



Acn. ML072150376

July 12, 2007

SERIAL: BSEP 07-0068

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Voluntary Groundwater Protection Plan Report

Ladies and Gentlemen:

In accordance with the Nuclear Energy Institute (NEI) Industry Initiative on Groundwater Protection, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc., submits the enclosed voluntary report identifying tritium concentrations in onsite water samples at the Brunswick Steam Electric Plant.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Randy C. Ivey, Manager - Support Services, at (910) 457-2447.

Sincerely,

A handwritten signature in black ink that reads 'Terry D. Hobbs'.

Terry D. Hobbs
Plant General Manager
Brunswick Steam Electric Plant

LJG/ljg

Enclosure:

Voluntary Groundwater Protection Plan Report

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J-109

cc (with enclosure):

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Voluntary Groundwater Protection Plan Report

Background

The Nuclear Energy Institute (NEI) Industry Groundwater Protection Initiative is a voluntary industry-wide effort designed to assure timely detection of, and effective responses to, situations involving inadvertent radiological releases in groundwater to prevent migration of licensed radioactive materials offsite. NEI has issued interim guidance for development of action plans and a voluntary communications protocol. The voluntary communication protocol requires submittal of a 30-day written report to the NRC for any sample result that exceeds the criterion in the Brunswick Steam Electric Plant Radiological Environmental Monitoring Program (REMP)/ Off-site Dose Calculation Manual (ODCM) and that could potentially reach the groundwater that is, or could be in the future, used as a source of drinking water.

On May 8, 2007, measurable levels of tritium were identified in two manholes (i.e., MW-5 and MW-6) that route cable to a nearby meteorological tower. The manholes are located within the boundaries of the site owner controlled area. The manholes are also in close proximity to the Storm Drain Stabilization Pond (SDSP). The SDSP is an area of approximately 64 acres consisting of a non-lined perimeter dike of approximately 12 to 15 feet in height. The site storm drain system collects in the storm drain collector basin and is then pumped to the SDSP. The storm drain collector basin receives overflow from the Turbine Building air-wash system, which contains tritium. By plant design, the water from the SDSP is then pumped into the intake canal during monitored, controlled releases, compliant with all permits and regulations.

On June 13, 2007, tritium levels in excess of NEI voluntary reporting criteria (i.e., 30,000 pCi/L for onsite groundwater, as specified in the ODCM) were confirmed to be present in new onsite shallow groundwater wells. The highest level observed in the shallow groundwater wells was 506,500 pCi/L, at a depth of 5 to 20 feet. A 10 CFR 50.72 (i.e., EN 43420) report was made with this information on June 13, 2007. Additionally, state and local officials were contacted to inform them of the findings. A public meeting was held on June 19, 2007, to offer local residents an opportunity to hear actions being taken in response to this finding and to respond to their questions or concerns.

Analysis

Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., continues to take actions to address the unmonitored tritium release. The primary source of tritium to the SDSP was determined to be coming from the Turbine Building air-wash system overflow, which has now been isolated and is being routed to the radwaste system. An evaluation is in progress to determine the root cause of this event and the long-term corrective actions to address this condition.

CP&L is installing new shallow, intermediate, and deep wells around the perimeter of the SDSP in order to: (1) determine the extent of the release, and (2) confirm the hydrologic conditions, including the pattern, of the affected area. To date, a total of nine (9) new shallow wells and six (6) intermediate sampling wells have been installed. Thus far, approximately 100 samples, from both onsite and offsite locations (including surface water), have been analyzed. Tritium analyses

in offsite samples have been below the detection level. Additionally, tritium has been below detection levels in the Castle Hayne aquifer; the main drinking water aquifer for the area which is located at a depth of approximately 150 feet. To date, tritium activity in sample results from onsite shallow and intermediate sampling wells have not exceeded the originally reported maximum level of 506,500 pCi/L. The highest value in intermediate wells was 5,406 pCi/L. To date, it does not appear that the intermediate groundwater is connected to the Castle Hayne aquifer. Surface water samples (e.g., standing water in ditches near the SDSP) has contained tritium levels exceeding 800,000 pCi/L. A collection system has been installed to collect and route the surface water back to the SDSP.

Conclusion

Preliminary sampling and analysis has demonstrated that there has been no adverse offsite impact resulting from this condition. CP&L is implementing a response plan which includes actions to fully determine the extent of the release, and confirm the hydrologic conditions of the affected area. Based on the results of these actions, CP&L will establish appropriate long-term actions to address the situation.