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**From:** Steven Orth  
**To:** James Caldwell  
**Date:** 12/1/05 7:07AM  
**Subject:** Dresden Tritium Q&As

Jim,

These answers were prepared in response to the Dresden Tritium issue.

Thank you,

Steve

**CC:** Anne Boland; Cynthia Pederson; Jan Strasma; Richard Skokowski

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**QUESTIONS FROM SENATOR DURBIN'S  
STAFF REGARDING THE DRESDEN STATION TRITIUM LEAK**

Background

The licensee identified on August 30, 2004, through sampling of shallow wells on site that there were elevated levels of tritium in some locations. Onsite deep well samples were not at elevated levels nor were elevated levels of tritium identified offsite in either surface or well water samples. The source of the leakage was identified as a buried common suction line from the condensate storage tanks to the Unit 2 and 3 High Pressure Coolant Injection (HPCI) systems. The leakage was largely confined to a small shallow area outside an adjoining plant building and has posed no environmental hazard. Tritium contaminated water was identified in the storm drain system but has not traveled offsite. Measurements at the storm drain outflow in onsite locations showed concentrations that were less than half of the EPA drinking water limit. Although the condensate storage tank is the normal source of water to the HPCI systems, the torus is the safety related source of water and the HPCI systems for both units are currently aligned to the torus. Therefore, HPCI system function is not impaired by the line leak from the condensate storage tanks. No EPA tritium drinking water or NRC effluent release limits have been exceeded as a result of this leak.

The licensee started excavating on September 3, 2004, to attempt to identify the exact location of the leak. Difficulties with contractor expertise resulted in the inability to identify the exact source of the leak and personnel safety issues within the excavation. The licensee stopped work due to the second issue and hired a different excavation contractor. Due to difficulties with excavation near existing equipment and the inability to identify the exact location of the leak the licensee has decided to reroute a 75-foot section of the piping and abandon portions of the underground piping in place. The work is ongoing.

Question # 1:

What requirements exist for informing the public about leaks like this ?

Response:

Title 10 of the Code of Federal Regulations (CFR) Part 20, "Standards for Protection Against Radiation," provide many of the reporting and notification requirements for radiological issues. These requirements are contained in Subpart M, "Reports," which provides the reports of most radiological issues that NRC licensees are required to make to the NRC. 10 CFR Part 50 in 50.72, "Immediate Notification Requirements for Operating Nuclear Power Plants" and 50.73, "Licensee Event Reporting System," provide emergency notification requirements and those for reporting events that relate primarily to reactor operating conditions.

While the regulations in 10 CFR Part 20 include NRC notification requirements for releases of radioactive material above prescribed limits and for radiation doses to the public in excess of specified limits, the tritium leakage that recently occurred at the Dresden Station is not reportable to the NRC because none of the reporting thresholds were met.

The licensee is required by their operating license to implement a program for radioactive effluent controls and for monitoring the potential impact of radioactive effluents on the

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environment through a radiological environmental monitoring program (REMP). The REMP requires sampling of various environmental pathways including waterborne pathways at required intervals, which are to be analyzed for the presence of specified radiological constituents. Reporting levels for radioactivity concentrations in environmental samples are specified in the REMP and include reporting levels for tritium in water. Should the "reporting levels" specified in the REMP be exceeded, the licensee would be required to prepare and submit a report to the NRC that identifies the problem and defines its corrective actions. The problem would also be required to be reported to the NRC in the licensee's Annual Radiological Environmental Operating Report. The reporting level for tritium required by the REMP was not exceeded for this Dresden leak.

There are no requirements for licensees to directly inform the public of leaks or to inform the public of other radiological issues that may not otherwise be reportable to the NRC under 10 CFR Part 20 or Part 50. However, should licensees make required reports to the NRC, such reports are made available to the public (absent safeguards information) on the NRC's external web site.

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Question # 2:

What NRC requirements are there for licensee's to fix, monitor and contain a leak (like this)?

Response:

Should leaks occur, a licensee would be required by 10 CFR Part 20 (20.1501) to evaluate (i.e., monitor) the extent of the leak so as to assess its potential radiological hazard and assess its radiological impact. Following that evaluation, the licensee would be required to correct the problem to ensure the leak would not result in effluent releases or radiation dose to members of the public in excess of regulatory limits.

Question # 3:

What are the statistics on how often such tritium leaks have occurred at Dresden?

Response:

The NRC does not maintain statistics or records of leaks that occurred at Dresden that are below the reportability criteria. However, if a leakage problem or other radiological issue was reportable under 10 CFR Part 20 or Part 50, the licensee's required report would be maintained along with the report of any NRC inspection that evaluated the issue.

The licensee has conducted a REMP since the early 1970s. Through this program, radiological impacts to workers, the public, and the environment are monitored, documented and compared to the applicable standards. As part of the NRC's inspection program, we routinely evaluate the adequacy of the licensee's REMP and ensure that the appropriate environmental pathways are sampled and analyzed as required. These inspections are currently performed on a biannual basis and have not identified significant problems with either the development or the implementation of the Dresden Station REMP.

The potential environmental impact of radiological releases from the plant are required to be summarized in the Annual Radiological Environmental Operating Report and the Annual

Radioactive Effluent Release Report. These reports are also reviewed as part of the NRC's routine inspection program. These reports have shown no discernable radiological impact on the environment from Dresden Station operations. These reports are also available for public review on the NRC's external web site.

Question # 4:

Will remediation of the dirt where the tritium leaked be necessary?

Response:

No immediate remediation of the soil is required unless the licensee plans to relocate any of the soil that was excavated to repair the line leak to another location at their facility or dispose of the soil as radioactive waste. In that instance, NRC approval would be required under the disposal provisions of 10 CFR 20.2002. Should the licensee return the excavated soil back into the excavated area or otherwise have not disturbed the soil, then the licensee would be required to maintain a record of any contamination in and around its facility for future decommissioning purposes pursuant to 10 CFR 50.75(g). Dresden plans to opt for the 50.75(g) methodology.

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