From: Anne Boland RIII
To: Tammy Tomczak
Date: Wed, Jan 18, 2006 5:16 PM
Subject: PN

Thanks for issuing. I have the one with Geoff's initials and will save it for Justine.

Anne T. Boland, Deputy Director
Division of Reactor Safety
NRC Region III
630-829-9701

CC: Justine Burza

E-78

January 18, 2006

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-RIII-05-016B

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 the Region III staff on this date.

Facility	Licensee Emergency Classification
Braidwood 1 and 2	___ Notification of Unusual Event
Exelon Generation Co.	___ Alert
Braceville, Illinois	___ Site Area Emergency
Docket: 50-456 and 50-457	___ General Emergency
License: NPF-72; NPF-77	X Not Applicable

SUBJECT: POTENTIAL OFF-SITE MIGRATION OF TRITIUM CONTAMINATION (2ND UPDATE)

DESCRIPTION:

As of January 13, 2006, NRC Region III (Chicago) received independent laboratory results of samples that were obtained from 12 residential drinking water wells near the Braidwood facility. The results confirmed that tritium was present in one offsite residential well at levels of about 1300 to 1500 picoCuries per liter, which is a small fraction of the EPA drinking water standard of 20,000 picoCuries per liter. In all other residential wells, no measurable levels of tritium above normal background have been detected. In a deeper onsite groundwater well, the NRC measured tritium as high as 282,000 picoCuries per liter. Tritium, which is the radioactive form of hydrogen, occurs in small quantities in nature and is also produced during reactor operations.

The licensee's initial evaluation indicated that the tritium in the groundwater was a result of past leakage from a pipe which carries normally non-radioactive circulating water discharge to the Kankakee River, about five miles from the site. Several millions gallons of water leaked from the discharge pipe in 1998 and 2000. The discharge pipe is also used for planned liquid radioactive effluent releases with the effluent mixing with the circulating water being discharged. (Braidwood, like most nuclear plants, releases small concentrations of radioactive liquids under controlled and monitored conditions and within limits imposed by the NRC.) The licensee is continuing to evaluate the tritium contamination to assure they have identified all possible leakage paths from the circulating water discharge line. While that investigation is ongoing, the licensee has suspended all discharges of liquid radioactive effluents through the pipe.

The NRC's independent measurements of licensee's sampling of groundwater and drinking water well samples have been consistent with the licensee results. At the residential well where the NRC found measurable tritium, the licensee reported a tritium level of about 1,500

CONTACTS:

John House 630/829-9824
Steven Orth 630/829-9827

picouries per liter. Samples have also been collected at several other residential drinking water wells in the area and no measurable levels of tritium above background were found. The highest level measured by the licensee in an offsite location is about 230,000 picoCuries per liter. This was identified in a deeper offsite monitoring well. The levels of tritium are a fraction of NRC limits for radioactive effluent releases to the environment and do not represent a health and safety hazard.

Region III dispatched a radiation specialist to the site on December 1, 2005, to assist the NRC resident inspectors in their review of the circumstances surrounding the elevated measurements and the licensee's activities addressing the elevated tritium levels. The inspection staff is continuing to monitor licensee characterization and follow-up efforts (e.g. discharge pipe integrity inspections).

The licensee is continuing to evaluate the tritium movement and is developing plans for further monitoring and possible mitigation measures. The licensee issued news releases on December 1, 2005, and December 29, 2005, and has continued communication with affected property owners as well as state and local officials.

Region III was notified of the initial elevated tritium measurements on November 30, 2005. The information in this preliminary notification has been reviewed with licensee management and is current as of 1:30 p.m. (Central Time) on January 18, 2006.