one year. USEPA (1997b) indicates that it has modified the chronic oral RfD to estimate the subchronic value.

Cyanide:

Chronic Oral RfD

Cyanide was identified as a COI in groundwater in this risk assessment, although a quantitative risk assessment was not conducted because there are no complete exposure pathways with groundwater. The principle study upon which the USEPA oral RfD (USEPA, 2000a) for free cyanide is based is a 2-year dietary study in rats (Howard and Hanzel, 1955). Test animals were administered HCN in food at average daily doses of 4.3 mg and 10.8 mg CN/kg BW. No adverse health effects were observed in animals at any treatment level. End points that were considered were growth rate, gross signs of toxicity, and histopathologic lesions. Therefore, the NOAEL of 10.8 mg/kg/day for CN was chosen by USEPA for the derivation of an oral RfD for free CN. An uncertainty

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factor of 100 was applied by USEPA to account for interspecies extrapolation and intraspecies variability. In addition, a modifying factor of 5 was also included for "apparent tolerance to cyanide when it is ingested with food rather than when it is administered by gavage or by drinking water." The NOAEL is converted to an RfD of 0.02 mg/kg/day by dividing by the UFs and MF.

It should be noted that USEPA recognizes that the toxicity of cyanide is highly dependent on the species present; therefore, the federal MCL specifically references free cyanide as the applicable form to which the MCL would apply (EPA, 1992d).

Fluoride:

Chronic Oral RfD

Fluoride was identified as a COI in groundwater in this risk assessment, although a quantitative risk assessment was not conducted because there are no complete exposure pathways with groundwater. IRIS (USEPA, 2000a) presents a chronic oral RfD of 0.06 mg/kg-day for fluorine, the soluble form of fluoride. This constituent has not been evaluated for human carcinogenicity.

The chronic oral RfD is based on an epidemiological study (Hodge, 1950) in children (12-14 years of age) who consumed fluoride in drinking water. The critical effect was dental mottling, a cosmetic, not a health effect. The NOAEL (1 ppm) and LOAEL (2 ppm) in drinking water are defined within a narrow dose range. The range of concentrations in the study was 0-14 ppm. Fluoride concentrations between 2-10 ppm showed a linear dose-response curve for increasing mottling with increasing dose, while no observable effect was discernible in the range of 0.1-1.0 ppm. The oral RfD includes assumptions of 20 kg BW and 1 L/day water consumption for children in the study. The NOAEL of 1 ppm (converted to 0.06 mg/kg-day) is the chronic oral RfD, as uncertainty factors were not deemed necessary with a study that assessed the critical effect in a sensitive population for a relevant exposure duration.

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E-3 Risk Characterization and Uncertainty Analysis

E-3.1 Risk Characterization Approach

In the Site-Specific Risk Assessment Results subsections of Section 4, potential carcinogenic risks and non-carcinogenic health effects are calculated and summarized individually for each identified receptor at the Site.

Potential carcinogenic risks are characterized by using projected doses and constituent-specific dose-response information to estimate probabilities that an individual will develop cancer over a lifetime. Theoretical excess lifetime cancer risks were calculated for those constituents of interest that are considered carcinogens by the USEPA. In order to estimate the theoretical upper-bound excess lifetime carcinogenic risk associated with exposure to a constituent, the product of the medium-specific CSF and the LADD estimated for the exposure pathway of concern is determined. The calculation of the theoretical excess lifetime cancer risk is shown below:

$$Risk_i = LADD_i \times CSF_i$$

Where:

$Risk_i$ = theoretical excess lifetime cancer for constituent i
$LADD_i$ = lifetime average daily dose for constituent i
CSF_i = cancer slope factor for constituent i

This approach to estimating carcinogenic risk assumes that the increased risk of cancer resulting from exposure to a constituent is linearly proportional to the amount of constituent intake averaged over a lifetime. The potential carcinogenic risks associated with the exposures to constituents were estimated by summing the constituent-specific risks to yield exposure pathways potential risks. Implicit in this approach is the assumption that potential carcinogenic risks from multiple constituent exposures are additive such that the total pathway-specific risk is equal to the sum of the individual constituent-specific risks. Similarly, the theoretical excess lifetime cancer risks for each carcinogenic constituent were also summed from each exposure pathway. The resulting total constituent-specific potential risks represent the *upper-bound* potential risk of developing cancer from that constituent upon exposure to that medium (i.e., the risk may be lower, but is unlikely to be greater).

