ZIONSOLUTIONS LLC
An EnergySolutions Company

October 26, 2015 ZS-2015-0156

Mark Lombard, Director
Division of Spent Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

ATTN: Document Control Desk

Subject: 10 CFR 71.95 Report on the 8-120B Cask

Dear Mr. Lombard:

Zion*Solutions*, LLC (Zion*Solutions*) Zion Nuclear Power Station (ZNPS) in Zion, IL hereby submits the attached report providing the information required by 10 CFR 71.95(a)(3) for instances in which the conditions of approval in the Certificate of Compliance for the 8-120B Cask (Certificate of Compliance #9168) may not have been observed in making certain shipments. The circumstances described in this report are applicable to 19 shipments made by Zion*Solutions* ZNPS as a user of the 8-120B cask over a 9 month period. Energy*Solutions* initially made notification on September 23, 2015. This notification is being made to provide facility specific information.

If you have any questions regarding this submittal, please contact Michael Wiskerchen at (224) 789-4047.

Respectfully,

Gerard van Noordennen

Gerard van Noordennen
Vice President Regulatory Affairs

Attachments:

1. Failure to Observe Certificate of Compliance Conditions for the 8-120B Secondary Lid Test Port Configuration

cc: Michele Sampson, Chief Spent Fuel Licensing Branch
Pierre M. Saverot, Licensing Branch

NMSS20

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Failure to Observe Certificate of Compliance Conditions for the 8-120B Secondary Lid Test Port Configuration

1) Abstract

During a recent NRC inspection of Energy*Solutions*' facility in Columbia, SC, the inspection team identified that the secondary lids of four 8-120B casks[1] did not comply with the approved SAR drawings referenced by the latest revision of the Certificate of Compliance 9168 (CoC). The secondary lids on the subject casks were fabricated with a cladding tube inside the test port hole, but the tube is not shown on the SAR drawing referenced by the CoC. The conditions of approval in the CoC were therefore not observed for any shipments of Type B quantities of radioactive material made using the subject secondary lids. Attachment 1 illustrates the secondary lid test port and tube configurations.

The purpose of the secondary lid test port tube is to isolate the pre-shipment test volume from the interspace between the two 3 1/4" thick plates that make up the secondary lid. The isolation of the test volume provided by the tube assures that the test volume does not exceed the limit on which the hold time for the pre-shipment leak rate test is based. However, if the free volume in the interspace between the plates is negligible, then the isolation function of the tube is not necessary.

The tube was shown as a design feature in the 8-120B SAR drawings referenced by Revision 17 of the CoC, and previous revisions, but the tube was not credited with any safety function in the SAR. The tube was inadvertently omitted when the lids were redesigned for operational enhancements in CoC Revision 19. The omission was identified by Energy*Solutions*' corrective action system while the subject lids were still in fabrication. A corrective action was assigned to measure the as-built test volumes, which included the void space between the thick plates since there were no tubes installed. The test volumes were found to exceed the volume basis for pre-shipment leak rate test hold time calculated in the SAR. The tubes were therefore installed, and the lids were placed on QA-hold using Energy*Solutions*' noncompliance procedure because they did not meet the lid configuration authorized by the CoC in effect at that time (i.e., CoC, Rev. 20). Energy*Solutions* subsequently made a determination that prior NRC authorization was not required (because the tubes had been part of the previous NRC-approved 8-120B cask design and were inadvertently omitted from the new secondary lid design), cleared the hold, and released the lids for use. The tubes were restored to the SAR drawings as part of a broader license amendment request submitted in May 2014, but the request was withdrawn for unrelated reasons. A new license amendment request submitted to the NRC on September 16, 2015 reintroduces the tubes to the secondary lid design.

The presence of the tubes in the subject secondary lid test ports has no safety consequence because the as-built test volume meets the basis for the pre-shipment leak rate test hold time.

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[1] Secondary lid numbers 8-120B-5, -6, -7, and -8.

2) Narrative Description of the Event

a) Status of Components

All of the 8-120B casks operating with the secondary lids that have the tube installed in the test port (i.e., secondary lid numbers 8-120B-5, -6, -7, and -8) have been removed from service until CoC No. 9168 is amended to include the tube.

b) Dates of Occurrences

Casks with the secondary lids that have the tube installed in the test port (i.e., secondary lid numbers 8-120B-5, -6, -7, and -8) were entered into service between October 2014 and June 2015, and approximately 19 shipments (see table below) were made by Zion*Solutions* as a user.

Date	Quantity (lbs.)	Volume (ft^3)	Activity (MBq)	Form
10/23/14	13,768	120.3	3.59E+07	Solid
10/27/14	13,739	120.3	3.52E+07	Solid
10/31/14	13,544	120.3	3.37E+07	Solid
11/05/14	13,572	120.3	2.71E+07	Solid
01/15/15	12,997	120.3	3.59E+06	Solid
01/21/15	11,092	120.3	2.26E+07	Solid
01/26/15	12,465	120.3	1.17E+07	Solid
01/30/15	6,614	120.3	1.16E+07	Solid
02/06/15	7,587	120.3	3.00E+07	Solid
02/24/15	13,722	120.3	3.29E+07	Solid
03/02/15	13,161	120.3	7.76E+06	Solid
03/07/15	13,444	120.3	4.43E+07	Solid
03/13/15	13,677	120.3	4.33E+07	Solid
03/18/15	13,495	120.3	3.11E+07	Solid
03/23/15	13,899	120.3	3.80E+06	Solid
03/27/15	12,867	120.3	2.35E+06	Solid
04/07/15	13,309	120.3	2.50E+06	Solid
06/04/15	700	96.24	2.29E+05	Solid
06/16/15	4,005	120.3	2.76E+06	Solid

c) Cause of Error

Energy*Solutions* cleared the hold and released the subject secondary lids for use, believing that prior NRC authorization was not required because the tubes had been part of the previously NRC-approved 8-120B cask design and were inadvertently omitted from the new secondary lid design.

