

Roberts, Darrell

From: Peter Wilson
Sent: Sunday, April 19, 2009 8:19 PM
To: Bruce Mallett
Cc: Sam Collins; Darrell Roberts
Subject: FW: Issue Paper: Oyster Creek Tritium Ground Water Contamination (Contains Diagrams Containing "Security Sensitive Information")
Attachments: inside vault at intake pic 18.JPG; Oyster Creek Tritium Issue Paper.doc; Two Diagrams of Condensate Storage Tank Area.doc

Bruce,

Sam asked me to forward this e-mail summary of the tritium condamination at Oyster Creek so you would have it available Monday morning.

Pete

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From: John White
Sent: Sunday, April 19, 2009 6:08 PM
To: Sam Collins; Marc Dapas; Darrell Roberts; Peter Wilson; James Clifford; David Lew
Cc: Ronald Nimitz; Ronald Bellamy; Marc Ferdas; Nancy McNamara; Doug Tiff; Diane Screnci; Neil Sheehan; Richard Barkley; Richard Conte; John Rogge; John Richmond; Paul Kaufman
Subject: Issue Paper: Oyster Creek Tritium Ground Water Contamination (Contains Diagrams Containing "Security Sensitive Information")

This Issue Paper was developed by Ron Nimitz and John White.

The file "Two Diagrams of Condensate Storage Tank Area" should be handled as "Security Sensitive Information" and distribution should be controlled.

For review and comment.

Oyster Creek:
Tritium Contaminated Ground Water in the Vicinity of the Condensate Storage Tank

Exelon Efforts and Results of Investigation:

On April 13, 2009, Exelon (Oyster Creek) initiated maintenance activities which involved replacement of the 4160V electrical cable for the 1-2 Emergency Service Water (ESW) pump, an activity that required access to the ESW cable vault. The cable vault is located in the near vicinity of the Condensate Storage Tank (CST).

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions *5, 6*
FOIA- *2009-0514*

[See Attached Diagrams.] When the manway was opened, about 12" of standing water was observed inside the vault.

Subsequently, the water was sampled and analyzed for pH, gamma emitters, and tritium (H-3). On April 15 the analytical results were completed. The water was determined to have a pH of 7.62; and while no gamma emitters were identified, the H-3 concentration was reported as 102,000 pCi/l.

The water in the cable vault was subsequently pumped into 55 gallon drums for normal liquid radioactive waste processing and discharge. It was estimated that between 2000 and 3000 gallons of water was pump out of the cable vault.

[Note: Accordingly to Exelon, as part of its mid-voltage cable inspection program, the cable vault was last opened and inspected in October 2008. At that time, about 2" of standing water was observed. Subsequent sampling and analysis did not indicate the presence of any radionuclides (including H-3).

The H-3 concentration in the CST typically ranges from 7,000,000 to 9,000,000 pCi/l. The CST rests on a sand bed confined within a concrete retaining ring.]

In accordance with its agreement with the New Jersey Department of Environmental Protection (NJ-DEP), i.e., to inform the State of New Jersey of any radiological condition involving tritium concentration in excess of 2000 pCi/l, and having potential to affect the environment, Exelon informed NJ-DEP of this condition; and subsequently, the NRC in accordance with 10CFR50.72 (relative to notification to other government agencies). Exelon also issued a news release on April 16, 2009, to inform the public of the condition.

Upon the discovery of tritium contaminated water in the cable vault, Exelon initiated an aggressive effort to perform additional sampling of other on-site ground water monitoring wells and samples from the discharge canal; and an investigation effort to determine the source of the contaminated water.

On April 16, Exelon received analytical results from a monitoring well, MW-15K-1A, which indicated a H-3 concentration of about 4,500,000 pCi/l. MW-15K-1A is located in very close proximity of the ESW cable vault and the CST. According to Exelon, MW-15K-1A was last sampled and analyzed March 11, 2009, in accordance with Exelon's on-going ground water monitoring program for Oyster Creek. At that time no detectable activity was observed.

Analytical results from all other monitoring wells and environmental sampling locations indicated H-3 concentrations less than the site's Minimum Detectable Activity (MDA), i.e., 2000 pCi/l. Subsequent analysis of these samples by independent analytical laboratories having MDA's less than 200 pCi/l indicated no detectable activity in any of these other samples. In all cases, Exelon promptly communicated its results to the NJ-DEP and NRC.

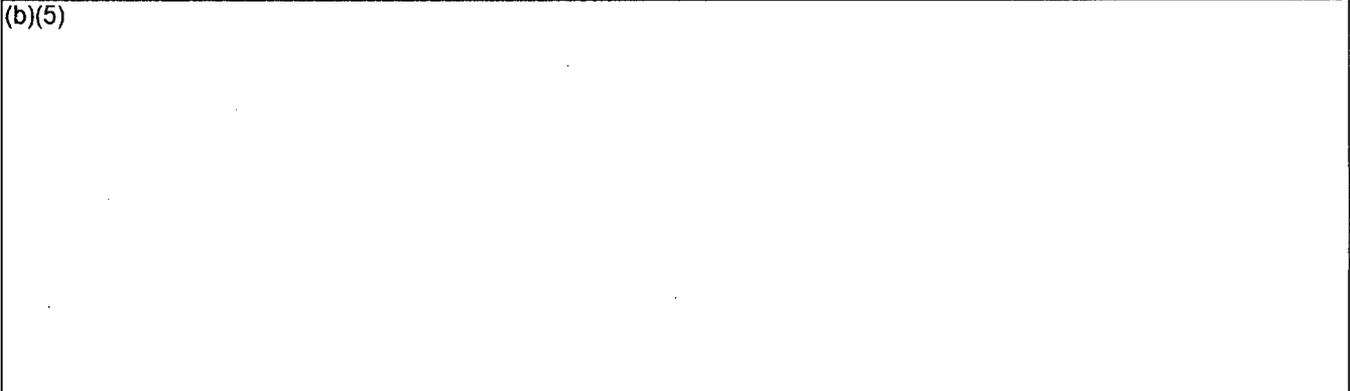
An April 17, Exelon issued another news release that updated the results of its efforts, including the discovery of the higher tritium concentration of about 4,500,000 pCi/l in MW-15K-1A, and noted that it was in the vicinity of the CST.

As part of its effort to determine the source of the contamination, Exelon initiated efforts to excavate trenches in the vicinity of the CST and associated piping. On April 18, water was observed, for a short time, in one of the trenches (i.e., south trench) which contains 4 or more pipes that communicate with the CST and subsequently sampled. The H-3 concentration was determined to be about 1,560,000 pCi/l. Sampling of the soil in the area indicated activity associated with Cs-137, Co-60, and Mn-54. (Mn-54 has a relatively short half-life of 312 days, indicating that the material was relatively fresh, and was comparable to radionuclides contained in the CST.

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On April 19, Exelon sampled and analyzed water that is currently being observed seeping from one of the conduits in the ESW cable vault [Picture Attached]. Analysis indicated that the H-3 concentration is about 1,500,000 pCi/l.

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NRC Assessment of Exelon Efforts and Results of Investigation:

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