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Potential non-carcinogenic effects are estimated by comparing projected intakes with constituent-specific toxicity values. Hazard quotients (HQs) were calculated for the constituents of interest that could potentially pose chronic or subchronic non-carcinogenic hazards. The hazard quotients for these constituents were calculated as follows:

$$HQ_i = \frac{ADD_i}{RfD_i}$$

Where:

HQ_i = hazard quotient for constituent i
ADD_i = average daily dose for constituent i
RfD_i = reference dose for constituent i

Non-cancer hazard indices (HIs) were calculated by summing all HQs. An HI value equal to or less than one indicates that an adverse effect would not be anticipated. Conversely, an HI greater than one indicates that there is a potential for a non-carcinogenic health effect to occur as a result of exposure to constituents released from the site. USEPA (1989, 1996a) and NCDENR (1999) consider a HI of less than one to be acceptable.

USEPA guidance for risk assessment (USEPA, 1989) recognizes that non-carcinogenic effects are exhibited in specific target organs. Specific COIs can be categorized by the target organ for effects. If summed HIs greater than 1 are calculated then USEPA (1989) allows for summing non-carcinogenic hazards for specific target organs as well as for the whole individual. However, there were no summed HIs that were greater than 1 for any receptor in the RFI risk assessment, so this approach was not needed.

E-3.2 Uncertainty Analysis

Uncertainties are inherent in every aspect of a quantitative risk assessment. The inclusion of site-specific factors can decrease uncertainty, although significant uncertainty persists in even the most site-specific and accurate risk assessments. A careful and comprehensive analysis of the critical areas of uncertainty in a risk assessment is an important part of the risk assessment process. The uncertainty analysis provides a context for better understanding the assessment conclusions by identifying the uncertainties that have most significantly affected the assessment results.

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USEPA (1989) guidance stresses the importance of providing a complete analysis of uncertainties so that risk management decisions take these uncertainties into account when evaluating risk assessment conclusions. The following general sources of uncertainty have been identified for the COI identification, exposure assessment, toxicity assessment, and risk characterization components of this risk assessment. Section 4 of this RFI Report discusses the individual SWMUs/AOCs and references this general section.

Uncertainties in Identifying COIs

Uncertainties in the COI identification step of the risk assessment are associated with the available analytical data and the selection process for identification of COIs.

Focused vs. Random Sampling. The environmental sampling used in this assessment included biased samples--samples collected intentionally to locate the highest likely concentrations of constituents within the SWMU boundaries. Random sampling would have been more likely to provide a representative set of values to be incorporated into the risk assessment for consistency with the other exposure considerations. This directed sampling effort tends to lead to an overestimation of constituent presence and the concentrations to which receptors will contact. Furthermore, the SWMU-specific sampling effort is likely to overestimate realistic long-term exposure because receptors are unlikely to have more than incidental, "passing-by" contact with environmental media at each SWMUs/AOCs.

Uncertainties in Exposure Assessment

The USEPA approach to exposure assessments generally requires standard exposure scenarios rather than realistic site-specific evaluations of exposure. Under this approach, if a constituent is found to be present at a site, it is assumed that exposure to that substance will occur, regardless of whether that exposure is realistic or likely. Uncertainties associated with the exposure assessment included calculation of EPCs and selection of exposure parameters.

Use of Maximum Detected Concentrations. For soils, the maximum detected concentration of a constituent is incorporated as the EPC if the number of samples was too small for meaningful statistical analysis. Relying on the maximum values is a very conservative

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estimate of exposure, which may overestimate potential risk. For example, this was the case for COIs in surface soil of SWMU 46.

Use of Default Exposure Factors. Although care has been taken to apply site- or receptor-specific exposure factors, for those with limited data (e.g., incidental ingestion rates of soil), USEPA defaults were used in many cases. The use of the USEPA default values may result in an overestimation of the potential risks.

Exposure Pathways with Surface Soil. Much of the plant area surface is paved or covered with gravel, and this includes SWMU/AOC areas, as well. In areas such as SWMU 11 and SWMU 35, which are predominantly gravel-covered, the risk assessment likely overestimates both contact potential with surface soil and the potential for wind generation of particles.