d) Failure Mode, Mechanism, and Effects:

Not applicable.

e) Systems or Secondary Functions Affected:

Not applicable.

f) Method of Discovery of the Error

The error was identified by the NRC inspection team during an audit at the Energy*Solutions*' facility in Columbia, SC.

3) Assessment of Safety Consequences

The presence of the tubes in the subject secondary lid test ports has no safety consequence because the as-built test volume meets the basis for the pre-shipment leak rate test hold time. The secondary lid test port configuration of the subject lids is similar to the design previously authorized for use prior to CoC Revision 19.

4) Planned Corrective Actions

The following corrective actions are planned by Energy*Solutions*:

- Energy*Solutions* has removed 8-120B casks with the secondary lids that have the tube installed in the test port (i.e., secondary lid numbers 8-120B-5, -6, -7, and -8) from service until authorized to resume their use.
- Energy*Solutions* has evaluated the condition for reportability under 10 CFR 71.95 and has concluded that it is reportable.
- Energy*Solutions* will notify the licensees (cask users) that have made shipments using the 8-120B casks with the affected secondary lids and advise them to evaluate reportability under 10 CFR 71.95.
- Energy*Solutions* has prepared and submitted an application to NRC to amend CoC No. 9168 to include the test port tube in the four subject secondary lids as an authorized configuration.
- Energy*Solutions* will perform an apparent cause analysis and identify additional corrective actions to prevent recurrence.

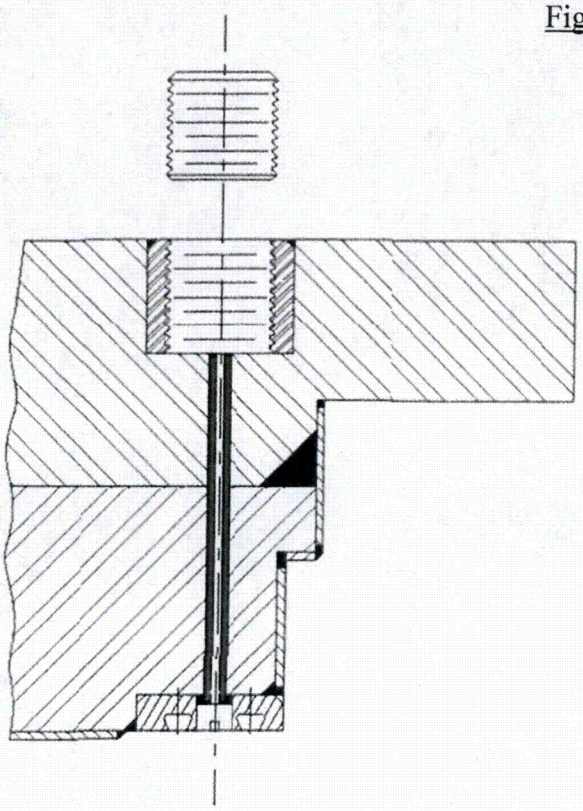
5) Previous Similar Events involving the 8-120B No previous similar events have been identified.

6) Contact for Additional Information

Michael Wiskerchen
Waste Operation Manager
Zion*Solutions*, LLC
(224) 789-4047

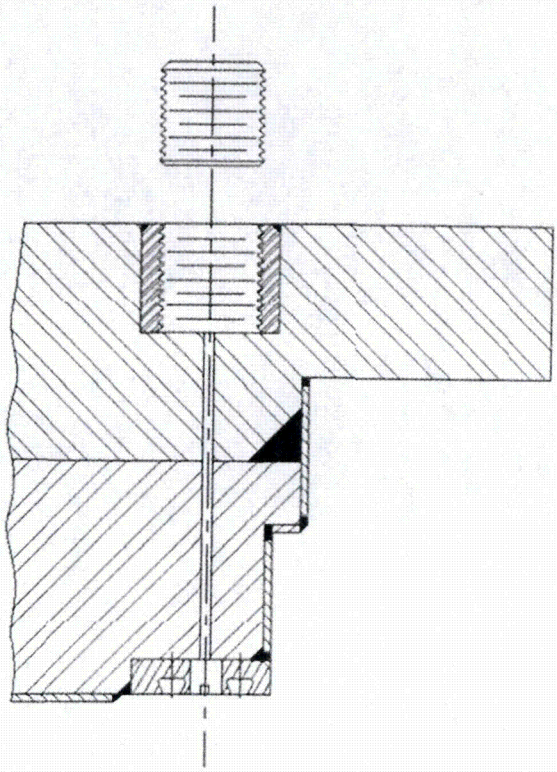
7) Extent of Exposure of Individuals to Radiation or Radioactive Materials None.

Figure 1



Secondary Lid Test Port with Cladding Tube

(subject secondary lids)



Secondary Lid Test Port without Cladding Tube

(current CoC configuration)