

July 21, 2006  
GO2-06-100

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: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
GROUNDWATER PROTECTION – DATA COLLECTION  
QUESTIONNAIRE**

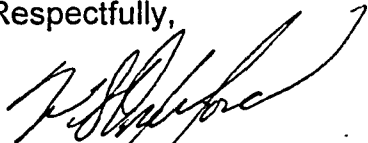
Dear Mr. Richards:

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 the NRC. The completed questionnaire for Columbia Generating Station is enclosed.

There are no commitments being made to the NRC by this letter.

Should you have any questions or desire additional information regarding this matter, please call DW Coleman at (509) 377-4342.

Respectfully,



WS Oxenford  
Vice President, Technical Services  
Mail Drop PE04

Enclosure

cc: BS Mallett - NRC RIV  
BJ Benney - NRC NRR  
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## Industry Groundwater Protection Initiative Voluntary Data Collection Questionnaire

**Plant:** Columbia Generating Station

Columbia Generating Station (CGS) is located on the USDOE Hanford Site. Past USDOE operations have contaminated the groundwater in the site vicinity. Tritium plumes from two separate USDOE sources currently underlie the plant.

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.
  - One large 24 inch underground Condensate Storage Tank pipe is surrounded by a guard pipe which would direct any leakage to the building penetration where the leakage would be noticed by plant personnel.
  - Chemistry frequently performs a water balance. Significant leakage would be detected and result in an investigation of the cause.
  - Non-radioactive systems with underground piping (Circulating Water, Service Water, Plant Service Water) are routinely monitored to verify the absence of radioactivity.
  - Liquid radwaste processing has been improved such that the plant has not made a liquid radioactive discharge since 1998.
  - Operations personnel perform routine surveillance rounds each shift. 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 Condition Report.
  - The discharge to the storm drain pond is continuously monitored with an automatic sampler. Results are included in the Radiological Environmental Monitoring Program (REMP) Report.
  
2. Briefly describe the program and/or methods for monitoring onsite groundwater for the presence of radioactivity released from plant operations.
  - CGS is located on the USDOE Hanford Site. USDOE routinely monitors over 700 wells on the Hanford site, including several on the CGS site (<http://groundwater.pnl.gov/> and <http://hanford-site.pnl.gov/envreport/>). The sample results are routinely reviewed by CGS staff.
  - CGS monitors 3 drinking water wells on a quarterly basis. One is located on the plant site and two are located approximately one mile away on the WNP-1 site. These are all deep wells and do not draw

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from the unconfined aquifer. The results are reported annually to the NRC and the State in the REMP Report.

- Additional groundwater wells, previously required by NPDES Permit, were monitored for activity (last sampled in 1998). Results were included in the REMP Report.
- The discharge to the storm drain pond is continuously monitored with an automatic sampler. Results are included in the REMP Report.
- The following table provides typical minimum detectable activity in groundwater samples.

Nuclide	Typical Minimum Detectable Activity (pCi/L) in Water
Gross Beta	4
Tritium	300
I-131	1
Sr-90	1
Mn-54	10
Co-58, Co-60	10
Zn-65	20
Zr-95	15
Cs-134, Cs-137	10
Ba-140	15
La-140	10

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).
  - In 1992 contaminated water from turbine building sumps was directed to the onsite storm drain pond.
  - In 1992 the sewage treatment plant was contaminated via a cross connection from a USDOE facility.
  - In 1989 and 1991 sediment from cleanout of the service water spray ponds was placed in a trench south of the protected area. This sediment was later determined to be contaminated and was relocated to a designated on-site storage location.
  - The sediment from the circulating water system contains low levels of activity. Sediment removed from the circulating water system is relocated to a designated on-site storage location.
  - In 2006 low levels of contamination were found along the circulating water blowdown line. This is currently under investigation.
4. If applicable, briefly summarize the circumstances associated with any onsite or offsite groundwater monitoring result indicating a concentration in groundwater of

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radioactivity released from plant operations that exceeds the maximum contaminant level (MCL) established by the USEPA for drinking water.

- Energy Northwest has not detected radioactivity in groundwater from plant operations that has exceeded USEPA maximum contaminant levels.
  - Tritium in excess of the USEPA maximum contaminant levels does exist in groundwater on the CGS site due to USDOE sources located on the Hanford site.
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.
- Service water spray pond cleaning evolutions in 1989 and 1991 disposed sediment into a nearby trench. The sediment was later found to be contaminated. This sediment was excavated and relocated to a specific on-site location with permission of Washington State.