Publically Available Summary of Closed Meeting

Integrated Safety Analysis for International Isotopes Inc., Hobbs, NM., Depleted Uranium Facility

DATE AND TIME: May 7, 2009, 11:00pm – 12:30pm

MEETING PARTICIPANTS:	NRC	INIS
	Thomas Hiltz, NMSS	John Miller, CHP/RSO
	Michael Raddatz, NMSS	Jim Thomas, APTS-Consultant
	Matt Bartlett, NMSS	Ron Green, ISA-Contractor
	Yawar Faraz, NMSS	
	Dennis Damon, NMSS	

INTRODUCTION

International Isotopes Inc. (INIS) met with the Office of Nuclear Material Safety and Safeguards on May 7, 2009 to provide an overview of their integrated safety analysis (ISA) and seek input from the staff. INIS delivered a slide presentation (ML091340328), followed by a general discussion. Since Part 40 does not currently contain ISA requirements, and consistent with the Commission's direction in SRM-SECY-07-0146, the U.S. Nuclear Regulatory Commission (NRC) will impose the ISA requirements through orders. The staff indicated the orders would require an ISA similar to Part 70, Subpart H.

DISCUSSIONS

INIS began by providing a summary of their facility which would consist of three main buildings. Depleted uranium hexafluoride (DUF_6) will be received from a client's facility in 14 ton cylinders and processed into the system through four autoclaves. The DUF_6 will be hydrolyzed into depleted uranium tetrafluoride (DUF_4) and anhydrous hydrogen fluoride (HF). This will be further processed to produce high purity fluorine products. The fluorine products and HF will be sold commercially, and the depleted uranium oxide will be dispositioned according to requirements.

After the opening summary, INIS delivered a slide presentation on the status of their ISA. After the slide presentation, the staff asked if a similar deconversion facility had ever been licensed previously. INIS stated their Idaho Falls, Idaho facility uses a similar process to produce high purity germanium tetrafluoride gas from DUF_4 and germanium oxide which provides relevant experience. The former Sequoya Fuels facility employed similar steps as the DUF_6 to DUF_4 conversion; however, the overall process will be unique to the Hobbs, New Mexico facility. The contractor developing the ISA has practical experience from Babcock and Wilcox Nuclear Operation Group, Nuclear Fuel Services, Inc., and the Paducah Gaseous Diffusion Plant. The ISA contractors plan to follow guidance in Chapter 3 of NUREG-1520 as closely as possible. The staff agreed that following NUREG-1520 was appropriate.

INIS emphasized that the new facility had low radiological risks. The plant will be primarily a chemical facility without risks of criticality due to the processing of depleted uranium. This reduces the number of accident sequences compared to a fuel fabrication facility and the primary hazard is exposure to HF. INIS indicated that for a DUF_6 release accident sequence, exposure to HF would be the controlling factor. Therefore, ensuring protection from HF would ensure protection from exposure to soluble uranium.

The ISA will rely on the risk assessment ideologies described in NUREG-1520, but a fault tree analysis is not anticipated to be necessary. Items relied on for safety (IROFS) are currently under development, with most accident sequences being assigned a single IROFS. The staff recommended consideration of the use of multiple IROFS for accident sequences. The benefits of this option must be weighed against the added burden of maintaining additional IROFS.

The staff recommended careful consideration of the requirements in 10 *Code of Federal Regulations* Part 70.61. Any item that can credibly fail, including administrative measures, and is used to meet the performance requirements, must be identified as an IROFS. The boundary of each IROFS should be clearly defined. Although not required, INIS was urged to consider developing IROFS boundary manuals as was done for other 10 CFR Part 70 facilities recently licensed by the NRC. The benefit of these manuals to both the applicant and the NRC is especially beneficial during preoperational inspections. The configuration management program should ensure IROFS are not removed or modified unintentionally during maintenance.

The applicant should be prepared to demonstrate compliance with applicable acceptance criterion listed in NUREG-1520. Although INIS is not expected or required to have a final design of the IROFS at the time of submitting the application, INIS was encouraged to provide sufficient information describing each IROFS, so the NRC reviewer can understand the safety function and design rationale for the IROFS. INIS was encouraged to avoid replacing design information with blanket statements, such as the “system is adequate.” The staff recommended INIS to maintain a list of both credible and non-credible accident sequences, which facilitates NRC’s review process.

The staff encouraged INIS to carefully consider which information from the ISA Summary needs to be withheld. In general, portions of the ISA Summary such as IROFS and descriptions of accident sequences and other security-related information should be withheld from public disclosure. Generic information such as the ISA methodology, however, should be publically available. An affidavit is not required for withholding security related information. Business proprietary information must be accompanied by an affidavit, and INIS must provide a sound basis for withholding such proprietary information.

PRINCIPAL CONTRIBUTORS

Matt Bartlett, Project Manager
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