

Chem-Nuclear Site

ANNUAL UPDATE

2011

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Introduction ...

The S.C. Department of Health and Environmental Control (DHEC) is committed to providing annual updates about the groundwater contamination and other activities at the Chem-Nuclear Site. We hope you will find this annual newsletter to be informative.

If you have questions about the Chem-Nuclear Site, please contact any of the DHEC staff listed on the back page. Visit www.scdhec.gov/radwaste for additional information and past annual updates.

Definitions ...

Groundwater – The water found beneath the Earth's surface, usually in aquifers, which supply wells and springs.

Picocuries Per Liter (pCi/L) – A unit of measure of radioactivity.

Plume – An area where contamination is detected (or is measurable).

µg/L – A unit of measure for one millionth of a gram per liter or one part per billion (ppb).

Volatile Organic Compounds (or Chemicals) (VOCs) – Chemicals that evaporate readily when exposed to air and are widely used to clean things.

The Groundwater Plume at the Chem-Nuclear Site

The Chem-Nuclear Site has a routine groundwater and surface water monitoring program. Groundwater samples are collected from monitoring wells and from locations in Mary's Branch Creek four times each year. The information gathered is used to evaluate changes in contaminant concentrations within the groundwater plume.

The most recent results for tritium are from samples collected during the second quarter of 2011 (April to June). The highest concentration of tritium continues to be found on site at well WM-0110 where it was 29,800,000 pCi/L (April). The concentration where the plume enters Mary's Branch Creek (WC-0002) was 438,000 pCi/L (April).

The surface water "point of compliance" (WC-0008) is the point where regulatory limits apply. In April, the level of tritium measured at the point of compliance was 96,300 pCi/L. This is less than the regulatory limit of 500,000 pCi/L.

A map showing the point of compliance is provided on the back page. Additional maps are available at www.scdhec.gov/radwaste

The latest quarterly sampling results (July 2011) show that there are three volatile organic compounds (VOCs) present in the creek at WC-0002 and one present at WC-0008. At WC-0002, these chemicals are 1,4-dioxane (452 µg/L), 1,1-dichloroethane (1.88 µg/L) and chloroform (3.92 µg/L).

At WC-0008, 1,4-dioxane was found at a concentration of 93.6 µg/L. Surface water regulatory limits have not been established for 1,1-dichloroethane or 1,4-dioxane. The surface water regulatory limit for chloroform is 5.7 µg/L.

Plume Update

Chem-Nuclear Site submits an annual trending report on whether the tritium plume is getting larger or smaller and whether the levels of tritium are going up or down in certain wells. DHEC reviews the report for accuracy and completeness.

In the 2011 annual trending report, 27 wells were evaluated for changes in tritium concentrations. The tritium data indicate that nine monitoring wells show no evidence of a trend either up or down, seven wells show an upward trend, and 11 wells show a downward trend over the most recent five-year period (2006 to 2011). Tritium concentrations at the point of compliance on Mary's Branch Creek are stable and show no evidence of an upward or downward trend. The 2011 annual trending data is available at www.scdhec.gov/radwaste.

Waste Volumes

Since July 2008, the Chem-Nuclear Site only accepts waste from the three member states of the Atlantic Compact – Connecticut, New Jersey and South Carolina. The monthly waste volume received between July