Inclusion of Dermal Exposure to Soil Pathway. Dermal exposures often do not contribute a substantive risk due to low bioavailability, low moisture content of surface soils, and short exposure periods for actual adherence of soil to skin. However, dermal contact with soil was evaluated for all applicable receptors in this assessment.

Sediment adherence factor. For the swimming receptors evaluated for contact with Badin Lake sediment, the adherence factor of 0.2 mg/cm^2 is likely over conservative. Badin Lake sediments are sandy, discontinuous, and would likely wash off with swimming.

Matrix Interference for Absorbance. When evaluating the risks associated with chemicals in environmental media, typically the USEPA and other regulatory agencies do not incorporate factors to address matrix interference with absorption. However, it should be noted that the scientific literature indicates that PAHs and PCBs in soil are less bioavailable than in the typical administration vehicles (corn oil, food) used in toxicity experiments. Therefore, the estimates of exposure dose through incidental ingestion of soil are likely overestimated because there is no adjustment made for potential interference of the soil matrix to GI absorption.

Modeling Off-Site Air Concentrations of COIs Associated with Particulates Generated On-Site. For the purposes of the site-specific risk assessments, the default dispersion factor (Q/C value) of 90.80 g/m^2-s per kg/m^3, which is based on a site area of 0.5 acres (or approximately 100 ft^2), was used in the evaluation of off-site exposure via inhalation of particles

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generated from individual SWMUs/AOCs. Applying the default Q/C for on-site dispersion to the off-site residential scenarios is especially conservative for a two main reasons. The first is that the prevailing wind direction tends to be from the southwesterly direction, and there no residences that lie to the northeast of the plant. Second, even the closest residences lie approximately 600 feet from the nearest SWMU (that is, from SWMU 46 to houses in the southwest direction). The other SWMUs lie from 1200 to 2000 feet from these residences or residences to the northwest of the plant. Therefore, the dispersion area for off-site locations would be significantly greater than 0.5 acres.

Uncertainties in Toxicity Assessment

The studies/basis for the toxicity information and the use of this information generate uncertainty. Some of the major sources of uncertainty are described below.

Animal to Human and High to Low Dose Extrapolations. Toxicity assessments for all of the COIs for the Badin RFI risk assessment (i.e., carcinogenic PAHs and Aroclors 1248, 1254, and 1260) involve the extrapolation of results from studies on animals. Uncertainties are introduced in animal to human extrapolation and high to low dose extrapolation. Mathematical models are used to estimate the possible responses due to exposure to chemicals at levels far below those tested in animals. These models contain several limitations, which should be considered when evaluating risk characterization results. Primary among these limitations is the uncertainty in extrapolation of results obtained in animal research to humans and the shortcomings in extrapolating responses obtained from high-dose research studies to estimate responses at very low doses. For example, humans are typically exposed to environmental chemicals at levels that are less than a thousandth of the lowest dose tested in animals. Such doses may be easily degraded or eliminated by physiological internal mechanisms that are present in humans.

Upper Bound Cancer Slope Factors. The USEPA cancer slope factors are considered to be plausible upper bounds of risk at a 95 percent confidence level. Thus there is a 95 percent probability that the true risks do not exceed these levels, and the risks are likely to be much lower. The Carcinogen Assessment Group (USEPA, 1986) states that the use of the linearized multistage model (LMS) and upper bound risk estimates is appropriate. While this model is considered by EPA to be valid for low risk levels, it generally leads to substantially higher values of the

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probability of developing cancer than other multistage models whose parameters have been estimated by the maximum likelihood method. USEPA (1986) indicates that "...(the LMS procedure) does not necessarily give a realistic prediction of the risk. The true value of risk is unknown, and may be as low as zero."

In addition to the LMS obscuring any actual threshold that may exist, USEPA has made several other policy choices for determination of carcinogenicity. For example, all tumors (malignant or benign) are counted as positive evidence of carcinogenicity. The more sensitive gender and most sensitive species in animal testing are the primary drivers in the assignment of CSFs and weight of evidence categorization. This would likely overestimate potential risks for the general population.

