



JAN 10 2011

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

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

Ladies and Gentlemen:

In accordance with the Nuclear Energy Institute (NEI) Industry Groundwater Protection Initiative, 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. Lee Grzeck, Acting Supervisor - Licensing and Regulatory Programs, at (910) 457-2487.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward L. Wills, Jr.".

Edward L. Wills, Jr.  
Director of Site Operations  
Brunswick Steam Electric Plant

LJG/ljg

Enclosure:

Voluntary Groundwater Protection Plan Report

Progress Energy Carolinas, Inc.  
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NRK

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 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 water sample result from onsite groundwater that exceeds the criterion in the Brunswick Steam Electric Plant (BSEP) Radiological Environmental Monitoring Program (REMP), as described in the Off-site Dose Calculation Manual (ODCM), and could potentially reach the groundwater that is or could be used in the future as a source of drinking water.

On December 9, 2010, 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 water samples taken from in-leakage into the below ground elevation of the diesel generator building (i.e., through underground conduit penetrations). It was determined that the elevated levels of tritium resulted from a condition not previously reported. A 10 CFR 50.72 report (i.e., EN 46473) was made with this information on December 10, 2010. Additionally, state and local officials were contacted to inform them of the findings.

### Analysis

On December 9, 2010, tritium levels in excess of NEI voluntary reporting criteria were confirmed to be present in water samples taken from in-leakage into the below ground elevation of the diesel generator building (i.e., through underground conduit penetrations). Corrective actions were taken to capture the in-leakage of water into the diesel generator building and route it through our normal permitted discharge paths. Further investigation determined that the likely source of the tritiated water was buried piping located west of the diesel generator building, inside the plant protected area. On December 10, 2010, at 2124 hours (EST), the buried piping leak was stopped after isolating the Unit 1 Condensate Make-up line to the Main Condenser (i.e., from the Condensate Storage Tank (CST)). A modification was developed to align Unit 2 Condensate with Unit 1, allowing the Unit 2 CST as a source for hotwell make-up. The elevated levels of tritium are confined to the area in close proximity to the identified buried pipe location, well within the site's property boundary. The leakage did not impact plant reliability or the operability of any safety-related equipment. An update to EN 46473 was made on December 12, 2010, in accordance with 10 CFR 50.72, containing this additional information.

Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., has an extensive groundwater protection monitoring program at BSEP that has been in place since 2007. This environmental sampling program consists of more than 100 monitoring wells which are routinely sampled. The perimeter monitoring wells to the plant's protected area and site boundary continue to be analyzed with no increase in tritium levels identified, and there is no indication that tritium has migrated into any drinking water. To date, the maximum tritium

activity in sample results taken in close proximity to the identified buried pipe location has been 19,030,000  $\rho\text{Ci/L}$ . This sample was taken from the below ground elevation in the diesel generator building on December 11, 2010. This location is inside the plant protected area, well within the site's property boundary. A repair plan for the Unit 1 condensate make-up line from the CST is ongoing.

### Conclusion

An environmental sampling program and ongoing analysis has demonstrated that there has been no adverse offsite impact resulting from this event. The buried piping leak has been stopped, and a repair plan is in-progress.