

Chem-Nuclear Site

ANNUAL UPDATE

2012

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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 2012 (April to June). The highest concentration of tritium continues to be found on site at well WM-0110 where it was 29,100,000 pCi/L (April). The concentration where the plume enters Mary's Branch Creek (WC-0002) was 508,000 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 82,400 pCi/L. This is less than the regulatory limit of 500,000 pCi/L and lower than the level measured in April 2011 (96,300 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 2012) 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 (284 µg/L down from 452 µg/L April 2011), 1,1-dichloroethane (1.25 µg/L

and chloroform (1.98 µg/L down from 3.92 µg/L in 2011). At WC-0008, 1,4-dioxane was found at a concentration of 57.8 µg/L which is less than the 93.6 µg/L recorded in April 2012. 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 2012 annual trending report, 27 wells were evaluated for changes in tritium concentrations. The tritium data indicate that 11 monitoring wells show no evidence of a trend either up or down, seven wells show an upward trend, and nine wells show a downward trend over the most recent five-year period (third quarter 2007 to second quarter 2012). Tritium concentrations at the point of compliance on Mary's Branch Creek are stable and show no evidence of an upward or downward trend. For 2012 trending data, visit www.scdhec.gov/radwaste.

Waste Volumes

Since July 2008, the Chem-Nuclear Site only accepts waste from the three member states of the Atlantic

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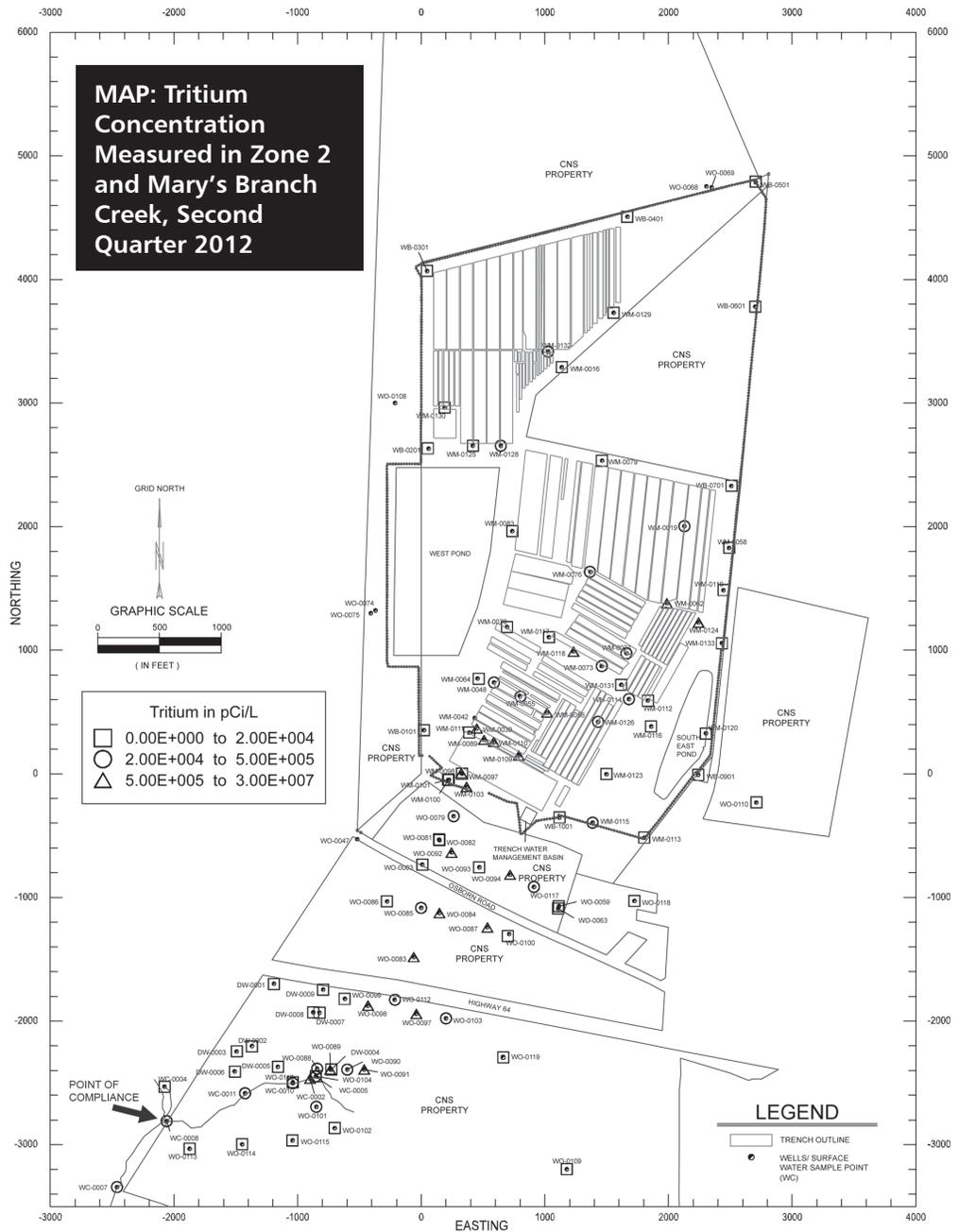
Compact – Connecticut, New Jersey and South Carolina. The monthly waste volume received between July 2008 and October 2011 ranged from 0.0 cubic feet (July 2011) to 27,631.70 cubic feet for March, 2010. The table below shows the total waste volume for each fiscal year (FY) received and disposed of from the Atlantic Compact member states since July 2008.

FISCAL YEAR	VOLUME (cubic feet)
2008-2009	12,865.57
2009-2010	34,458.36
2010-2011	11,333.01
2011-2012	10,277.64
2012-2013 (July 2012 to October 2012)	2,551.20

Private Well Sampling

The Chem-Nuclear Site and DHEC have been sampling private wells surrounding the site since the early 1980s. More than 10 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.



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