AR 00934636 Report

Aff Fac:	Oyster Creek	**AR Type:**	CR	**Status:**	APPROVED
Aff Unit:	NA	**Owed To:**	A5332CAP	**Due Date:**	07/24/2009
Aff System:	--			**Event Date:**	06/22/2009
CR Level/Class:	4/D			**Disc Date:**	06/22/2009
How Discovered:	H03A			**Orig Date:**	06/24/2009
WR/PIMS AR:		**Component #:**			

Action Request Details

Subject: NRC COMMENTS ON TRITIUM MASS FLUX ANALYSIS OF H-3 GROUNDWATE

Description:

Originator: CALVIN C TAYLOR Supv Contacted: Jhansi Kandasamy

Condition Description:
NRC inspector stated that he believes that we are underestimating the plume in the Conhansey aquifer by up to a factor of 10 and therefore believes our release could be as much as 10 times the 66 Currie value we stated in the CRA mass flux report. The NRC inspector stated that there was a potential direct path to the Cohansey through the Cape May with a smaller leak rate and also a potential direct and preferential path to the intake because of last years ESW excavation creating a loose fill and penetrating the clay layer between the Cape May and Cohansey. In addition, the NRC inspector has an issue with Exelons decision to characterize the intake canal sample that indicated an elevated level of tritium as invalid (IR 931098).

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The station maintains a position that it would have required the leak to have gone undetected for greater than one year in order to reach 66 Curries of H-3. Any leak of this magnitude would have been detected during sampling for the License Renewal inspection of the ESW cable vault in October 2008. In addition, exposure of the exterior of the piping to this leakage would have resulted in significantly more corrosion than what was found. The following data support this conclusion:

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800,000 gallons of 6 million pCi/L tritiated water equals 18 Curries of H-3.

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Releasing 66 Ci of H-3 requires 3 million gallons of 6 million pCi/L tritiated water.

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In 2008, the station had a demineralized water through-put of 4.4 million gallons.

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During the period January 1 April 26, 2009, there was a 1.25 million gallon demineralizer through-put.

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The above through-puts do not include documented usage of 175,000 gallons for the new Demineralized Water Storage Tank, 100,000 gallons for the Isolation Condenser bleed and feed, steam leaks, aux boiler operation, and other known losses/uses.

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The ESW cable vault was pumped late last year October and no tritium was detected. . In addition, a cable replacement was performed in 2006 from the ESW cable vault to and through the turbine building penetration.

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Engineering observation that the corrosion on the exterior of the pipe appeared to be the result of being exposed to the leak environment for

less than a year.

Immediate actions taken:
None required.

Recommended Actions:
Provide positions on elevated intake sample result and on bounding value for release volume.

Operable Basis:
N/A

Reportable Basis:
N/A

Reviewed by: HERBERT G TRITT II 06/24/2009 11:39:16 CDT
Reviewer Comments:
none

SOC Reviewed by: CALVIN C TAYLOR 06/24/2009 17:35:35 CDT
SOC Comments:
CCT 6-24-09: In addition to the above concerns, the inspector also noted that he had previously expressed his concern regarding lack of monitoring in the Cohansey aquifer in the direct path from the CST area to the intake structure and discharge canal. He also stated that he did not have suffucient information to rule out a potential flow bath between the gap between the concrete intake and discharge tunnel structures. Recommend WGE to Chemistry to create actions to address inspector concerns. In addition, recommend an engineering evaluation to formalize bounding value for release.

Assignments

Assign #:	01	**Assigned To:**		**Status:**	AWAIT/C
Aff Fac:	Oyster Creek	**Prim Grp:**	ACAPALL	**Due Date:**	06/29/2009
Assign Type:	TRKG	**Sec Grp:**		**Orig Due Date:**	µµ/µµ/µµµµ
Priority:					
Schedule Ref:					
Unit Condition:					
Subject/Description:	NRC COMMENTS ON TRITIUM MASS FLUX ANALYSIS OF H-3 GROUNDWATE				

Assign #: 02 **AR #: 00756041**

Aff Fac:	Oyster Creek	**Assign Type:**	ACIT	**Status:**	COMPLETE
Priority:		**Assigned To:**	U777J0V	**Due Date:**	07/31/2008
Schedule Ref:		**Prim Grp:**	A5332CHEM	**Orig Due Date:**	05/29/2008
Unit Condition:		**Sec Grp:**			

Assignment Details

Subject/Description: Determine whether a new groundwater monitoring well (for H-3) should be placed in the area by the intake where excavation activities have been taking place.

Assignment Completion

In Progress Notes:

05/28/08 LC - Due date extended to 07/31/08 due to personnel changes in REMP specialist position.

07/28/08 JJV -

Response to ACIT 00756041-02

Assignment Request: Determine whether a new groundwater monitoring well (for H-3) should be placed in the area by the intake where excavation activities have been taking place.

Response: It is not feasible or necessary to install a new groundwater monitoring well at the condenser intake because the geologic formations of concern were removed during the original construction of the intake and discharge canals and associated intake and discharge structures. In addition, the existing groundwater monitoring system adequately monitors on-site groundwater for the presence of any radionuclides attributable to station operation.
The construction of the cooling water intake and discharge canals, and the associated cooling water intake and discharge structures, involved excavations 40-50 feet in depth. As a result, the uppermost Cape May formation was completely removed in these areas. The upper portion of the Cohansey Formation was also removed during those construction activities in the vicinity of the cooling water intake and discharge. These formations were replaced with large concrete and steel components that comprise the intake and discharge structures, and backfill around those structures.
Based upon our knowledge of geology and groundwater at the Oyster Creek Station (Woodward-Clyde Consultants 1983, 1984), the aquifers most vulnerable to contamination are the Cape May and Cohansey aquifers. As a result, groundwater monitoring wells at Oyster Creek are typically screened at depths of approximately 20 feet below grade in the Cape May Aquifer, or approximately 50 feet below grade in the Cohansey Aquifer. Given the fact that these formations are not present at the cooling water intake structure, it is not possible to install groundwater monitoring wells in that area.
Measurements of groundwater flow at the Oyster Creek Station (Woodward-Clyde Consultants 1983, 1984; Conestoga-Rovers 2006) demonstrate that the direction of groundwater flow in both the Cape May and Cohansey aquifers is generally from east to west, towards the intake and discharge canals. Groundwater from both aquifers ultimately flows into the intake or discharge canals. The existing monitoring well network includes 4 Cape May wells (W-20, W-3, MW-15K-1A, and W-5) and 3 Cohansey wells (W-2, W-4, and W-6) located at the westernmost edge of the formations, prior to discharging into the intake or discharge canal. These wells are optimally located to monitor the groundwater flowing from the most likely sources of contamination (Turbine Building, Reactor Building, Radwaste facilities, storage tanks) towards the intake and discharge canals.

References

Conestoga-Rovers & Associates. 2006. Hydrogeologic Investigation Report - Fleetwide Assessment - Oyster Creek Generating Station - Forked River, New Jersey. Prepared for Exelon Generation Company, LLC.
Woodward-Clyde Consultants. August 1983. Phase I Report, Recommended Groundwater Monitoring System.
Woodward-Clyde Consultants. March 1984. Phase II Report, Groundwater Monitoring
System.

In conclusion, a new groundwater monitoring well will not be installed in the intake area. Close to comments above.

Completion Notes: See in progress notes