

Document Type: Decommissioning Plan/Supporting Documentation

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**SEQUOYAH NUCLEAR PLANT - RECORDS OF SPILLS AND UNUSUAL OCCURENCES IMPORTANT TO DECOMMISSIONING. Memorandum for inclusion in 10CFR50.75(g)(1) required decommissioning file.**

This memorandum documents the identification and evaluation of a radioactive spill and unusual occurrence to outdoor environs of the plant site. The time frame of the evaluation involves the spread of contamination from the unit 1 Refueling Water Storage Tank (RWST) moat to the ground immediately outside of the moat.

The following information is relevant to decommissioning and is contained in an appendix to this report.

Event Log:

- 1. Unit 1 RWST moat drain

Time of Occurrence July 30, 2009 at 0755

Event: The Unit 1 and Unit 2 RWST Moats are not protected from rain water intrusion. Prior moat spills and moat samples have indicated that the moats are sources of radioactive contamination to include tritium. To keep radioactive material from getting into the environment the bottom drains were capped and sump pumps were installed to pump the rain water to the Auxiliary Building Sump. The overflow drain was left unplugged to prevent water from damaging equipment. A catch containment was installed at the out fall of the overflow drain to catch any water that might exit the drain. Another sump pump was installed in the catch containment to pump out any water that collected in the catch containment to the Auxiliary Building Sump.

Sometime prior to July 30 the ground fault interrupters that connect the sump pumps to the plant electrical system tripped shutting off power to the sump pumps. Since the pumps were not working when it started raining on July 30 the moat filled with water. At 0755 the moat was full of water and water started flowing out the overflow drain and into the catch containment. The sump pump in the catch containment could not keep up with the water flowing from the overflow drain and water started backing up in the catch containment. When the water reached the top of the containment it started flowing onto the ground. Approximately ten gallons of rain water flowed out of the catch containment onto the ground before the event stopped. Chemistry and Radiation Protection sampled the water from in the catch containment. The results of the samples from the catch container are Tritium at 6.64E-4 micro Curie/ ml and Total Gamma emitter's at 1.13E-6 micro Curie /ml.

$6.6(10)^{-4} \mu\text{Ci} \times \frac{1000 \text{ mL}}{\text{L}} \times \frac{10^{12} \text{ pCi}}{10^6 \mu\text{Ci}} = 6.6(10)^5 \text{ pCi/L}$   
 $\Rightarrow \frac{6.6(10)^{-4} (10)^{-4} (10)^3 (10)^{12}}{10^6} = 6.6(10)^5 \text{ pCi/L}$

Information in this record was deleted in accordance with the Freedom of Information Act Exemptions FOIA/PA

$\frac{1000 \text{ mL}}{\text{L}} \frac{10^{+6} \text{ pCi}}{\mu\text{Ci}} \Rightarrow \frac{10^3}{10^6} 10^9 \text{ pCi/L}$   
 $6.6(10)^5 \text{ pCi/L} (664,000 \text{ pCi/L})$

M-2

The Unit 2 RWST Moat did not experience this because the sump pumps worked correctly.

The following specifics are provided to characterize the spill data thus far:

- Chemistry, Operations, and Radiation Protection logs were reviewed. From this log information the volume of water transferred from the moat to the ground was estimated to be approximately ten gallons.
- Spill Water Principal gamma emitters: (See attached analysis sheets)
- Spill water Tritium; (See attached analysis sheets)

SPP-5.14, Guide for Communicating Inadvertent Radiological Spills/Leaks to Outside Agencies, Section 3.2A States that any spill greater than 100 gallons or any spill containing greater than 20,000 picoCuries/liter has to be reported to outside agencies. This incident does not meet either on of theses criteria this event does not have to be reported to any outside agencies.

Remediation performed: No soil excavation performed. Area included in Radiation Protection quarterly surveys of outside environs. RMD-FO-035.

Documentation: See attached appendix's of documentation.

Appendix 1, Spill water principal gamma emitters and tritium analysis.



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