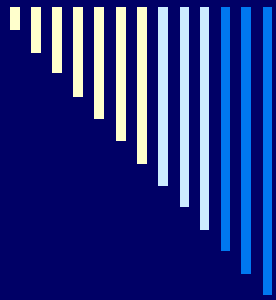


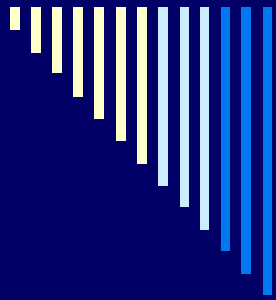
Sandhills Region Pesticide-Groundwater Quality Investigation Background

- ❑ Sample of well north of Norman indicated the 3 chemicals of concern in (late 2007) all above safe limits.
- ❑ 1,2-dibromo-3-chloropropane=1.6 (limit .2 ppb)
- ❑ 1,2-dichloropropane=1.3 (limit 5 ppb)
- ❑ 1,2,3-trichloropropane=.58 (limit .2 ppb)



Uses of Chemicals

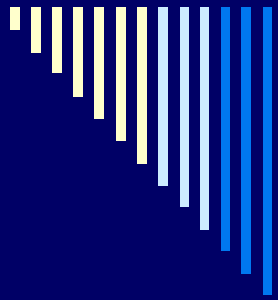
- ❑ Chemicals were components of pesticides applied to farmland as soil treatment for nematodes.
- ❑ Collectively used between mid 1950's and late 1980's for agricultural purposes.
- ❑ Many different product names and crops used on.
- ❑ The detection areas, history of peach production and row crops. Now land has converted to residential uses.



Background continued:

- -Since 12/07, over 400 total samples collected by DWQ & County Health Departments. (Montgomery, Richmond & Moore)

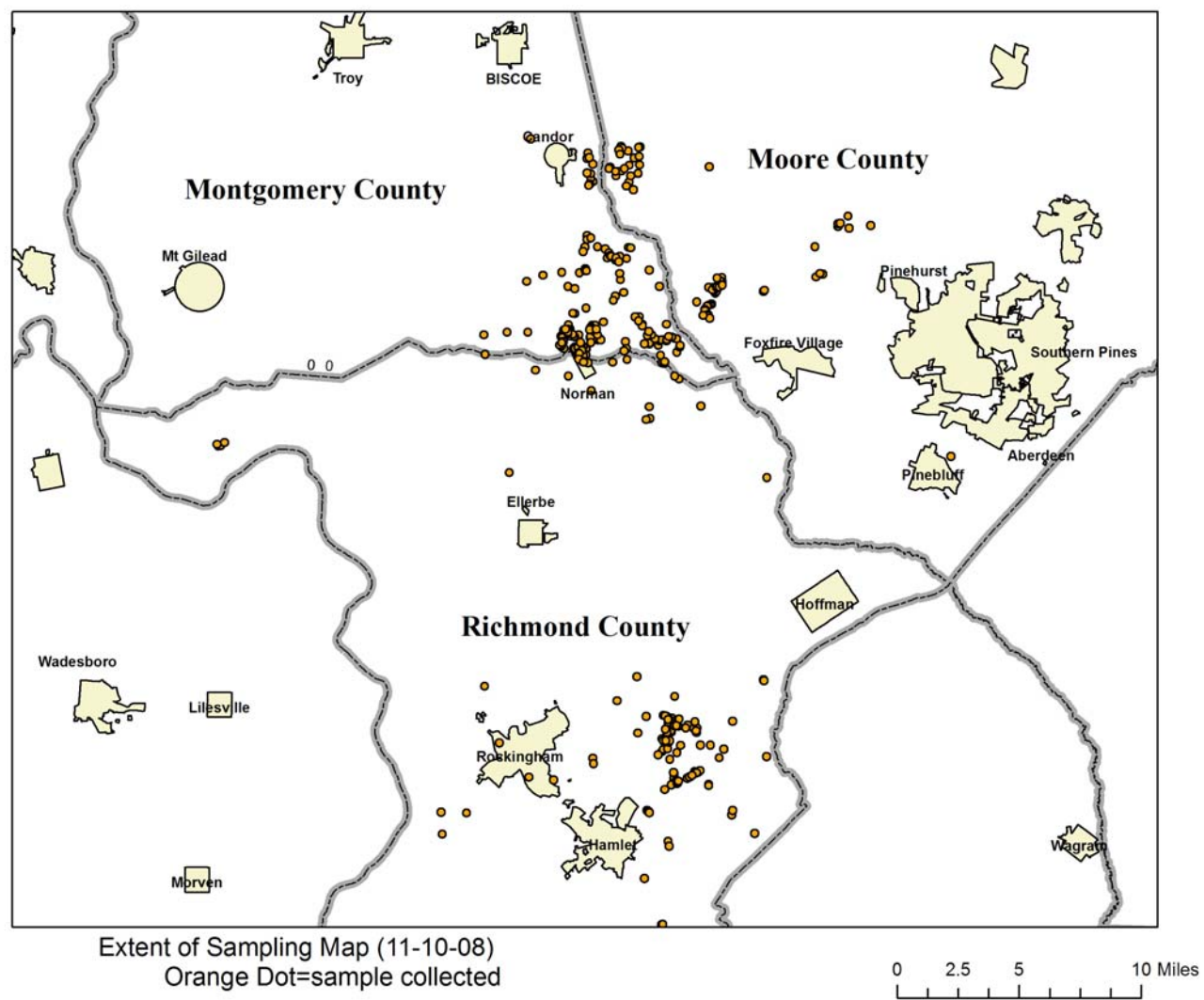
- -**Results:** As of 11/10/08 from 402 residences screened
 - 253 non-detects
 - 41 had low detects with water still useable
 - 84 residences (68 wells) had detections at concentrations too high to use water
 - 24 had non-pesticide detections



