

10 CFR 72.75(g)

December 01, 2010

ATTN: Document Control Desk
Director, Spent Fuel Project Office
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 the follow-up written report regarding an 8-hour notification to the NRC on 10/27/10 (EN # 46373). This notification involved the discovery of leakage from the main lid seal outer seal on Cask TN-68-01. This initial report was made pursuant to 10CFR 72.75(c)(2). Cask TN-68-01 was initially loaded with spent fuel on 6/12/00. This report is submitted pursuant to the requirements of 10CFR 72.75(g).

Abstract:

On 10/27/10, troubleshooting of ISFSI Cask TN-68-01 identified that a helium leak existed in the cask main lid sealing area at a leak rate greater than allowed by ISFSI Cask Technical Specification (TS) section 3.1.4, Combined Helium Leak Rate. TS 3.1.4 limits the cask helium leak rate through the confinement seals to 1.0 E-05 ref-cc/sec. At the time of the troubleshooting, the cask was within the PBAPS Unit 2 Secondary Containment Building following transport of the cask from the ISFSI pad on 10/18/10 for more extensive troubleshooting. 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. No release of radiation occurred as a result of this issue. It was determined that the excessive helium leak rate was due to leakage through the outer seal of the cask main lid seal. The cask was placed into the spent fuel pool on 11/05/10 and all fuel was removed from the cask on 11/06/10. Further evaluation has determined that water had entered the area below the protective cover of the cask. The water collected on the cask flange and made contact with the outer main lid seal. The water in contact with the main lid seal is believed to cause oxidation of the outer main lid seal, resulting in the leakage. A root cause evaluation is being performed. Corrective actions to prevent recurrence will be pursued in accordance with the site Corrective Action Program.

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ISFSI Cask Operating Conditions and Status Prior to the Event:

The original adverse condition was detected on 10/11/10 at 0352 hours when a cask seal overpressure monitoring system low pressure alarm was received.

Cask TN-68-01 was initially loaded with spent fuel on 6/12/00. Related structures, systems and components were operable at the time of discovery.

Description of the Event:

On 10/27/10, troubleshooting of ISFSI Cask TN-68-01 identified that a helium leak existed in the cask main lid sealing area at a leak rate greater than allowed by ISFSI Cask Technical Specification (TS) section 3.1.4, Combined Helium Leak Rate. TS 3.1.4 limits the cask helium leak rate through the confinement seals to 1.0 E-05 ref-cc/sec. At the time of the troubleshooting, the cask was within the PBAPS Unit 2 Secondary Containment Building following transport of the cask from the ISFSI pad on 10/18/10. Preliminary review on 10/27/10 indicated that a leak existed in the cask main lid outer closure seal.

The original cask seal monitoring alarm initially occurred on 10/11/10 at 0352 hours. Investigation of possible leaks on the accessible portions of the overpressure monitoring system was performed at the ISFSI storage pad. The overpressure monitoring system was re-pressurized to its normal pressure and the cask was subsequently transported back to the Unit 2 Containment Building on 10/18/10 for more extensive troubleshooting.

Analysis of the Event:

Cask TN-68-01 was supplied by Transnuclear, Inc. The Cask Certificate of Compliance No. is 1027 (Amendment 0).

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. No release of radiation occurred as a result of this issue. The inner seal of the cask lid main seal and the inner / outer seals of the vent and drain port lids (confinement boundary) were confirmed to be in a functional status.

The confinement vessel for the TN-68-01 cask consists of an inner shell, a welded flanged forging, a flanged and bolted steel lid with bolts and metallic seal 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 TN-68-01 cask was loaded with 68 General Electric spent nuclear fuel assemblies (40 7X7 assemblies and 28 8X8 assemblies).

Cause of the Event:

As a result of troubleshooting performed on the cask, it was determined that the excessive helium leak rate was due to leakage through the outer seal of the cask main lid seal. This leakage path was confirmed as a result of inspections of the cask main lid

seal after the cask was returned to the Unit 2 spent fuel pool for lid removal and fuel removal from the cask.

Further evaluation has determined that water had entered the area below the protective cover of the cask. The water collected on the cask flange and made contact with the outer main lid seal. The water in contact with the main lid seal is believed to cause the visible oxidation of the outer main lid seal, resulting in the leakage.

A root cause evaluation is being performed. Confirmation of the exact cause including any root or contributing causes is being confirmed / further evaluated under the site Corrective Action Program.

Corrective Actions:

The ISFSI cask was returned to the Unit 2 Containment Building on 10/18/10. The cask was placed into the spent fuel pool on 11/05/10 and all fuel was removed from the cask on 11/06/10. Inspections of the cask main lid seal were performed by Exelon and vendor personnel, indicating oxidation of the outer main lid seal.

Corrective actions to prevent future occurrences are being pursued in accordance with the site Corrective Action Program.

Other extent-of-condition implications concerning other loaded casks on the ISFSI pad 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

CCN 10-96