



# CONNECTICUT YANKEE ATOMIC POWER COMPANY

## HADDAM NECK PLANT

362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

OCT 13 2004

CY-04-191

Mr. Peter Hill, LEP  
Bureau of Waste Management  
Connecticut Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Haddam Neck Plant  
March and June 2004 Sampling Events  
Semi-Annual Groundwater Monitoring Report

Dear Mr. Hill:

Connecticut Yankee Atomic Power Company (CYAPCO) hereby submits for your review the Semi-Annual Groundwater Report for quarterly groundwater sampling results from the March and June 2004 sampling events. Some key programmatic observations are:

1. As previously agreed, we have deferred quarterly groundwater sampling for the land disposal areas (200 Series monitoring wells (MW)) until after the Resource Conservation and Recovery Act (RCRA) remediation is complete. We anticipate sampling these wells again in December 2004.
2. CYAPCO continues abandonment of wells that are either unsuitable or unneeded for groundwater monitoring purposes; and
3. Six monitoring wells in the industrial area that were previously sampled quarterly have been abandoned in preparation for demolition and soil remediation. The June sampling event presents the last samples from AST-1, -2, -3, -4 and MW-105S and MW-105D. Wells MW-105S and MW-105D will be replaced following soil remediation in the service ally area.

Initial characterization of the bedrock boreholes at the Haddam Neck Plant (HNP) has been completed through a combination of packer tests, video camera logs, geophysical logging and hydrophysical logging. A series of bedrock monitoring wells will be constructed and is expected to be in place for inclusion in the December 2004 sampling round.

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### Summary of Groundwater Sampling Results

Sampling was conducted in March and June 2004. In general, observed concentrations of substances of concern in groundwater continued to decline across the site. Tritium concentrations were below the 20,000 pCi/L maximum contaminant level (MCL) defined by the United States Environmental Protection Agency (USEPA) and State of Connecticut drinking water standard at all monitoring well locations sampled during both sampling events. Strontium-90 was observed to exceed the 8 pCi/L MCL in only one monitoring well (MW-105S). A significant downward trend from 91.8 to 16.2 (pCi/L) of Strontium-90 was observed at MW-105S. Discontinuing use and demolition of the tank farm is believed to have removed a substantial source of contamination in this area. Planned removal of remaining contaminated soil beneath the tank farm area and the area next to the Primary Auxiliary Building (PAB) is expected to further reduce the contaminant source term. Cobalt-60 was detected in several wells during the June sample event, and a maximum concentration of 11.4 pCi/L was observed at MW-103S. Results at MW-103S represent less than 12% of the Co-60 MCL, which is 100 pCi/L.

Both unfiltered and field-filtered samples were collected and analyzed for substances of concern (SOCs) at several locations in the vicinity of the PAB and the Reactor Containment Building (RCB) in March. These methods were used to assess the presence of SOCs associated with suspended particulate in the groundwater. Although substantial variability in suspended solids and turbidity has been observed, the analyses did not indicate a substantial difference between filtered and unfiltered samples for the SOCs analyzed.

The maximum observed concentrations of selected SOCs and some general site trends based on the recent maximum concentrations are shown in the following table:

Maximum Observed Concentrations of Selected Substances of Concern for March and June 2004 Sampling Events					
Substance	March 2004 Maximum (pCi/L)	Location of March Maximum	June 2004 Maximum (pCi/L)	Location of June Maximum	General Trend
Tritium	12,000	MW-103D	8,300	MW-110D	Decrease
Sr-90	92.4	MW-105S	16.2	MW-105S	Decrease
Boron	767	MW-105S	1260	MW-114S	No Change
Cs-137	22.4	MW-103S	7.5	MW-103S	Decrease
Co-60	3.2	MW-105S	11.4	MW-103S	Increase


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Recommendations for the December 2004 sampling event are as follows:

1. Initiate sampling at the landfill wells when completion of RCRA corrective actions at that location is confirmed;
2. Sample the same wells sampled in June 2004 for the radiological SOCs and boron;
3. Collect unfiltered samples only; and
4. Evaluate the potential for analyzing a reduced suite of SOCs, based on long-term non-detection of selected target analytes.

If you have any questions regarding this report, please call Doug Martin at (860) 267-2556 (x3188).

Sincerely,

 Date 10-13-04  
Gerard P. van Noordennen  
Regulatory Affairs Manager

Attachment: Semi-Annual Groundwater Monitoring Report

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