

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE PNO-II-07-005

This preliminary notification constitutes EARLY notice of events of possible safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by Region II staff (Atlanta, Georgia) on this date.

<u>Facility</u>	<u>Licensee Emergency Classification</u>
Brunswick Steam Electric Plant Units 1 & 2 Southport, NC Dockets/License: 50-325, 50-324	Notification of Unusual Event Alert Site Area Emergency General Emergency X Not Applicable

Subject: Onsite Surface Water and Ground Water Tritium Contamination

On May 7, 2007, plant staff at the Brunswick Steam Electric Plant detected concentrations of tritium (hydrogen-3) in liquids collected from two man-holes located within the owner controlled area (OCA). The man-holes are adjacent to the plant's storm drain stabilization pond which collects water discharge from various locations in the plant as well as onsite storm drains. Additional water samples collected from locations adjacent to the stabilization pond within the OCA also had measurable concentrations of tritium ranging from approximately 30,000 - 900,000 pCi/L.

Licensee analyses of collected surface water samples in offsite areas, including Nancy Creek, which is adjacent to the pond but outside of the OCA, did not exceed background levels.

The licensee has begun implementation of an action plan to monitor and evaluate the extent and potential for movement of detectable tritium in the groundwater from the stabilization pond. This includes planned installation of additional groundwater sampling wells around the perimeter of the stabilization pond. The licensee also plans to continue to monitor Nancy Creek, onsite and offsite standing water for tritium and other radionuclides.

On June 13, 2007, the licensee determined that tritium levels in excess of the Nuclear Energy Institute (NEI) voluntary reporting criteria (greater than 30,000 pCi/L for onsite groundwater - this is an offsite dose calculation manual limit) were confirmed to be present in the new onsite shallow groundwater wells established around the perimeter of the stabilization pond. The highest level observed in the shallow groundwater wells was 506,500 pCi/L at a depth of 5-20 feet. A 10 CFR 50.72 (EN 43420) report was submitted with this information on June 13, 2007 at 11:51 a.m.

In addition to the shallow wells, the licensee has established two new intermediate depth wells (near the stabilization pond) into an aquifer (approximately 32-42 feet in depth) for tritium analysis. Samples from the two on-site wells were taken on June 13, 2007 (One sample from well 20B and two samples from well 19B). The main drinking water aquifer for the area is located at a depth of 150 feet. In conjunction with the licensee's sampling, the NRC obtained a split sample of the water drawn from the wells for independent analysis. The licensee has analyzed their samples and determined the following; Well 19B; first sample - 5073 pCi/L, second sample - 4426 pCi/L; Well 20B; sample - less than lower limit of detection. These sample results contain tritium levels less than the Environmental Protection Agency limit of 20,000 pCi/L for drinking water. Region II continues to inspect the licensee's actions in response to this issue.

On June 13, 2007, the licensee provided information to local residents who live near the plant regarding the discovery of tritium in surface level ground water at the site. The information includes a letter from the Vice President of the Brunswick Nuclear Plant and a Fact Sheet on tritium. The letter also announces an open house and information session that Progress Energy officials will hold on June 19, 2007. Additionally, a local

weekly newspaper published an article on June 13, 2007 about this issue. To date, the licensee's analysis of several offsite samples has not identified elevated tritium levels nor gamma emitting radionuclides.

Additional information on groundwater contamination from tritium can be found at the NRC public web site at the following address: <http://www.nrc.gov/reactors/operating/ops-experience/grndwtr-contam-tritium.html>

Region II received initial notification of onsite surface water tritium contamination on May 11, 2007 when licensee management informed the Resident Inspector. The information presented herein has been discussed with the licensee, and is current as of 8:00 a.m. on June 14, 2007.

The state of North Carolina will be notified.

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