

August 5, 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 JULY 22, 2014, MEETING WITH WMG, INC.

Background

WMG, Inc. (WMG) requested this meeting to discuss their pending submittal of an application for the WMG-150B package for which two pre-application meetings were previously held on March 21, 2012, and November 12, 2013, respectively.

The meeting attendance list and the presentation slides are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

WMG is designing a package for common commercial radioactive waste streams, such as resins, filters, and activated metals, with contents prepackaged into liners and drums for a maximum payload of 15,500 lbs. The WMG-150B package is a cylindrical steel-lead-steel package with a maximum heat load of 200 W, poured foam impact limiters and a thermal shield for hypothetical accident conditions (HAC) fire protection. Steel will be procured according to the ASTM 543 standard.

Staff advised WMG that (i) NUREG-1609 gives a better “thought process” in the preparation of an application than Regulatory Guide 7.9, and (ii) balsa wood is perfectly acceptable for impact limiters, while the use of depleted uranium – to alleviate packaging weight issues – may not be considered favorably by staff.

The focus of the meeting was on the containment and shielding evaluations. The WMG-150B, a leaktight package as defined in ANSI N14.5, has been designed so that no containment welds are masked during the leakage tests (the lead is also poured after the containment test). However, when the applicant shared its intent to develop its own seal material specifications, with specific performance tests, and use a commercial grade dedication process for procurement of such material, staff explained that such an approach is not likely to be accepted. The seal material is an important to safety component with the seal part / drawing number, seal core, jacket, and lining materials, as well as specific material combinations of those materials, surface finish range, and minimum and maximum seal dimensions (or dimensions with tolerances) being parameters that are all subject to NRC approval. Staff also explained that a similar approach was not accepted in a recent application when the applicant could not fully describe all tests to be performed to verify that the seal materials meet all performance and safety requirements.

Staff reminded the applicant that (i) the bolts are not part of the containment boundary, (ii) the pre-shipment leak tests are based on the pressure drop method and (iii) the sensitivity of the instruments should be mentioned in the application, in reference to the maximum permitted leak rate for helium.

The design basis source term for the package shielding is 100 Curies of Co-60 and the applicant considered three source terms: cartridge filters, ion exchange resins, and irradiated hardware, with the maximum contents being a function of the container size and the Co-60 equivalent concentrations. The applicant has performed the shielding calculations with MORSE-SGC using the SAS3 interface from SCALE. Staff cautioned the applicant on the use of such a shielding code because questions will be raised on its validity and applicability during the acceptance review process. Staff does not and cannot have any "preferred" shielding code, as it was said during the first pre-application meeting (ADAMS P8 Package No.: ML12101A088 and ADAMS P8 Memo No.: ML12101A11). However, staff notes that SAS3 requires the user to determine the biasing scheme outside the code and manually enter it and that the convergence of the calculations has to be carefully examined. More important to staff is the fact that there is no information available for SAS3 benchmarking, except a sample problem presented in NUREG/CR-0200. Therefore, the applicant will need to provide all validation and verification information, if it chooses this code, as applicable to this package design, for staff to even consider the use of this code in an application. Staff also reminded the applicant that SAS 3 and SAS 4 have been shown to underestimate the dose rate by a factor of almost 3 and that RAIs were generated on that topic for another applicant.

The applicant explained that an alumina insulation plate was added to the package design to take care of a local melting of steel and that HAC conditions include a 3/8" lead slumping. Staff said that the 3/8" lead slump figure will require a detailed justification in the application. The staff did not make any regulatory commitments at the meeting.

Docket No. 71-9366

TAC No. L24624

Enclosure 1: Meeting Attendees

Enclosure 2: Presentation

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Distribution: Attendees, M. Lombard

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**Meeting Between WMG, Inc. and the
Nuclear Regulatory Commission
July 22, 2014
Meeting Attendees**

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