

George P. Barnes, Jr.
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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

**GROUNDWATER PROTECTION - DATA COLLECTION QUESTIONNAIRE
HOPE CREEK GENERATING STATION
DOCKET NO: 50-354**

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 the Hope Creek Generating Station is enclosed.

This submittal contains no new regulatory commitments.

Please contact me at (856) 339-1952 if you have questions about the enclosed information.

Sincerely,

A handwritten signature in cursive script that reads "George P. Barnes".

George P. Barnes
Site Vice President - Hope Creek

Enclosure

c: USNRC Document Control Desk
Washington, DC 20555

Samuel Collins, Administrator – Region 1
U.S. Nuclear Regulatory Commission
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King of Prussia, PA 19406-1415

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P.O. Box 415
Trenton, New Jersey 08625

**Industry Groundwater Protection Initiative
Voluntary Data Collection Questionnaire**

Plant: Hope Creek Generating 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 systematic assessment, Hope Creek Generating 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 systems 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 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, engineered 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 Hope Creek are provided below:
 - Operations personnel perform station inspections at least once per shift. These inspections include identification and reporting of any leaks or spills. The response to any leaks or spills may include immediate clean-up, notification of supervision, a request for assistance from on-site staff or a spill response contractor and the preparation of a Notification that initiates corrective action.
 - System Engineers perform periodic walkdowns of the systems for which they are responsible. These rounds include the requirement to identify and report leaks and spills. Leaks and spills are addressed through: immediate clean-up, notifying supervision for assistance, writing a work request or initiating a Notification.

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

- Hope Creek has thirteen (13) wells associated with monitoring for plant related radionuclide concentrations in the shallow groundwater. These wells were recently installed as part of site-wide environmental assessment project. The wells were first sampled in April-June of 2006. These monitoring wells will be sampled periodically for analyses of low level plant related radioactivity.
- The Lower Limits of Detection (LLDs) used during the systematic site – wide environmental 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) | 30 |
| Niobium (NB-95) | 15 |
| Cesium (CS-134) | 15 |
| Cesium (CS-137) | 18 |
| Barium (BA-140) | 60 |
| Lanthanum (LA-140) | 15 |

- There are no off-site residential, irrigation, or commercial wells being routinely sampled and analyzed as part of any special monitoring for tritium at this time. Surface water, ground water and potable water from a local municipality are sampled and analyzed as part of the Radiological Environmental Monitoring Program (REMP) for the site.

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).

- The Hope Creek Generating Station records inadvertent release of radioactive liquids in accordance with 10 CFR 50.75(g). As part of the systematic assessment, a third party environmental engineering firm was contracted to evaluate historic releases, if any, and determine if a potential pathway to the environment existed. Those releases that were determined to have potentially impacted groundwater were subsequently investigated as part of the systematic assessment. There were no radionuclides attributable to the operation of the Hope Creek Generating Station in on-site or off-site groundwater that exceed regulatory limits.
- A copy of the Hope Creek site – wide environmental assessment report will be provided to the NRC.

**Industry Groundwater Protection Initiative
Voluntary Data Collection Questionnaire**

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 Hope Creek Generating Station 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.**
 - Sampling of monitoring wells and potable water wells performed during 2006 has provided data that indicates that there are no radionuclides attributable to the operation of the Hope Creek Generating Station in on-site or off-site groundwater that exceed regulatory limits. There have not been any station events requiring remediation of soil or groundwater for radionuclides at Hope Creek Generating Station.