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Rick J. King  
Director, Nuclear Safety Assurance

July 31, 2006

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Groundwater Protection Baseline Information  
River Bend Station – Unit 1  
Docket No. 50-458  
License No. NPF-47

RBG-46603  
RBF1-06-0126

Dear Sir or Madam:

The nuclear industry, in conjunction with the Nuclear Energy Institute (NEI), developed a questionnaire to facilitate compilation of baseline information regarding the current status of site programs for monitoring and protecting groundwater. All participating nuclear sites agreed to provide the requested information to both NEI and the Nuclear Regulatory Commission.

The attachment to this letter contains the questionnaire response for River Bend Station. Please contact Mr. David Lorfing at (225) 381-4157 if you have any questions or comments regarding this submittal.

No commitments are contained in this submittal.

Sincerely,

A handwritten signature in black ink, appearing to read "Rick J. King".

RJK/kyh

Attachment

IE25

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RBG-46603  
Page 2 of 2

cc: Dr. Bruce S. Mallett  
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**Attachment to RBG-46603**

**River Bend Station**

**Groundwater Protection Questionnaire Response**

## Groundwater Protection Questionnaire Response

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.**

**Response:**

The RBS Environmental Services Group/Chemistry Department performs groundwater samples in accordance with procedure ESP-8-021, "Sampling of Water for Radiological Environmental Monitoring." These samples are described in Question 2 below. In addition, storm drain sediment is currently analyzed by gamma spectroscopy on a quarterly basis. The effluent from RBS' Wastewater Treatment Plant is analyzed by gamma spectroscopy on a monthly basis.

Operations, Engineering, Radiation Protection, and Chemistry personnel look for and report leaks inside and outside of the station. Leaks or spills are documented in the site's corrective action program.

The RBS effluent discharge line is routed underground from the plant to the Mississippi River. This discharge line is equipped with air release valves. The air release valves are located in concrete-walled underground chambers to allow access to the valves. The walls and slab of the chambers are approximately one foot thick. Discharge flow rate monitors are located in the Auxiliary Control Room and in the Blowdown Structure on River Access Road. Average flow rates in the Blowdown Structure are recorded on two-hour intervals for the Louisiana Pollutant Elimination System Permit and for liquid dose calculations. These flow rates are reviewed every two weeks and discrepancies between actual and expected flow rates are investigated.

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

**Response:**

For Radiological Environmental Monitoring Program (REMP) purposes, groundwater samples are collected to satisfy Technical Requirement Manual (TRM) requirements and are collected semi-annually from one up-gradient and one down-gradient well in the Upland Terrace Aquifer, approximately 470 meters north northeast and southwest of the reactor, respectively. The REMP groundwater samples are analyzed for tritium (H-3) and gamma isotopic. The equipment used at RBS for environmental sample analysis is able to detect levels lower than the Technical Requirement Manual's lower limits of detection.

The groundwater level/elevation in four aquifers beneath RBS is measured in accordance with procedure ESP-8-016, "Groundwater Hydrology Monitoring". No radiological sampling is performed on the aquifers below except as indicated above in the Upland Terrace Aquifer. The four aquifers that are measured are:

- Mississippi River Alluvial Aquifer (MRAA)
- Upland Terrace Aquifer (UT)
- Tertiary Zone 1 Aquifer (Z1)
- Tertiary Zone 3 Aquifer (Z3)

Measurement of groundwater level is required to be performed once per calendar quarter, in at least one well, in each of the four aquifers.

Potable water for RBS is provided by groundwater. This system is monitored for gamma and tritium activity using gamma spectroscopy and liquid scintillation, respectively.

3. **If applicable, briefly summarize any occurrences of inadvertent releases of radioactive liquids that have been documented in accordance with 10CFR50.75(g).**

**Response:**

On 10/7/88, a reactor recirculation system pump seal cask was inadvertently dropped. The cask fell on its side while being moved by a forklift. Approximately one quart of contaminated liquid came out of the cask. The cask was lifted upright which stopped the leak. The area was cleaned by Radiation Protection personnel. No residual radioactivity was detected. (ref. CR-RBS-1988-0788).

On 6/24/03, small leaks were found in a buried two inch fiberglass line of the Liquid Waste System while excavating in the security isolation zone (pipe was leaking in the Security fence area) south of the Turbine Building. Dirt was removed from the area until gamma spectroscopy showed no detectable radioactivity. (ref. CR-RBS-2003-2321).

On 8/29/03, the Fuel Handling Crane was brought outside from the Fuel Building into a posted Radioactive Material Area. The crane remained outside overnight and was exposed to rain. Loose contamination was later detected on the crane's external surfaces and a concern was raised that radioactivity may have been spread. Samples were taken of the soil beneath the crane and no spread of contamination was indicated. (ref. CR-RBS-2003-3031, CR-RBS-2003-3033).

On 10/31/04, a hydrolazer was staged on a concrete pad outside the Reactor Building. The unit was found to have loose contamination (detectable but less than 1000 dpm/100 cm<sup>2</sup>) on its chassis and fixed contamination on the holding tank following its use in Refueling Outage 12. Surveys did not detect any contamination on the concrete pad. (ref. CR-RBS-2004-3497).

- 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.**

**Response:**

There have been no instances at RBS where groundwater monitoring results have exceeded MCLs.

- 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.**

**Response:**

There is currently no known contamination of soil or groundwater at RBS. Therefore, no remediation efforts are underway or planned.