Dose Response Assessment - Noncarcinogens. Approaches typically utilized for designating RfDs are very conservative. The USEPA (1989) applies a factor of 10 to a no observed adverse effect level (NOAEL) for a constituent in an animal study for animal-to-human extrapolation. An additional factor of 10 is applied for inter-individual variation in the human population, and additional factors of 10 may be applied to account for limitations in data quality or incomplete studies. Frequently, RfDs are derived from animal studies that have little quantitative bearing on potential adverse effects in humans. Some of this uncertainty may be reduced if the absorption, distribution, metabolic fate, and excretion parameters of a constituent are known.

The USEPA (1989) definition of reference doses (RfDs) and reference concentrations (RfCs) includes the statement "...with uncertainty spanning perhaps an order of magnitude...." RfDs and RfCs (or its dose equivalent, RfD_i) used to quantitate noncarcinogenic (systemic) hazards are generally derived from the degree of chemical exposure that produce no adverse effects in animals. The chemical concentration at which no adverse effect is noted is referred to as a NOAEL. This value is then further reduced with "safety factors" to increase the margin of safety for the potentially exposed population. A safety factor of 300 was applied to the LOAEL to derive the oral RfD for Aroclor 1254, the only COI in this Baseline Risk Assessment with a USEPA-derived RfD.

Confidence in the database from which RfDs and RfCs are derived is evaluated by EPA and ranked as "high, medium or low." Similar to the weight of evidence associated with each

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CSF, a non-quantitative confidence statement cannot be carried forward in the risk assessment, and all RfDs and RfCs are treated equally, (i.e., as all being of high confidence). The estimated HIs are not numerically qualified with this uncertainty in mind. For example, in this risk assessment, the highest HQs were associated with Aroclor 1248. However, there is no USEPA-derived RfD for Aroclor 1248, and Aroclor 1254's RfD was applied 1248 on the basis of their being similar in structure and composition. Furthermore, since increased chlorination level is positively correlated with toxicity, it is plausible that Aroclor 1248 (i.e., having 48% chlorination) would exhibit relatively lower toxicity compared to Aroclor 1254 (having 54% chlorination).

Uncertainties in Risk Characterization

The typical approach to risk assessment involves conservatively multiplying the upper bound exposure assumptions together to evaluate exposure. USEPA risk assessment guidance (1989) specifies that for the RME numerous factors in the exposure equation should each be represented by the 95th percentile value for that variable. These factors include the representative concentration, the contact rate with the environmental medium, and the exposure frequency and duration. Multiplying all of these upper bound values results in a risk estimate that is higher than the risks to 99.99% of the population (USEPA, 1992a). Thus, virtually all potentially exposed receptors will have a much lower level of risk than calculated following USEPA guidance.

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E-4 References

Arnold, D.L., F. Bryce, K. Karpinski et al. 1993b. Toxicological consequences of Aroclor 1254 ingestion by female rhesus (Macaca mulatta) monkeys, Part 1B: Prebreeding phase-clinical and analytical laboratory findings. *Food Chem. Toxicol.* 31: 811-824.

Arnold, D.L., F. Bryce, R. Stapley et al. 1993a. Toxicological consequences of Aroclor 1254 ingestion by female rhesus (Macaca mulatta) monkeys, Part 1A: Prebreeding phase - clinical health findings. *Food Chem. Toxicol.* 31: 799-810.

Brune H, Deutsch-Wenzel RP, Habs M, et al. 1981. Investigation of the tumorigenic response to benzo(a)pyrene in aqueous caffeine solution applied orally to Sprague-Dawley rats. *J Cancer Res Clin Oncol* 102(2):153-157.

Brunner, M.J., T.M. Sullivan, A.W. Singer, et. al. 1996. *An assessment of the chronic toxicity and oncogenicity of Aroclor-1016, Aroclor-1242, Aroclor-1254, and Aroclor-1260 administered in diet to rats.* Columbus, OH: Battelle Study No. SC920192., Chronic toxicity and oncogenicity report.

Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring.* Van Nostrand Reinhold Co., New York, New York. pp. 320.

Hodge, H.C. 1950. The concentration of fluorides in drinking water to give the point of minimum caries with maximum safety. *J. Am. Dent. Assoc.* 40: 436.

Howard, J.W. and R.F. Hanzal. 1955. Chronic toxicity for rats of food treated with hydrogen cyanide. *Agric. Food Chem.* 3: 325-329.

