April 15, 2014

MEMORANDUM TO: Anthony H. Hsia, Deputy Director
Division of Spent Fuel Storage and Transportation, NMSS

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

SUBJECT: SUMMARY OF APRIL 8, 2014, MEETING WITH ENERGY*SOLUTIONS*

Background

Energy*Solutions* requested this meeting to present an approach that would restructure the current shielding evaluation of the Model No. 8-120B package. Restrictive radiological payload qualifications, proposed by Energy*Solutions* to comply with the NRC Regulatory Issue Summary (RIS) 2013-04, "Content Specification and Shielding Evaluations for Type B Transportation Packages" (ML13036A135), are impacting shipment campaigns of the Model No. 8-120B package, Certificate of Compliance (CoC) No. 9168. The purpose of the meeting was to discuss the pending amendment request for Revision No. 21 of the CoC, along with a proposed approach for shipment of reformed residues that will be included both in the amendment request and in an authorization letter request. The meeting attendance list and the presentation slides are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

Revision No. 19 of the CoC, with bounding evaluations for all contents, changed the way radiological qualifications of the contents were performed. The applicant claims that shipments that were made in the past can no longer be performed, due to "unnecessary conservatisms" resulting in "being off" by a factor of 2.5, because the current source term in the CoC is too high and the Model No. 8-120B package has in reality "more shielding" than it was modeled to have.

Although the addition of a shield plate at the bottom of the package, in Revision No. 20 of the CoC, allowed to regain capacity for resin shipments, a pending amendment request for Revision No. 21 will seek to have a comprehensive "payload specification approach." Wastes will now be grouped into 4 categories: (1) a generalized category identical to what is currently approved in CoC Revision No. 20, and a specific category for (2) activated steel, (3) resins and, (4) reformed residues (RR), which are an inert inorganic waste form obtained through a pyrolysis/steam reforming process reducing the volume of ion exchange resins and other waste.

The proposed approach for RR is to demonstrate that normal conditions of transport (NCT) bound hypothetical accident conditions (HAC), with gamma acceptance based on pre-shipment measurements. Pre-shipment measurements would be valid to use, in that case, because RR is homogeneous and stable, cannot shift, redistribute, or change in ways that would increase package external dose rates during shipment.

Staff commented on this proposed approach as follows: (i) RIS 2013-4 does not preclude measurements, which may remain appropriate under some circumstances, as an exception; staff recognizes there are situations where pre-shipment measurements play a role as a confirmatory step, (ii) this approach would represent “new ground” for staff since the issuance of RIS 2013-04 and staff will need to have data in terms of concentration, distribution of radioactive materials, and dose rate profiles from previous shipments to generate confidence that concentrations do not change under HAC and dose rates will not be exceeded under HAC and, (iii) the applicant may have to use a “process knowledge” argument based on records, sampling history, etc., to show that the RR waste is uniform. Staff also said that such a licensing basis will be subject to more scrutiny because of uncertainties such as energy ranges being considered, even when dominated by Cobalt, detector efficiency, etc.

Staff said that, if the applicant takes credit for the liner, the liner, as an important to safety item, will need to be included in the licensing drawings. The applicant stated there was no hydrogen gas generation for this RR material.

Staff cautioned the applicant on some of the challenges on establishing a relationship between pre-shipment measurement data and HAC dose rates, particularly with a lead layer in the packaging design. The gap created by a lead layer slump makes it impossible to correlate a measurement from a shielded location to an unshielded location, when the source relocates to the unshielded location. Staff said that the applicant should not overlook the challenges for analyzing and defining HAC dose rates, especially with partially loaded packages, whether or not NCT dose rates were measured or analyzed.

The applicant said that it is planning to submit the amendment request on June 1, 2014, and an authorization letter request for five specific shipments within the next two weeks. Staff made no regulatory commitments during the meeting.

Docket No. 71-9168
TAC No. L24808

Enclosure 1: Meeting Attendees
Enclosure 2: Presentation

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Distribution: Attendees, M. Lombard, M. Sampson

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ADAMS Accession No.: ML14106A246
ADAMS P8 Package No.: ML14106A215

Distribution:	SFST	E	SFST	C	SFST			
NAME	PSaverot		MDeBose		BHWhite for MSampson			
DATE	04/14/2014		04/14/14		04/15/14			

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

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Meeting Between Energy*Solutions* and the Nuclear Regulatory Commission
April 8, 2014
Meeting Attendees

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Member of the Public

Ruth Chamas