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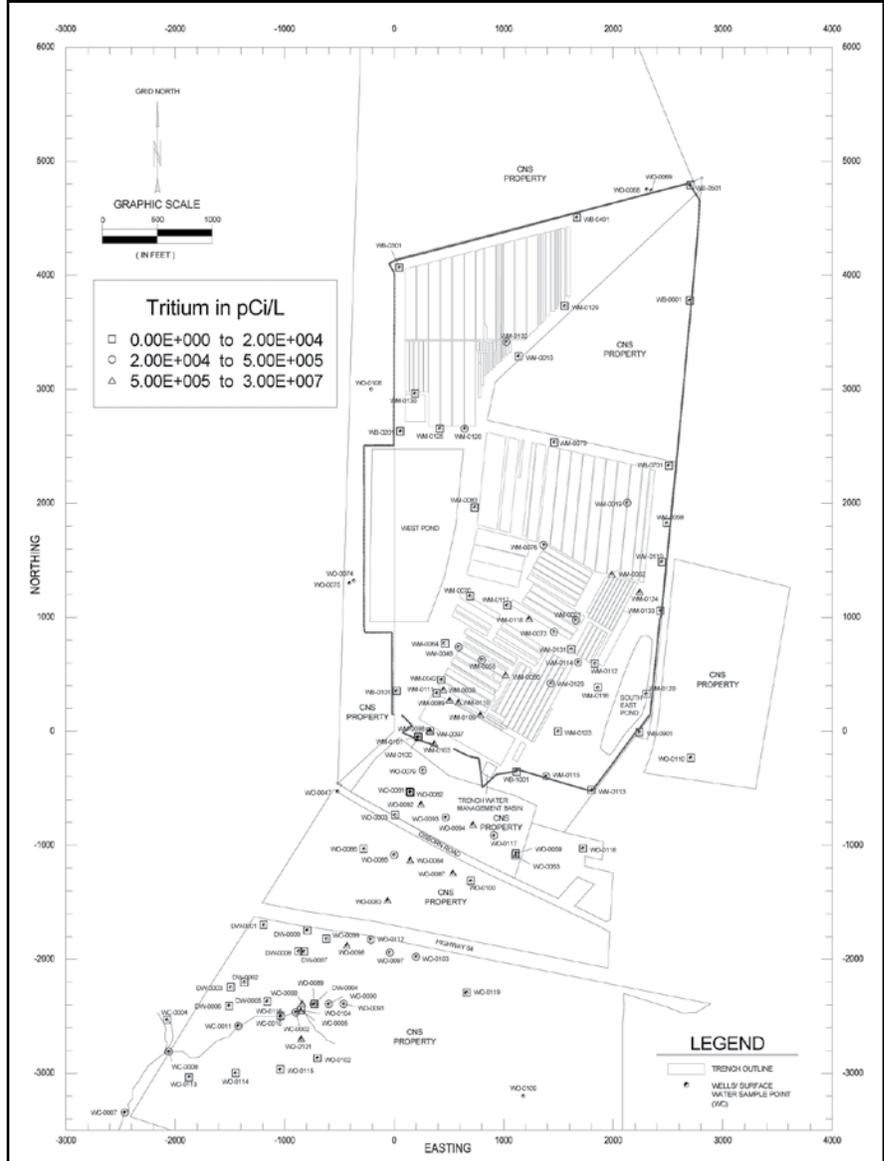
2008 and October 2011 ranged from 0 cubic feet (July 2011) to 27,631 cubic feet (March 2010). The table below shows the total waste volume for each fiscal year (FY) received from the Atlantic Compact member states since July 2008.

FISCAL YEAR	VOLUME (cubic feet)
2008-2009	12,865.57
2009-2010	34,425.06
2010-2011	11,333.01
2011-2012 (July 2011 to October 2011)	1,503.00

Private Well Sampling

The Chem-Nuclear Site and DHEC have been sampling private wells surrounding the site since the early 1980s. Ten private well locations are included in the routine monitoring program and currently are sampled in the spring. The most recent data collected continues to show that the drinking water wells in the area are not affected by tritium from the disposal site. The naturally occurring levels of tritium detected in these wells do not exceed the U.S. Environmental Protection Agency's drinking water standard of 20,000 pCi/L.

MAP: Tritium Concentration Measured in Zone 2 and Mary's Branch Creek, Second Quarter 2011



DHEC Contacts

■ Infectious and Radioactive Waste Management Section Bureau of Land and Waste Management

□ **Susan Jenkins**, (803) 896-4271
jenkinse@dhec.sc.gov

■ Region 5, Environmental Quality Control Office – Aiken

□ **Jennifer Hughes**, (803) 641-7670
hughesjr@dhec.sc.gov

□ **Kim Newell**, (803) 641-7670
newellkr@dhec.sc.gov



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