CZE-06-025

July 31, 2006

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: Groundwater Protection – Data Collection Questionnaire

NRC DOCKET NOs: 50-295 and 50-304

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 Zion Nuclear Station is enclosed.

This submittal contains no new regulatory commitments.

Please contact me at (847) 379-3700 if you have questions about the enclosed information.

Sincerely,

Ron Schuster
Decommissioning Plant Manager
Zion Nuclear Station

Enclosure

c: USNRC Document Control Desk
USNRC Regional Administrator – Region 3
NRR Project Manager – Zion / Units 1 and 2
Ralph Andersen, Nuclear Energy Institute

Industry Groundwater Protection Initiative
Voluntary Data Collection Questionnaire

Plant: Zion Nuclear Station

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.**

   - As part of a fleet-wide systematic assessment, Zion Station performed a technical review of each plant system and structure to determine if inadvertent releases from these systems could potentially impact the environment. Each system was evaluated and those system components that contain or could potentially contain radioactively contaminated liquids were identified and assessed to determine if a potential pathway to the environment existed. A cross-functional collegial team made up of personnel from Operations, Engineering, Chemistry, and Radiation Protection performed the technical review.

   - The plant systems, structures, processes, and components that have a potential for an inadvertent release are routinely monitored to detect leakage or spills through an expansive radiation monitoring system (RMS), operator rounds and employee observations. Additionally, engineering control systems such as secondary containment, spill prevention, overflow detection and leak detection are used to detect and prevent releases from entering the environment.

   - Examples of the surveillance programs and engineering controls employed at Zion are provided below:

     - The Zion plant has an operable spent fuel liner leakage detection system, which is used to monitor for leakage past the stainless steel liner.

     - Operations and security personnel perform routine surveillance rounds each shift. Leaks and spills identified during rounds are reported to operating and radiation protection supervision. Work requests are used to trend system leakage and initiate corrective action reports when appropriate.

     - Engineers perform periodic walkdowns of assigned systems. Leaks and spills identified during walkdowns are reported to operating and radiation protection supervision. Work requests are used to trend system leakage and initiate corrective action reports when appropriate.

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

   - Zion Station installed 11 groundwater monitoring wells and 4 temporary sampling points around the perimeter of the plant to facilitate sampling of groundwater.

- The Lower Limits of Detection (LLDs) used during the fleet wide assessment were:

Nuclide	Typical MDA (pCi/l)
Tritium (H-3)	200
Total Strontium – 89/90	2
Manganese (MN-54)	15
Ferrous Citrate (FE-59)	30
Cobalt (CO-58)	15
Cobalt (CO-60)	15
Zinc (ZN-65)	30
Zirconium (ZR-95)	15
Niobium (NB-95)	15
Cesium (CS-134)	15
Cesium (CS-137)	18
Barium (BA-140)	60
Lanthanum (LA-140)	15

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

   - There have been no occurrences of inadvertent releases of radioactive liquids that required documentation in accordance with 10 CFR 50.75(g) at Zion Station.

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.**

   - There have been no identified instances of radioactivity released from the Zion Plant that resulted in groundwater concentrations exceeding the USEPA maximum contaminant levels 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.**

   - July 1974 - Unit 1 and 2 Primary Water Storage Tanks overflowed. As much of the spill as possible was recovered and placed in barrels.

   - July 1978 - While filling a cask with spent resin, the resin overflowed and spilled onto the ground. The resin spill was cleaned up immediately.

   - February 1979 - While filling a cask with spent resin, the resin overflowed and spilled onto the ground. The resin spill was cleaned up immediately.