



Nebraska Public Power District

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NLS2015091

July 28, 2015

71.95

Attn: Document Control Desk
Director, Division of Spent Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: 10 CFR 71.95 Report Involving *EnergySolutions* Certificate of Compliance
No. 9168
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Reference: Letter from Dan Shrum, *EnergySolutions*, LLC, to U.S. Nuclear Regulatory
Commission dated June 24, 2015, "10 CFR 71.95 Report on the 8-120B Cask"

Dear Sir or Madam:

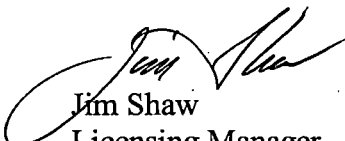
Nebraska Public Power District submits this report pursuant to 10 CFR 71.95(c) after being informed by *EnergySolutions* that the conditions of approval in Certificate of Compliance No. 9168 for the 8-120B cask may not have been observed in making certain shipments. The 8-120B cask was used by Cooper Nuclear Station to make a shipment in April 2015.

Attached is a report containing the content required by 10 CFR 71.95(c), as appropriate for this issue. *EnergySolutions* has reported this issue to the U.S. Nuclear Regulatory Commission per the reference letter.

This report contains no commitments.

If you have any questions regarding this information, please contact me at (402) 825-2788.

Sincerely,


Jim Shaw
Licensing Manager

/lb

COOPER NUCLEAR STATION

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NM5501
NM55

Attachment: 10 CFR 71.95 Report, Failure to Observe Certificate of Compliance
Conditions for the 8-120B Vent Port Pre-Shipment Leak Test

cc: Dan Shrum
Senior Vice President, Regulatory Affairs
EnergySolutions, LLC

Regional Administrator w/attachments
USNRC - Region IV

Cooper Project Manager w/attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/attachments
USNRC - CNS

NPG Distribution w/o attachments

CNS Records w/attachments

10 CFR 71.95 Report

Failure to Observe Certificate of Compliance Conditions for the 8-120B Vent Port Pre-Shipment Leak Test

10 CFR 71.95 Report
Failure to Observe Certificate of Compliance Conditions
for the 8-120B Vent Port Pre-Shipment Leak Test

Abstract

On June 25, 2015, Nebraska Public Power District received a notification from *EnergySolutions, LLC (EnergySolutions)* informing Cooper Nuclear Station (CNS) of the discovery of instances in which the conditions of approval in Certificate of Compliance No. 9168 for the 8-120B cask may not have been observed in making certain shipments. *EnergySolutions* reported that during the vent port seal pre-shipment leak rate test, a neoprene gasket that was added under the test manifold may have reduced the test sensitivity below the required value. The gasket was added to the test manifold on some or all shipments to more reliably seal the manifold, saving test time and reducing personnel exposures. The amount of reduction of test sensitivity could not be determined by *EnergySolutions* for any particular shipment because 1) use of the gasket was optional, and 2) the force with which the gasket was compressed is unknown. The gasket may have been used on as many as 100 shipments by *EnergySolutions* as the licensee from September 2013 through June 2015. *EnergySolutions* determined that the condition did not have safety significant consequences. *EnergySolutions* has replaced all of the subject gaskets with a modified version that does not have the potential to reduce test sensitivity.

CNS used the 8-120B cask during the applicable time period; therefore, this event is reportable under 10 CFR 71.95.

Narrative Description of Event

In accordance with 10 CFR 71.95(c), the following information is provided.

- a) Status of components or systems that were inoperable at the start of the event and that contributed to the event:

No components or systems were determined to be inoperable.

EnergySolutions stated that all of 8-120B packaging components are operating normally. The neoprene gaskets that caused the event have been removed from service and replaced with a new manifold gasket.

- b) Dates and approximate times of occurrences:

Based on a review of CNS shipping records, it was determined that CNS used the 8-120B cask that is the subject of this notification one time between September 2013 and June 2015. It was used for Shipment 15-10 on April 28, 2015.

- c) The cause of each component or system failure or personnel error, if known:

New 8-120B lids went into service in September 2013. *EnergySolutions* found that the manifold sometimes had problems sealing with the vent port on these new lids. *EnergySolutions* personnel found that adding an extra neoprene gasket helped to reduce the false test failures. Since the pre-shipment leak rate test is performed in a radiation environment, false failures are undesirable because they increase the personnel exposure. The personnel did not realize that the gaskets had the potential to reduce the test sensitivity.

