



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 29, 2015

MEMORANDUM TO: Anthony H. Hsia, Deputy Director  
Division of Spent Fuel Management, NMSS

FROM: Pierre Saverot, Project Manager **/RA/**  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management, NMSS

SUBJECT: SUMMARY OF MAY 19, 2015, MEETING WITH DAHER-TLI

Background

DAHER-TLI will submit an amendment request for the Model No. Versa-Pac package, coupled with a renewal request for their certificate of compliance (CoC). The objectives of this pre-application meeting were to (i) brief staff on an error found in the criticality analysis and (ii) explain the analysis that was performed to establish new mass limits. The meeting was noticed on April 15, 2015. The meeting attendance list is provided as Enclosure No. 1.

Discussion

The Model No. Versa-Pac package, a drum-style Type AF package, is used to transport a variety of uranium oxides, uranyl nitrate crystals, uranyl fluorides, uranyl carbonates, uranium metal or uranium alloys, as well as TRISO fuel. Contents are currently limited to 350 g U-235 at 100 wt. % enriched uranium.

The applicant explained that the pending submittal will request the addition of natural Thorium as authorized contents for this package and include an analysis to establish new mass limits, i.e., from 410 g to 580 g U-235, for contents at 5, 10, and 20 wt. % enrichment. The applicant is using SCALE 6.1.3, with updated USL/bias calculations.

The applicant found an error in the criticality analysis, due to an incorrect volume fraction calculation for the input: criticality cases were run with 175 g U-235 and not with 350 g U-235 as stated in the application. As a result, the infinite array cases exceed the USL of 0.94, with one case having a  $k_{\text{eff}}$  of 1.0181. However, this error can be considered as non-safety related because the infinite array cases with homogenous (distributed) material are not bounding for criticality calculations. As a result, the CoC conditions were based on the bounding spherical U models with an array size of 272 packages. The applicant will demonstrate, in the amendment request, that the spherical U cases with 350 g U-235 still bounded the distributed material. The application will be revised to show (i) the correct infinite homogeneous results and (ii) the bounding of the finite array calculations by the spherical U models.

A. Hsia

-2-

Staff said that generic statements such as “Th-232 does not increase reactivity” will not be accepted and that a rigorous justification of all assumptions is required.

The applicant indicated that a letter to request timely renewal of the CoC will be submitted within the next few days, and be followed by the amendment request. Staff said that it believes that the amendment could be promptly processed if all new analyses are clearly presented and justified.

The applicant shared also its plans for this package, including (1) the need to transport 1S and 2S cylinders (a new foam insert will have to be designed to ship those small cylinders; the thermal analysis of the package will have to be updated), (2) the potential increase of contents (up to 1600 g U-235 at 5 wt.% enrichment) with a 2R cylinder (5-inch pipe with a favorable geometry), (3) the potential design of a smaller package VP-30 with a 4-inch pipe for specific client needs, (4) future updated criticality analyses with a reduced CSI, and (5) an increased capacity for the Model No. VP-110 package.

Staff made no regulatory commitments during the meeting.

Docket No. 71-9342

TAC No. L25008

Enclosure 1: Meeting Attendees

Staff said that generic statements such as “Th-232 does not increase reactivity” will not be accepted and that a rigorous justification of all assumptions is required.

The applicant indicated that a letter to request timely renewal of the CoC will be submitted within the next few days, and be followed by the amendment request. Staff said that it believes that the amendment could be promptly processed if all new analyses are clearly presented and justified.

The applicant shared also its plans for this package, including (1) the need to transport 1S and 2S cylinders (a new foam insert will have to be designed to ship those small cylinders; the thermal analysis of the package will have to be updated), (2) the potential increase of contents (up to 1600 g U-235 at 5 wt.% enrichment) with a 2R cylinder (5-inch pipe with a favorable geometry), (3) the potential design of a smaller package VP-30 with a 4-inch pipe for specific client needs, (4) future updated criticality analyses with a reduced CSI, and (5) an increased capacity for the Model No. VP-110 package.

Staff made no regulatory commitments during the meeting.

Docket No. 71-9342  
TAC No. L25008

Enclosure 1: Meeting Attendees

Distribution: Attendees, M. Rahimi, M.Sampson, M. Lombard

G:\SFFT\Saverot\71-9342 Versa-Pac\meeting summary May 19 2015.doc

**ADAMS Accession Memo No.: ML 15153A025**

<b>Distrib</b>	SFM	E	SFM	C	SFM			
<b>NAME</b>	PSaverot		MDeBose		MSampson			
<b>DATE</b>	05/21/2015		5/21/15		2/29/15			

C=Without attachment/enclosure E=With attachment/enclosure N=No copy

**OFFICIAL RECORD COPY**

**Meeting Between DAHER-TLI and the  
Nuclear Regulatory Commission  
May 19, 2015  
Meeting Attendees**

**NRC/NMSS/SFM**

Pierre Saverot	301-415-7505	<a href="mailto:pierre.saverot@nrc.gov">pierre.saverot@nrc.gov</a>
Huda Akhavannik	301-415-5253	<a href="mailto:huda.akhavannik@nrc.gov">huda.akhavannik@nrc.gov</a>
Daniel Forsyth	301-415-7194	<a href="mailto:daniel.forsyth@nrc.gov">daniel.forsyth@nrc.gov</a>

**DAHER-TLI**

Andy Langston	910-233-4529	<a href="mailto:Alangston@TLIUSA.com">Alangston@TLIUSA.com</a>
Norman Kent	803-738-5260	<a href="mailto:Nkent@tliusa.com">Nkent@tliusa.com</a>
Charles Murphy	301-421-4063	<a href="mailto:Cmurphy@tliusa.com">Cmurphy@tliusa.com</a>
Tanya Sloma	301-931-5301	<a href="mailto:tsloma@tliusa.com">tsloma@tliusa.com</a>