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July 31, 2006
BVY 06-066

Mr. Stuart A. Richards, Deputy Director
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Groundwater Protection – Data Collection Questionnaire

Dear Mr. Richards:

The nuclear industry, in conjunction with the Nuclear Energy Institute, has developed a questionnaire to facilitate the collection of groundwater data at commercial nuclear reactor sites. The objective of the questionnaire is to compile baseline information about the current status of site programs for monitoring and protecting groundwater and to share that information with NRC. The completed questionnaire for Vermont Yankee is enclosed.

This submittal contains no new regulatory commitments.

Please contact Mr. Sam Wender at 802-258-5650 if you have questions about the enclosed information.

Sincerely,

Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Enclosure

cc list (next page)

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Docket No. 50-271
BVY 06-066

Enclosure 1

Vermont Yankee Nuclear Power Station

Groundwater Protection – Data Collection Questionnaire

Groundwater Protection Questionnaire
Vermont Yankee – Entergy Nuclear Northeast

1. **Briefly describe the program and/or methods used for detection of leakage or spills from plant systems, structures, and components that have a potential for an inadvertent release of radioactivity from plant operations into groundwater.**

   All non-radioactive sumps located in or around equipment and storage tanks at Vermont Yankee are analyzed per VY Procedure OP 2610 prior to discharge to the plant storm drain system. Discharge permits are generated for each non-radioactive discharge. If any positive activity is detected, the water in the sump is transferred to Radwaste for processing and an investigation commences to determine the source of the unanticipated contamination. Analyses include specific activity and tritium. The current Minimum Detectable Activity (MDA) for tritium is approximately 2.0×10^{-6} microcuries per milliliter. Specific activity MDA is approximately 9.1×10^{-8} microcuries per milliliter.

   Operations personnel are trained to be focused on the symptoms of possible leakage from plant systems. Obvious indicators such as leaks and pools of water around equipment and more subtle indicators such as decreases in system water inventory of an unexplained nature are all used by Operations staff to determine leakage and spills.

   Operations personnel also take a contaminated water inventory on a daily basis in order to determine any abnormal water usage or movement that might indicate a leak from a system.

2. **Briefly describe the program and/or methods for monitoring onsite groundwater for the presence of radioactivity released from plant operations.**

   No Groundwater monitors are in place at Vermont Yankee.

   Groundwater is sampled at Vermont Yankee with the following frequencies:

   Deep wells (potable water) are sampled and analyzed for radioactive materials including tritium on a quarterly basis. MDAs are as provided by the JA Fitzpatrick Environmental Laboratory (approximately 500 pico curies per liter for tritium analysis).

   Storm drain systems (including groundwater runoff) are sampled and analyzed on a monthly basis for radioactive materials including tritium.

   The South Storm Drain system is additionally sampled and analyzed for tritium concentration on a weekly basis.

   Test Wells (ground water) are sampled and analyzed for tritium and other radionuclides on a semi-annual basis.

3. **If applicable, briefly summarize any occurrences of inadvertent releases of radioactive liquids that have been documented in accordance with 10 CFR 50.75(g).**

   As indicated in previous submittals, a significant spill of tritiated water occurred at Vermont Yankee in 1976. This event was documented in RO-76-22/1T. Approximately 507 microcuries of beta-gamma activity were released as well as 1.6 curies of tritium. The source of the leak was the Condensate Storage Tank and the water flowed through the plant storm drain system to the Connecticut River. No water was found to have entered the groundwater table around the plant site.

   All other unplanned releases of radioactive water were of a very minor nature and are documented in the Vermont Yankee 10CFR50.75(g) file. Only one of these, the leak in the sub-floor Chemistry Lab Drain Line, was postulated to have reached ground water.

4. **If applicable, briefly summarize the circumstances associated with any onsite or offsite groundwater monitoring result indicating a concentration in groundwater of radioactivity released from plant operations that exceeds the maximum contaminant level (MCL) established by the USEPA for drinking water.**

   No Vermont Yankee groundwater monitoring result has exceeded the allowable maximum contaminant level established by the USEPA for drinking water.

5. **Briefly describe any remediation efforts undertaken or planned to reduce or eliminate levels of radioactivity resulting from plant operations in soil or groundwater onsite or offsite.**

   An effort to deal with small amounts of tritiated air conditioning condensate entering the plant storm drain system is underway. Vermont Yankee Engineering is considering a design that will route this condensate to Radwaste.