- d) The failure mode, mechanism, and effect of each failed component, if known:

The neoprene gasket can constrict on the head of the vent port plug cap screw when it is compressed by the bottom end of the test manifold stinger, which could reduce the sensitivity of the pre-shipment leak test. Consequently, the vent port pre-shipment leak tests performed using the neoprene gasket may not have provided the required test sensitivity of 1×10^{-3} ref-cm³/sec.

- e) A list of systems or secondary functions that were also affected for failures of components with multiple functions:

Not applicable.

- f) The method of discovery of each component or system failure or procedural error:

On June 1, 2015, an 8-120B cask user identified a concern that the neoprene gasket could potentially affect the integrity of the vent port seal pre-shipment leak test. In response, *EnergySolutions* performed a bench test that confirmed that the neoprene gasket can constrict on the head of the vent port plug cap screw when it is compressed by the manifold, resulting in a reduction of the test sensitivity.

- g) For each human performance-related root cause, a discussion of the cause(s) and circumstances:

EnergySolutions provided no information on a human performance-related root cause.

- h) The manufacturer and model number (or other identification) of each component that failed during the event:

No components failed.

- i) For events occurring during use of a packaging, the quantities and chemical and physical form(s) of the package contents:

There was no actual event while using the 8-120B cask. Shipment 15-10 departed CNS on April 28, 2015, and arrived at Entergy Solutions in Oak Ridge, Tennessee on April 30, 2015. Shipment arrived with no discrepancies.

Assessment of Safety Consequences

EnergySolutions stated that pre-shipment leak tests of all containment seals, including the vent port, were performed prior to every shipment in accordance with the requirements of Chapter 7 of the Safety Analysis Report (SAR). In addition, periodic and maintenance leak tests of the containment seals, using helium as the test gas, were performed after maintenance, repair, or replacement of the containment seals in accordance with the requirements of Chapter 8 of the SAR.

The 8-120B pre-shipment leak rate test criteria were sized for the large primary lid. Since the vent port has a much smaller test volume, the test specification is conservative. EnergySolutions calculations showed that the test specified in Chapter 7 of the SAR is a factor of 9 more sensitive than the 1×10^{-3} ref-cm³/sec required by Chapter 8 of the SAR. However, due to the uncertainties in the effects of the gasket, and the behavior of seals in series, it is not possible to confirm whether the reduction in sensitivity is offset by the test criteria conservatism.

There has been no indication of any leakage from the vent port from any shipment, and therefore, no exposure of individuals to radiation or radioactive materials due to the gaskets.

EnergySolutions also noted that it is unusual for the vent port seal to be opened during cask operations, in which case the previous helium leak test of the vent port seal provides added assurance of seal integrity.

Therefore, EnergySolutions concluded that there has been no safety consequence from this issue.

Planned Corrective Actions

EnergySolutions took corrective action to assure that use of the old neoprene gasket design for the vent port pre-shipment leak test was immediately discontinued. They notified all 8-120B cask users with upcoming shipments to require use of a new procedure, in conjunction with the new manifold gasket design, for pre-shipment leak testing of the vent port seal on all future shipments.

EnergySolutions designed and tested a new manifold design that does not constrict onto the head of the vent port plug cap screw when compressed and, therefore, it does not reduce the test sensitivity. The new gaskets were distributed to all upcoming shipment users.

The EnergySolutions drawing for the 8-120B air drop manifold was revised to include the new gasket seal, and the air pressure drop test procedure was revised to incorporate the new pre-

shipment leak test procedure for the vent port. Use of the new procedure and the new manifold gasket will assure that the pre-shipment leak test satisfies the required test sensitivity and that the manifold gasket is removed from the test port after completing the pre-shipment leak test.

Previous Events Involving the Same Packaging

No previous similar events were identified.

Extent of Exposure of Individuals to Radiation or Radioactive Materials

None.

Licensee Contact for Additional Information

Joe Bednar
Radiological Technical Supervisor
Cooper Nuclear Station
(402) 825-5314