January 31, 2011

MEMORANDUM TO: Doug Weaver, Deputy Director
Licensing and Inspection Directorate
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 JANUARY 12, 2011 MEETING WITH INDUSTRIAL NUCLEAR COMPANY, INC.

PURPOSE

Industrial Nuclear Company, Inc. (INC) is planning to submit, in February 2012, an application for the Model No. IR-THSC package. This new package, designed to transport "special form" material, i.e., Ir-192 and Se-75 capsules, with a limit of 1,500 Ci, will undergo full scale testing in November 2011. INC requested a pre-application meeting to describe the package and discuss with staff some of the specificities of the design along with its plans for full scale testing of two prototypes.

MEETING SUMMARY

The Model No. IR-THSC package is an all welded Type 304 stainless steel cylinder containing ten (10) titanium source tubes in a depleted uranium (DU) gamma shield. There are copper shims between the DU and the stainless steel contact points. INC informed staff that all materials of construction have been previously used in NRC approved source changers and radiation cameras, and that the certification test plans for this model will be identical to those of the Model No. IR-100 radiography package.

INC also said that the foam serves no structural purpose and that any tear of the package's outer skin that may expose DU, after a drop, will be precluded by the package design. Some of the technical issues, identified by staff, that need to be captured in the application include (i) brittle fracture, (ii) potential galvanic reactions between DU and steel, (iii) the fact that there is no containment boundary per se in this package, and (iv) the proper identification of the load path and of the "movement" of the center of gravity of the package to give credence to the selection of the most damaging drop configuration/orientation.

Staff observed that the application must include detailed write-ups to support the argument being made, e.g., the choice of the top-down drop versus the Center of Gravity Over Corner drop as a more challenging test - others believe that a side drop may be a real challenge - and that it is not easy to control a drop orientation for a small package.

INC said that shielding compliance with regulatory requirements will be demonstrated by radiation dose rate measurements before and after the tests and the fact that dislodgment of source capsules is not possible. Staff advised INC to look at RAI No. 5-11 in Docket No. 71-9320 where an applicant was requested to include an assessment of the shielding effectiveness under hypothetical accident conditions because the presence of an undetected flaw greater than 2.5 mm may result in a brittle failure of the shield under drop test conditions. Staff also asked if manufacturing defects will be captured in the application and INC responded that they will not build anything unless DU is tested. DU specifications and acceptance criteria will be included in Chapter 8 as acceptance tests for the package.

Staff said that (i) INC needs to include nationally recognized specifications and standards for all ITS components, (ii) ASME Section IX cannot be cited for welding but that ASME Section VIII, Division I or II, are more appropriate, and (iii) welding titanium may be problematic, as is the case for some INC competitors.

The enclosures are the agenda, the list of meeting attendees, and a copy of the slides INC presented at the meeting. The staff did not make any regulatory commitments at the meeting.

Docket No. 71-9358
TAC No. LA0129

Enclosures:
1. Meeting Agenda
2. List of Meeting Attendees
3. INC's slides

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Distribution: SFST r/f NMSS r/f NRC Attendees
INC Meeting January 12, 2011.doc

OFC	SFST	E	SFST	C	SFST			
NAME	PSaverot		MDeBose		MSampson			
DATE	01/19/2011		01/24/2011		01/31/2011			

C=Without attachment/enclosure E=With attachment/enclosure N=No copy **OFFICIAL RECORD COPY**

Agenda

Meeting between INC and the
Nuclear Regulatory Commission
January 12, 2011

- Opening Comments
- Description of the IR-THSC Package
- Materials of Construction
- Payload Description
- Certification Test Plan
- Schedule for Submittal
- Opportunity for Public Comments

Enclosure 1

Meeting Between INC
And The
Nuclear Regulatory Commission
January 12, 2011
Meeting Attendees

NRC/NMSS/SFST

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INC

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AFS

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Enclosure 2