

10 CFR 72.75(g)

October 29, 2010

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Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277, 50-278 and 72-29 (ISFSI)

Subject: Submittal of Independent Spent Fuel Storage Installation (ISFSI) Cask Event Report

In accordance with 10CFR72.75(g) this report provides follow-up information regarding an 8-hour notification to the NRC on 10/22/10 (EN # 46353) concerning discovered leakage from the cask main lid on Cask TN-68-50-A. Cask TN-68-50-A was initially loaded with spent fuel on 5/11/10. This report is submitted pursuant to the requirements of 10CFR 72.75(g) and 10CFR 21.21(d)(3)(ii).

Abstract:

On 10/22/10, troubleshooting associated with ISFSI Cask TN-68-50-A identified that helium leakage from the cask main lid existed. This leakage was in excess of the allowable cask confinement system helium leakage of 1.0 E-5 ref-cc/sec allowed for all closure seals and the overpressure system by Technical Specification (TS) 3.1.4, Combined Helium Leak Rate, during STORAGE OPERATIONS. Troubleshooting of the cask leakage had occurred subsequent to the original cask seal monitoring alarm that occurred on 9/04/10 at 2142 hours. The cask was transported back to the Unit 3 secondary containment building on 9/09/10 and cask seal Helium Overpressure Monitoring System leakage adverse condition monitoring was initiated. There was no actual loss of confinement capability. The cause is due to a manufacturing defect involving a weld that provides sealing of the drilled interseal passageway associated with the drain port penetration of the cask lid Helium Overpressure Monitoring System. Repairs to this defective weld are in progress.

ISFSI Cask Operating Conditions and Status Prior to the Event:

The original adverse condition was identified on 9/04/10 at 2142 hours when a cask seal overpressure monitoring system low pressure alarm was received.

Cask TN-68-50-A was initially loaded with spent fuel on 5/11/10 and transported to the ISFSI storage pad on 5/17/10. All related structures, components and systems were operable at the time of discovery.

Description of the Event:

On 10/22/10, troubleshooting associated with ISFSI Cask TN-68-50-A identified that helium leakage from the cask main lid existed. This leakage was in excess of the allowable leakage of 1.0 E-5 ref-cc/sec for all closure seals and the overpressure system by Technical Specification (TS) 3.1.4, Combined Helium Leak Rate. Additional localized testing pinpointed the leakage to be due to a manufacturing defect involving a weld that provides sealing of the drilled interseal passageway associated with the drain port penetration of the cask lid Helium Overpressure Monitoring System. This leakage effectively resulted in bypass around the outer confinement seals of the cask lid.

The original cask seal monitoring alarm occurred on 9/04/10 at 2142 hours. This resulted in initial investigation of possible leaks on the accessible portions of the overpressure monitoring system. The overpressure monitoring system was re-pressurized to its normal pressure of approximately 73.5 psig and the cask was subsequently transported back to the Unit 3 containment building on 9/9/10. Cask adverse condition monitoring was performed within secondary containment between 9/10/10 and 10/21/10. During this time period, the cask monitoring system pressure had been lowering by approximately 0.5 psig per day. The adverse condition monitoring threshold of 50 psig was reached by 10/17/21, resulting in the decision to perform more intrusive troubleshooting.

Analysis of the Event:

Cask TN-68-50-A is supplied by Transnuclear, Inc. The cask Certificate of Compliance No. is 1027 (Amendment 1). The TN-68 Dry Cask Storage System is utilized under the general license approach.

There were no actual safety consequences associated with this event. There was no actual loss of the ability to confine the contents of the cask. The inner seals of the cask main, vent, and drain port lids were confirmed to be in a functional status. In addition, from the time of discovery (9/04/10) until troubleshooting began on 10/21/10 within the containment building, the overpressure between the inner and outer seals was always maintained at a pressure greater than the pressure within the cask itself. Therefore, there was no time that it was physically possible to have the internal environment of the cask leak to the environment.

The confinement vessel for the TN-68-50-A cask consists of an inner shell, a welded flanged forging, a flanged lid with bolts and metallic seals, and vent and drain covers with bolts and metallic seals. The confinement lid is fastened to the cask body by 48 bolts. Double metallic o-rings with interseal leakage monitoring are provided for the lid closure. The interseal leakage monitoring system design includes drilled passageways in the cask main lid to connect the interseal areas of the main, vent, and drain ports seals. After the passageways are formed, welding is required to seal the drilled holes in the exterior surfaces of the lid.

The TN-68-50-A cask is loaded with 68 General Electric spent nuclear fuel assemblies (two 7X7 assemblies, forty-one 8X8 assemblies and twenty-five 9X9 assemblies).

Cause of the Event:

The cause of the event was due to a helium leak at the weld that provides sealing of the drilled interseal passageway associated with the drain port penetration of the cask lid. This leakage effectively resulted in bypass around the outer confinement seals of the cask. The failure of the weld is considered a manufacturing defect. It has been determined that the actual leak from the defective weld began subsequent to the acceptable integrated helium leak test that was performed on 5/14/10 after initial cask loading. Additional analysis is being performed by the cask vendor (Transnuclear, Inc.) to determine the cause(s) of the manufacturing defect.

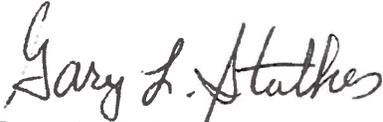
The TN-68-50-A cask is one of five loaded casks made by the particular sub-vendor who manufactured the cask. The other 44 loaded TN-68 casks at PBAPS are manufactured by other sub-vendors.

Corrective Actions:

The ISFSI cask was returned to the Unit 3 containment building on 9/9/10. Repairs to the defective weld are being performed in accordance with the ASME code and cask design requirements with Transnuclear involvement. Other extent-of-condition implications are being considered in accordance with the corrective action program.

Additional information concerning spent fuel storage under this general license may be obtained by contacting Dave Foss, at 717-456-4311.

Sincerely,



Garey L. Stathes
Plant Manager, Peach Bottom Atomic Power Station
Exelon Generation Company, LLC

cc: US NRC, Administrator, Region 1
US NRC, Senior Resident Inspector

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