Kimbrough, R.D., R.A. Squire, R.E. Linder, J.D. Strandberg, R.J. Montali and V.W. Burse. 1975. Induction of liver tumors in Sherman strain female rats by polychlorinated biphenyl Aroclor 1260. *J. Natl. Cancer Inst.* 55(6): 1453-1459.

Klaassen, C.D., 1996. *Casarett and Doull's Toxicology: The Basic Science of Poisons.* McGraw-Hill Publishing, U.S.

Moore, J.A., J.F. Hardisty, D.A. Banas and M.A. Smith. 1994. A comparison of liver tumor diagnoses from seven PCB studies in rats. *Reg. Toxicol. Pharmacol.* 20: 362-370.

NCDENR, 1999. *Guidelines for Determining Soil and Groundwater Clean-Up Levels at RCRA Hazardous Waste Sites.* Division of Waste Management, Hazardous Waste Section. Revised Draft, 1999.

NCI (National Cancer Institute). 1978. *Bioassay of Aroclor 1254 for possible carcinogenicity.* Carcinogenesis Tech. Rep. Ser. No. 38.

Neal, J. and R.H. Rigdon. (1967) Gastric tumors in mice fed B(a)P: A quantitative study. *Tex. Rep. Biol. Med.* 25:553-557.

Norback, D.H. and R.H. Weltman. 1985. Polychlorinated biphenyl induction of hepatocellular carcinoma in the Sprague-Dawley rat. *Environ. Health Perspect.* 60: 97-105.

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Preuss, P.W. and A.M. Ehrlich (1987) The Environmental Protection Agency's Risk Assessment Guidelines. *J. Air Pollution Control Assn.* 37:784–791.

Schaeffer, E., H. Greim and W. Goessner. 1984. *Pathology of chronic polychlorinated biphenyl (PCB) feeding in rats.* Toxicol. Appl. Pharmacol. 75: 278-288.

Tryphonas, H., M.I. Luster, G. Schiffman et al. 1991a. Effect of chronic exposure of PCB (Aroclor 1254) on specific and nonspecific immune parameters in the rhesus (Macaca mulatta) monkey. *Fund. Appl. Toxicol.* 16(4): 773-786.

Tryphonas, H., M.I. Luster, K.L. White et al. 1991b. Effects of PCB (Aroclor 1254) on non-specific immune parameters in rhesus (Macaca mulatta) monkeys. *Int. J. Immunopharmacol.* 13(6): 6389-648.

Tryphonas, H., S. Hayward, L. O'Grady et al. 1989. Immunotoxicity studies of PCB (Aroclor 1254) in the adult rhesus (Macaca mulatta) monkey - preliminary report. *Int. J. Immunopharmacol.* 11(2): 199-206.

United States Environmental Protection Agency (USEPA), 1986. Guidelines for Carcinogenic Risk Assessment. *Federal Register.* 51:33992.

United States Environmental Protection Agency (USEPA), 1989. *Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, Volume I, Part A. Interim Final.* Office of Emergency and Remedial Response, Washington, DC. EPA 540/1-89/002. December 1989.

United States Environmental Protection Agency (USEPA). 1991a. *Risk Assessment Guidance for Superfund, Vol. 1, Human Health Evaluation Manual*, Supplemental Guidance: Standard Default Exposure Factors, March 25.

United States Environmental Protection Agency (USEPA), 1992a. Guidelines for Exposure Assessment. *Federal Register Notice 57:22888-22936.*

United States Environmental Protection Agency (USEPA), 1992b. *Supplemental Guidance to RAGS: Calculating the Concentration Term.* Office of Solid Waste and Emergency Response. OSWER Directive 9285.7-081. May.

United States Environmental Protection Agency (USEPA), 1992c. *Dermal Exposure Assessment: Principles and Applications.* Office of Research and Development, Washington, DC. EPA 600/8-91/011B.

United States Environmental Protection Agency (USEPA), 1992d. 40CFR, Chapter 1, §141.62.

United States Environmental Protection Agency (USEPA), 1993. Provisional guidance for quantitative risk assessment of polycyclic aromatic hydrocarbons. Environmental Criteria and Assessment Office. Cincinnati, OH. Final Draft. ECAO-CIN- 842. March 1993.

