

**Comments for Public Hearing and Public Comment Period
Proposed Water Supply Nutrient Strategy B. Everett Jordan Reservoir
July 17, 2007**

**Respectfully submitted by Blue Ridge Environmental Defense League
North Carolina Healthy Communities (BREDL)
and
Neighbors Opposing Bio-Solids
(N.O. - B.S.)**

My name is Susan Dayton. On behalf of the Blue Ridge Environmental Defense League/North Carolina Health Communities (BREDL) and the Neighbors Opposing Bio-Sludge (N.O.- B.S.) I respectfully submit the attached comments to be added to the public record for the Public Hearings re: the Proposed Water Supply Nutrient Strategy for B. Everett Jordan Reservoir.

We are submitting comments which pertain specifically to land application of sewage sludge (a.k.a., biosolids) and the potential impacts of sludge on the ecological health of the Jordan Reservoir which should be included under the Jordan Water Supply Nutrient Rules, 15A NCAC 02B.0263, Nutrient Management. I use the term "sludge" to identify the residual solids that are left after effluent from a wastewater treatment plant undergoes treatment. According to the federal government (40 CFR 260.10.) the term "sludge" is defined as "any solid, semi-solid or liquid waste generated from a municipality, commercial industry, waste water treatment plant, water supply treatment plant or air pollution control facility."

There is a growing controversy as to whether the U.S. federal regulations concerning sludge application are protective of human health, agricultural products and ecological health. The Ocean Dumping Ban Act of 1988 (<http://www.epa.gov/history/topics/mprsa/02.htm>) marked an end to almost a century of sewage sludge and industrial waste dumping into the ocean.

From 1924 through 1987, sludge was disposed of at a site about 12 miles offshore in waters about 88 feet deep. The EPA shut down this site due to elevated bacterial levels, closed shellfish beds, and accumulated toxic organic compounds and heavy metals in bottom sediments which caused changes in diversity and abundance of marine life (<http://www.epa.gov/history/topics/mprsa/03.htm>).

Millions of tons of sludge are applied to lands located in the 10 counties that make up the Haw River Watershed. In addition to nitrogen, phosphorous, organic matter and other nutrients, sludge contains industrial chemicals, prescription and non-prescription pharmaceuticals, heavy metals, and pathogens that are not destroyed by conventional treatment.

A recent study confirmed that from a total of 87 contaminants tested 55 of these were found in one or more of the biosolids. Pharmaceuticals, detergent metabolites, sterols, synthetic fragrances and polycyclic aromatic hydrocarbons were detected in 9 of the biosolid products. Other products included fire retardants, plasticizers, and disinfectants. The study cited potential concerns that included increased rates of cancer, adverse physiological effects, and reproductive impairment in humans and other animals as well as antibiotic resistance among pathogenic bacteria ("Survey of Organic Wastewater Constituents in Biosolids Destined for Land Application," Kinney et al, Environmental Science and Technology, Vol. 40, No. 23, 2006).

We do not know what the consequences of sludge application might be on our health, environment and ecosystems. We believe that further monitoring and testing for a much broader suite of substances is necessary since many constituents found in sludge will remain in soils and

the ecosystem for many years. Therefore, in order to more accurately assess sludge as a potential contributor to the declining integrity of the Jordan Reservoir we offer the following recommendations:

Routine testing should include testing for the presence of chemicals that are known to be endocrine disruptors. These chemicals are found in effluent discharged into tributaries from wastewater treatment plants and are capable of disrupting the endocrine systems of fish and birds essential to maintaining a healthy ecosystem. A 2002 USGS study documented the presence of emerging contaminants, including prescription and non-prescription drugs, hormones, and other wastewater compounds, in a network of 139 targeted streams across the United States. The study found that in the Boulder Creek, upstream, where the water flows clear out of the Rocky Mountains, the ratio of males to females is 50-50. Downstream, below the Boulder wastewater-treatment plant, the females outnumber the males by 5 to 1. About 10% of the fish had both male and female sexual characteristics (http://toxics.usgs.gov/regional/emc_surfacewater.html).

