

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DEPARTMENT OF ENERGY OVERSIGHT DIVISION

2009 ENVIRONMENTAL MONITORING PLAN

ADDENDUM

DRINKING WATER MONITORING
TDEC Department of Energy Oversight Division
2009 Residential Drinking Water Monitoring Plan
for the Jones Island/Melton Valley Area

Introduction

In concordance with the mission of the Tennessee Department of Environment and Conservation (TDEC) the Department of Energy-Oversight Division (DOE-O) as established under the Tennessee Oversight Agreement (TOA) and the (Federal Facilities Agreement (FFA), to protect the people and environment of East Tennessee, in respect to wastes and contaminants generated by Oak Ridge Reservation (ORR) Department of Energy (DOE) operations both legacy and current, the division conducts monitoring of the groundwaters of the Oak Ridge Reservation (ORR) and its environs.

Primary goal of the DOE-Oversight Division's residential well sampling program during 2009:

- To plan and conduct an offsite residential well monitoring program for the purpose of protecting the people and environment of the regions of East Tennessee, where the potential exists of impact to groundwaters by past and or present activities of the DOE on or off the ORR;

The DOE-O has sampled water wells and a spring in the Jones Island neighborhood as a part of an ongoing assessment of groundwater quality. The sample results indicate there are specific constituents in the samples collected from some of the wells at concentrations that may limit the use of the water as a drinking water source. Given this information, the TDEC will collect water samples from a faucet in the well users' homes. The sampling effort will follow the procedures for sampling water supply sources.

Methods and Materials

Water supply wells will be sampled by collecting water from a faucet, e. g. the kitchen sink. In the event that a filter is used and can be isolated then samples before and after the filter will be collected. Filter specific information, manufacturer, model, and filter change history if possible will also be collected. Water supply wells will be purged for at least 20 minutes or after field parameters stabilize. Parameters, such as, pH, temperature, and conductivity will be collected before sampling and recorded on sampling chain of custody sheets. Parameters will be collected as per State of Tennessee/EPA Standard Operating Procedures (SOPs) with calibrated instruments as per the SOPs.

Table 1 contains locations and analyses as described below. Figure 1 is a map showing the locations to be sampled. If the water supplies show a gross alpha activity greater than 5 picocuries/liter then a radionuclide isotope specific analysis for alpha emitters will be performed on the laboratory-archived sample.

Sampling will include free chlorine by DPD/Hach Colorimeter. Metals analyses include aluminum, antimony, arsenic, barium, cadmium, chromium, nickel, lead, lithium, selenium, sodium, thallium, uranium, and strontium. Radiochemical and radioactivity analyses include gross alpha and gross beta activities, gamma spectrographic, strontium 89/90 tritium and gross alpha by co-precipitation. Inorganic analyses include alkalinity, boron, chloride, conductivity, fluoride, pH and sulfate. Nutrient analyses include nitrate and nitrite. Volatile organic compounds will be analyzed by the Safe Drinking Water Act method 524.2.

The Tennessee Department of Health analytical laboratory in Knoxville, Tennessee will furnish sample containers. Samples will be collected using approved TDEC and EPA sampling procedures. Vinyl or nitrile exam gloves and decontamination equipment and procedures will be necessary to avoid cross contamination. TDEC DOE-O sample coolers will be used to insure that samples are preserved in route to the laboratory. Appropriate lab, field and trip blanks will be utilized. Samples will be delivered to the Tennessee Department of Health analytical laboratory in Knoxville by State vehicles for analysis and for transportation to the Tennessee Department of Health's Environmental Laboratory in Nashville.

DOE Coordination/Communication

DOE will be notified by this document, monitoring meetings, and revisions to this document, of division groundwater sampling plans. Should the DOE request the opportunity to observe and/or take split samples, every effort will be made to facilitate DOE participation in the division's Groundwater Program. Analytical results will be made available to the individual well users.

All results and findings will be reported in the DOE-Oversight Division's Environmental Monitoring Report.