United States Environmental Protection Agency (USEPA) Region 4, 1995. *Interim Human Health Risk Assessment Bulletins – Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS).* November.

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United States Environmental Protection Agency (USEPA), 1996a. Advanced Notice of Proposed Rulemaking (ANPR). *Federal Register*, Volume 61, Number 85, 19432-19464. May 1.

United States Environmental Protection Agency (USEPA), 1996b. *Soil Screening Guidance: Technical Background Document.* Office of Solid Waste and Emergency Response. EPA/540/R-96/018. April 1996.

United States Environmental Protection Agency (USEPA), 1996c. *Proposed Guidelines for Carcinogenic Risk Assessment.* Office of Research and Development. EPA/600/P-92/003C. April.

United States Environmental Protection Agency (USEPA), 1997a. *Exposure Factors Handbook. Office of Research and Development.* EPA/600/P-95/002F. August.

United States Environmental Protection Agency (USEPA), 1997b. U.S. Environmental Protection Agency. *Health Assessment Summary Tables (HEAST).* EPA-540-R-97-036. July

United States Environmental Protection Agency (USEPA), 1999. *Some Practical Aspects of Sample Size and Power Computations for Estimating the Mean of Positively Skewed Distributions in Environmental Applications.* Authors: Ashok K. Singh, Anita Singh, and Max Engelhardt. EPA Technology Support Center Issue. Office of Research and Development, Office of Solid Waster and Emergency Response. EPA/600/s-99/006. November.

United States Environmental Protection Agency (USEPA), 2000a. *Integrated Risk Information System (IRIS).* On-line.

United States Environmental Protection Agency (USEPA), 2000b. *Region III Risk-Based Concentration (RBCs) Table.*

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Table E-1
North Carolina Interim Groundwater Standards

Substance	Concentrations (mg/L)	Effective Dates
Petroleum Aromatics Carbon Fraction Class C9-C32	0.21	January 26, 1998
Acenaphthene	0.08	May 16, 1995
Acenaphthylene	0.21	May 16, 1995
Anthracene	2.1	May 16, 1995
Atrazine	0.003	May 16, 1995
Benzo(a)anthracene	0.00005	May 16, 1995
Benzo(b)fluoranthene	4.7×10^{-5}	January 26, 1998
Benzo(k)fluoranthene	4.7×10^{-4}	January 26, 1998
Benzo(g,h,i)perylene	0.21	May 16, 1995
Benzo(a)pyrene	4.7×10^{-6}	January 26, 1998
Benzoic Acid	28.0	May 24, 1999
Bis(chloroethyl)ether (BCEE)	3.1×10^{-5}	May 24, 1999
Bromodichloromethane	0.0006	May 16, 1995
sec-Butylbenzene	0.07	January 26, 1998
tert-Butylbenzene	0.07	January 26, 1998
n-Butylbenzene	0.07	January 26, 1998
Caprolactam	3.5	May 16, 1995
Carbon Disulfide	0.7	May 16, 1995
Chloroethane	2.8	August 17, 1994
Chloromethane	2.6×10^{-3}	January 26, 1998
2-Chlorotoluene	0.14	October 14, 1998
Chrysene	0.005	May 16, 1995
Dibenz(a,h)anthracene	4.7×10^{-6}	January 26, 1998
Dibenzofuran	0.028	May 24, 1999
Dibromochloromethane	4.1×10^{-4}	May 24, 1999
p,p'-Dichlorodiphenyl Dichloroethane (DDD)	1.4×10^{-4}	January 26, 1998
p,p'-Dichlorodiphenyltrichloroethane (DDT)	1.0×10^{-4}	January 26, 1998
1,3-Dichloropropene (cis and trans isomers)	0.0002	May 16, 1995
Dieldrin	2.2×10^{-6}	January 26, 1998