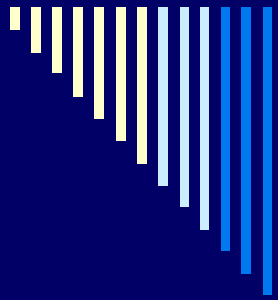
Maximum Concentrations Detected

(ppb-parts per billion)

- 1,2-dibromo-3-chloropropane=highest level 11.0 ppb
- 1,2-dichloropropane=highest level 9.0 ppb
- 1,2,3-trichloropropane=highest level 3.8 ppb
- 1,2-dichloroethane=highest level 8.3ppb, unique to 5 wells (grain fumigant, insecticide uses)

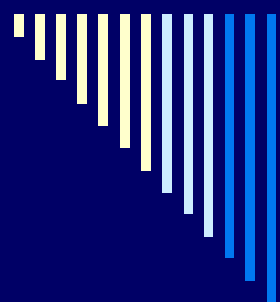


Sample Locations



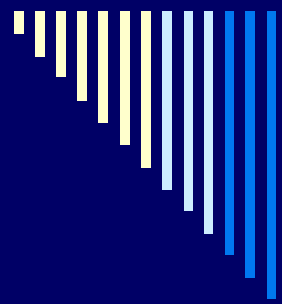
Background continued:

- -EPA Region 4 Emergency Response Branch assisted at residences connected to wells that contained the highest levels 2/28/08 with bottled water.
- -NC DENR awards Bernard Allen Fund contract on 4/7/08 to fund bottled water, after which deliveries began, and are continuing.



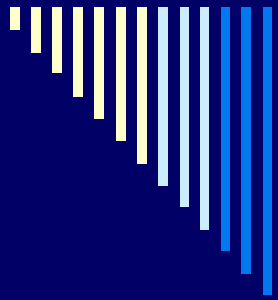
Conclusions at this time

- The locations & concentrations of the fumigant chemicals discovered so far appear to be residuals from normal farming practices during the time the chemicals were in circulation.
- The locations that pose the highest risk to the our citizens are lands that were previously farms where the chemicals were applied and have now been converted to residential uses or for obtaining drinking water (water system wells)
- Not all converted farm land appears to be impacted. So the use of the these type chemicals probably varied widely from one farm operation to the next.



Solutions:

- Short Term:
- -Bernard Allen Fund-Bottled Water Contractor-Laurel Valley Water Company.
- -Water distribution points from County Systems



Solutions:

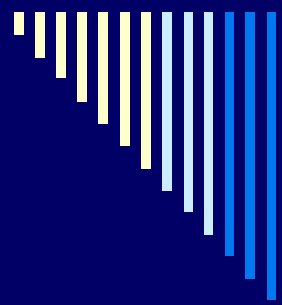
□ Other Short Term:

□ -Filters:

- Unsure of the duration and quality of the filter media.
- High maintenance and monitoring costs.

□ -New well that taps a zone of uncontaminated water:

- Unsure of the location of uncontaminated vs. contaminated zones.
- Attempts to find these zones expensive for the individual home owner.
- Specialty type well construction.
- No guarantee the water will remain good quality.

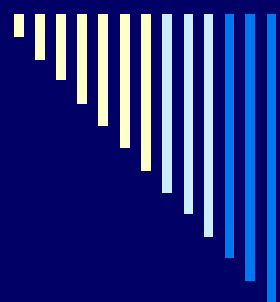


Solutions:

□ Long Term:

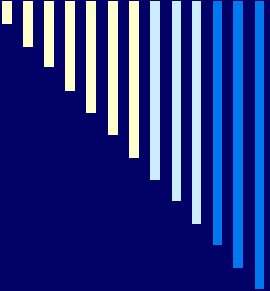
■ -Water System Expansion

- County System – funding issues, logistical issues, slow process
- New Local Well System (County or Privately Owned) – may be possible where source water is isolated from impacted groundwater. Will require installation of test wells to measure for contamination and well yield to determine if this is an option for an affected area. (Fox Rd. area of Richmond County has potential)



Closing Remarks:

- -DWQ & County Health Departments are continuing to sample supply wells to screen for detections of these pesticides
 - Anson, Montgomery, Moore & Richmond Counties targeted
- -DWQ is organizing a study in Norman area to evaluate the specifics of how these chemicals exist & travel in the groundwater system
- -Recommend VOC analysis be conducted as standard part of the local well program (especially for the Sandhills region)



Acknowledgement of Participation:

- -Since this issue began, various agencies have worked together to respond and help find solutions. Although the solutions to these problems are not yet in place, the collective group of Agencies and Individuals should be recognized for their hard work and dedication to serving the Citizens of North Carolina. Below is a list of these major contributors.

- DENR: Division of Water Quality (Fayetteville Regional Office Staff)
- Local Government County Staff: Richmond County, Montgomery
- DHHS: Division of Public Health
- DENR: Division of Waste Management: Administration of Bernard Allen Fund Contract
- DENR: Office of the Secretary: Steve Wall, facilitator
- State & Local elected officials: Working on water system expansion logistics
- Dept. of Agriculture: For expertise in farming practices
- EPA Region 4 Emergency Response Branch: Early bottled water delivery