References

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Table 1

Sampling and Analysis Matrix for 2009 Residential Well Program			
Off-Site Area	Analyte Groups	Locations	
Jones Island Area	Rad	1. RWA-52	17. RWA-80
	VOCs	2. RWA-55	18. RWA-81
	Met	3. RWA-56	19. RWA-82
	Nut	4. RWA-57	20. RWA-83
	Inor	5. RWA-58	21. RWA-84
		6. RWA-59	22. RWA-85
		7. RWA-59-A	23. RWA-86
		8. RWA-63	24. RWA-87
		9. RWA-63-A	25. RWA-88
		10. RWA-65	26. RWA-89
		11. RWA-65-A	27. RWA-90
		12. RWA-65-B	28. RWA-90-A
		13. RWA-76	29. RWA-91
		14. RWA-77	30. RWA-92
		15. RWA-78	31. RWA-93
		16. RWA-79	32. RWA-94
NOTES			
Rad	= sample for radiochemicals: Gross Alpha, Gross Beta, Gamma Radionuclides, Strontium89/90, Tritium, Gross Alpha by coprecipitation		
VOCs	= samples for Volatile Organic Compounds SDW524.2		
Nut	= samples for Nutrients Nitrite and Nitrite		
Met	= a sample that is analyzed for Aluminum, Antimony, Arsenic, Barium, Cadmium, Chromium, Nickel, Lead, Lithium, Selenium, Sodium, Thallium, Uranium, Strontium		
Inor	= a sample that is analyzed for Alkalinity, Boron, Chloride, Conductivity, Fluoride, pH, Sulfate, Free chlorine in the field		

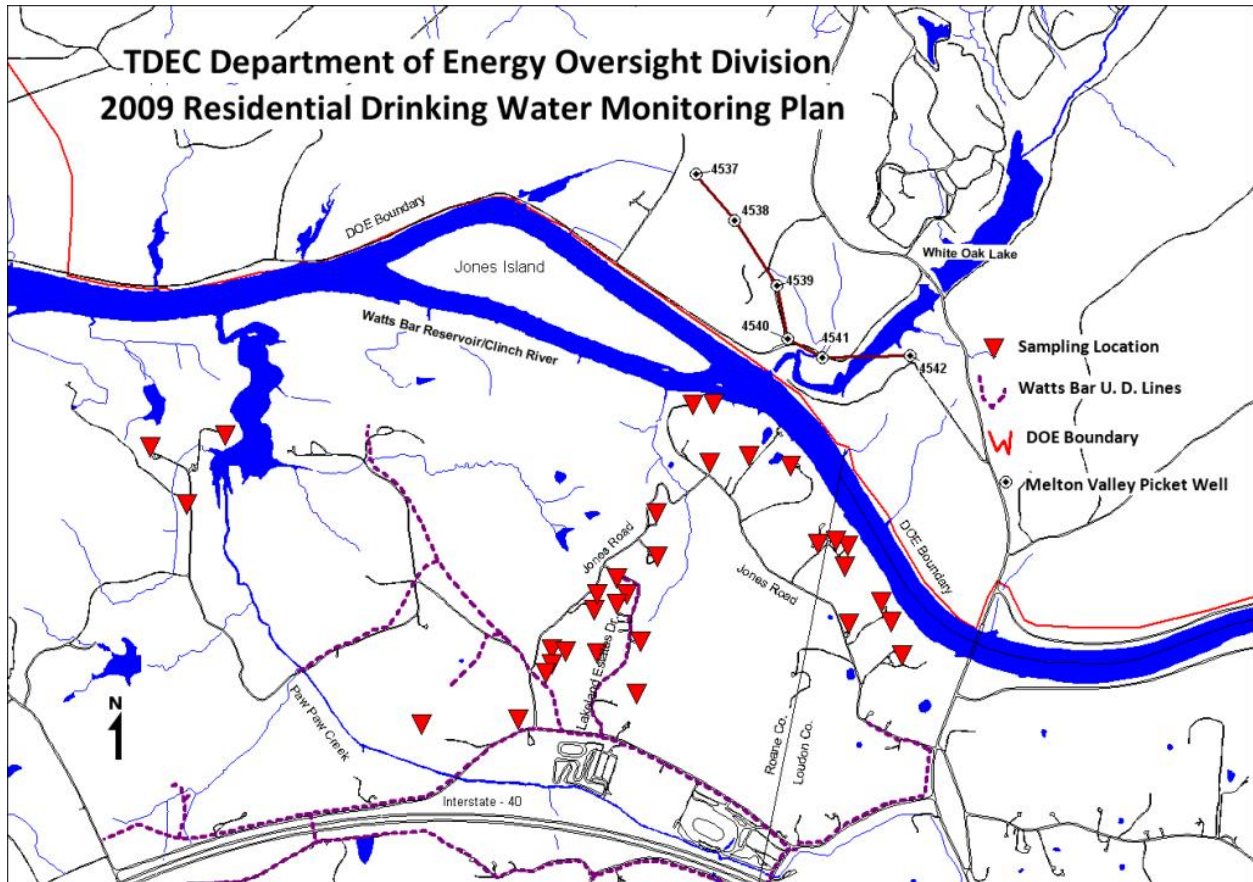


Figure 1 Residential Well Locations To Be Sampled.