In the study on organic wastewater contaminants found in biosolids (cited in the summary paragraph above), Chad Kinney, a chemist with Eastern Washington University, adds that "little is known about the potential effects of organic wastewater contaminants in wastewater effluent or biosolids disposed of in surface water or on soil" and that potential concerns about the presence of these contaminants in the environment include "adverse physiological effects, increased rates of cancer, and reproductive impairment in humans and other animals as well as antibiotic resistance among pathogenic bacteria." The study concludes: "the high frequency of organic waste water contaminants detected in biosolids tested and the high concentrations of individual organic wastewater contaminants present suggest that biosolids can be an important organic wastewater contaminant source to terrestrial environments, and projections about their environmental fate are warranted."

Routine testing of surface waters located up to one mile from sludge applied land. Testing should be implemented as a part of a comprehensive program to identify the types and extent of releases of nutrients and other chemicals contained in sludge into nearby surface waters. Testing should be required before obtaining a permit for sludge application to achieve a baseline and at regular intervals after each land application of sludge for further determining the extent of sludge releases. Testing should include the Whole Effluent Toxicity Test (WET), refractory toxicity testing and respiration tests to monitor chemicals in both wastewater and surface waters.

Increase setbacks for sludge applications on land adjacent to surface water to 1,400 ft. as recommended by the OEEB.

The setbacks required by North Carolina are more stringent than those required by federal rules. The federal rules (503.14 c) require a 10 meter (32.8 feet) setback from surface waters while the state rules (15A NCAC 02T.1109) require a 100 foot setback from surface waters. According to a report conducted by the Occupational and Environmental Epidemiology Branch, NC Board of Health, which stated that it was not known how these distances were determined nor did DENR staff know how these distances were selected ("Human Health Risk Evaluation of Land Application of Sewage Sludge/Biosolids, OEEB, Nov. 2005).

There are many examples of nitrate contamination in ground water due to the land application of sludge. The ground water near a sludge application site in Rutherford County was contaminated with nitrates at levels greater than the EPA standard of 10 ppm. The existence of this contamination suggests that land application of sludge may have been responsible for contaminating groundwater and residential private wells (Supplemental Site Assessment Report, Raleigh Waste Water Treatment Plant, September, 2003). In another instance nitrates traveled

Characterization and Water quality assessment at Parnell Farm Site, Robeson County, NC. Soil and Environmental Consultants, December 1996).

Testing of surface water should be conducted prior to obtaining a permit and at regular intervals after each sludge application. Testing both before and after sludge applications to surface waters located close to land with applied sludge would be valuable in establishing a baseline for those surface waters and at regular intervals after each sludge application to determine the types and extent of contaminant releases.

Total Maximum Daily Loads (TMDLs) should be considered in permitting sludge applications. Permits to apply should ensure that all necessary means are taken so that surface water runoff does not cause a TMDL to be exceeded or a TMDL Action Plan to be violated.

Prohibition of sludge applications on "Impaired" waters. Currently there are a reported 29 tributaries in the Haw River Watershed that have been designated as "Impaired" as well as the Jordan Reservoir (Haw River Assembly, Stream Steward Handbook, p. 8-9). If sludge is shown to be a contributor to the declining integrity of the Jordan Reservoir, sludge application should be prohibited on land where runoff drains into surface waters that have been designated as "Impaired."

Adaptive management database. We recommend that all data collected from testing should be integrated into an adaptive management database for the Jordan Reservoir.

Support for local farmers. We support our local farmers and clean, healthy local agricultural products and practices. Water quality in the Jordan Reservoir reflects our stewardship of the land, urban and rural, in the Haw River Watershed.

A strong, local agricultural economy is essential if we are to provide adequate resources to implement the necessary changes. Farmers deserve the support of all of the stakeholders involved in restoring the Jordan Reservoir. We also request that careful and equal consideration be given to all stakeholders involved in this process for it is our land, water and precious ecosystems that are at stake - as well as our future.

In addition to the cited references, I am attaching a *Frequently Asked Questions About Sludge* fact sheet produced by the Neighbors Opposing Bio-Sludge (N.O. - B.S.) for the administrative record.

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