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2,4-Dimethylphenol (m-xylenol)	0.14	October 14, 1998
Diphenyl (1,1-diphenyl)	0.35	August 17, 1994
Disulfoton	2.8×10^{-4}	January 26, 1998
Endosulfan II (beta-endosulfan)	0.042	January 26, 1998
Endrin (Total Endrin: includes endrin, endrin aldehyde, and endrin ketone)	2.1×10^{-3}	January 26, 1998
Ethyl Acetate	2.60	May 24, 1999
Fluoranthene	0.28	May 16, 1995
Hexachlorobutadiene	4.4×10^{-4}	May 24, 1999
Hexachorocyclohexane Isomers (Total Hexachorocyclohexane: includes alpha, beta, delta, gamma, and epsilon isomers)	1.9×10^{-5}	January 26, 1998
2-Hexanone	0.28	May 24, 1999
Indeno(1,2,3-cd)pyrene	4.7×10^{-5}	January 26, 1998
Isophorone	0.0368	January 26, 1998
Isopropylbenzene	0.07	January 26, 1998
Isopropyl Ether (Diisopropyl Ether)	0.07	August 7, 1995
Methanol	3.5	May 16, 1995
2-Methylnaphthalene	0.028	January 26, 1998
3-Methylphenol (m-cresol)	0.035	January 26, 1998
4-Methylphenol (p-cresol)	0.0035	January 26, 1998
N-Nitrosodimethylamine	7.0×10^{-7}	January 26, 1998
Petroleum Aliphatic Carbon Fraction Class C5-C8	0.42	April 15, 1998
Petroleum Aliphatic Carbon Fraction Class C9-C18	4.2	April 15, 1998
Petroleum Aliphatic Carbon Fraction Class C19-C36	42.0	April 15, 1998
Phorate	1.4×10^{-3}	January 26, 1998
n-Propylbenzene	0.07	January 26, 1998
Pyrene	0.21	May 16, 1995
Simazine	0.0035	May 16, 1995
1,2,4-Trichlorobenzene	0.07	May 24, 1999
1,1,2,2-Tetrachloroethane	1.7×10^{-4}	May 24, 1999
2,3,4,6-Tetrachlorophenol	0.21	January 26, 1998

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1,2,3-Trichloropropane	5.0×10^{-6}	January 26, 1998
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	210.0	September 1, 1998
1,2,4-Trimethylbenzene	0.35	January 26, 1998
1,3,5-Trimethylbenzene	0.35	January 26, 1998

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Table E-2

COI-Specific Dermal Absorption Factors

Alcoa Badin, NC Works RFI

COI	Dermal Absorption Factor	Reference
Aroclor 1248	0.06	[1]
Aroclor 1254	0.06	[1]
Aroclor 1260	0.06	[1]
Benzo(a)anthracene	0.01	[2]
Benzo(a)pyrene	0.01	[2]
Benzo(b)fluoranthene	0.01	[2]
Dibenz(a,h)anthracene	0.01	[2]
Indeno(1,2,3-cd)pyrene	0.01	[2]

[1] USEPA, 1992c. Dermal Exposure Assessment.
[2] USEPA Region 4, 1995; default value for semivolatile constituents.

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Table E-3

Toxicity Criteria for Potentially Carcinogenic COIs

Alcoa Badin, NC Works RFI

COI	Carcinogen. Classific.	Oral CSF $(mg/kg/day)^{-1}$	Ref	Inhalation CSF $(mg/kg/day)^{-1}$	Ref	Target Organ
Aroclor 1248	B2	2	[1]	2	[1]	liver
Aroclor 1254	B2	2	[1]	2	[1]	liver
Aroclor 1260	B2	2	[1]	2	[1]	liver
Benzo(a)anthracene	B2	0.73	[2]	NA	-	liver
Benzo(a)pyrene	B2	7.3	[1]	3.1	[2]	stomach (oral); resp.tract, upper GI (inh)
Benzo(b)fluoranthene	B2	0.73	[2]	NA	-	stomach
Dibenz(a,h)anthracene	B2	7.3	[2]	NA	-	stomach
Indeno(1,2,3-cd)pyrene	B2	0.73	[2]	NA	-	stomach

[1] USEPA, 2000a. IRIS
[2] National Center for Environmental Assessment (NCEA), as presented in USEPA, 2000b.

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Table E-4

Toxicity Criteria for Noncarcinogenic Effects for COIs

Alcoa Badin, NC Works RFI

COI	Chronic Oral RfD [1] (mg/kg/day)	Subchronic Oral RfD [2] (mg/kg/day)	Inhalation RfD (mg/kg/day)	Target Organ
Aroclor 1254	0.00002	0.00005	NA	Eye gland inflammation, nail changes, immunological effects.

[1] USEPA, 2000a. IRIS.
[2] USEPA, 1997b. HEAST.

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