

October 15, 2003

MEMORANDUM TO: Joseph Holonich, Deputy Director  
Division of Fuel Cycle Safety and Safeguards  
Office of Nuclear Materials Safety and Safeguards

FROM: Patrick Castleman /RA/  
ISA Coordinator  
Division of Fuel Cycle Safety and Safeguards

SUBJECT: MEETING SUMMARY OF THE NRC/NEI SPONSORED WORKSHOP  
ON INTEGRATED SAFETY ANALYSIS, SEPTEMBER 23 AND 24, 2003

FCSS and NEI conducted a joint workshop on Integrated Safety Analysis (ISA) on September 23 and 24 at the Sofitel Hotel in Washington DC. The purpose of the workshop was to discuss issues related to NRC's review of ISA summaries. The workshop was attended by 55 - 60 people on both days. In addition to NMSS and fuel cycle licensees and applicants, the following organizations were represented: OGC; DOE; national labs; CNWRA (FCSS contractor); and some consultants.

Several issues of mutual interest related to the implementation of the ISA Summary requirements in 10 CFR Part 70 Subpart H were discussed. The general topics of discussion are contained in the workshop agenda in Attachment 1, and more detailed information from the industry and NRC perspectives are found in Attachments 2 and 3, respectively. Overall, the feedback from the industry participants was positive, with several people expressing appreciation for having been able to have candid discussions in a productive atmosphere. Both NRC staff and industry participants expressed a variety of views on most of the Workshop topics.

As a result of the information and views exchanged at the workshop, FCSS and industry participants developed the issue summary list contained in Attachment 4. These issues were discussed in the final session of the workshop; the follow-up items summarized below were identified during this session. For several of these items, interim staff guidance (ISG) will be developed to clarify the portions of the fuel cycle facility SRP (NUREG-1520) applicable to ISA Summary review and approval.

#### **Discussion of Follow-up Items**

Focus of Reviews: The Fuel Cycle Facilities Branch (FCFB) will take the NRC lead for addressing this issue. Industry's concerns in this area are that, as licensees convert to the new regulatory scheme, they want NRC to focus on new aspects, i.e., ISA and management measures, and not on review of currently established programs such as radiation protection and nuclear criticality safety.

Interim Staff Guidance (ISG): NRC staff intends to develop and implement ISG to clarify the SRP. Areas to be addressed are discussed throughout this meeting summary.

NRC staff is planning to issue the first of several draft ISG documents by November 2003.

Priority of NRC Review of Actions: NRC staff and management will continue to consider industry's priority list of the types of reviews in the workload planning process. From highest to lowest, these priorities are license amendment requests, license renewals, and site wide ISAs.

Baseline Design Criteria (BDC): FCSS will clarify guidance pertaining to the review of BDCs (see discussion in the Meeting Details section of this summary) and re-engage stakeholders in further discussion on this matter.

Natural Phenomena: As discussed in the Meeting Details, NRC will develop ISG to clarify that, for the consequences typically encountered at the existing Category 1 and 3 uranium processing facilities, it is usually appropriate to use Standard or Uniform Building Codes, as applicable, to establish a threshold for highly unlikely initiating event frequency.

## **Meeting Details**

The following summaries present highlights of the discussions in each topic area. The full set of talking points used in the discussions are contained in Attachments 2 and 3.

### **Overview of Experiences and Perspectives Related to the New Part 70**

NEI led off the discussions with an overview of the features of the revised Part 70, followed by a corresponding NRC presentation. During the ensuing discussions, NRC and NEI agreed that the ISA should be considered a living document and that the annual licensee update on changes to its ISA, as required in Part 70, is an appropriate method to meet this intent. The Director, FCSS, expanded on this point, stating that the ISA should be viewed as a process, and not as a document. Industry agreed with this characterization, and stated that the ISA Summary is really a "snapshot" in time of the higher level features of the ISA. Regarding the ISA Summary, NRC said that it should give NRC confidence that the licensee's ISA process can provide reasonable assurance that the performance requirements contained in Section 70.61 are met. The fundamental issue discussed was the level of detail needed in the ISA Summary for NRC approval.

Mario Robles of US Enrichment Corporation (USEC) discussed his company's experiences thus far in the revised Part 70 licensing process for its new Lead Cascade Facility. Among his discussion points (see Attachment 2), he noted that onsite visits by NRC staff have been very beneficial because they have resulted in increased staff understanding of the licensing action under review, thereby reducing the number of requests for additional information (RAIs). In response to a question on its process for identifying Items Relied on for Safety (IROFS), USEC stated that it counts personnel actions and any associated alarms as a single IROFS.

No follow up items were identified as a result of this discussion.

### Application of the Standard Review Plan (SRP)

In its presentation on this topic, industry noted several “pros and cons” with the SRP. Industry requested that the SRP be clarified on issues such as natural phenomena, configuration control, independence of IROFS, and the scopes of ISA Summaries for license amendments compared to the site wide ISA Summaries that are due to NRC in October 2004.

During the NRC portion of this topic, industry representatives stated that licensees are having to address every point in the SRP, and they expressed their view that NRC reviewers should look at an amendment request as a whole, rather than use the SRP as a checklist. The Director, FCSS, generally agreed with a holistic approach to licensing reviews. He stated that the SRP is a template for conducting licensing reviews, with the objective of implementing risk informed and performance based regulation. He amplified that both NRC and licensees should communicate informally (e.g., by telephone or e-mail) to resolve issues that arise during reviews, rather than issue requests for additional information (RAIs).

Another topic discussed was the relationship between Part 2 of fuel cycle licenses and the ISA Summary. NRC stated that the ISA Summary is not a replacement for Part 2. Industry generally agreed; however, it was noted that the transition from a two part license to a one part license with an ISA Summary may be difficult for both industry and NRC in terms of resource loading. NRC participants said that one of the objectives of developing interim staff guidance for the SRP is to improve the safety focus and efficiency of the licensing review process.

Industry also noted that existing licensed fuel cycle facilities are safe, yet they do not conform to the SRP in many respects. Industry asked whether, as a result, NRC would expect them to submit a document justifying the differences between the existing licenses and the SRP. NRC stated that such a submission was not required. Some industry representatives said that their facilities have had additional requirements imposed on them as a result of NRC staff's application of the SRP. NRC elaborated that additional safety requirements should be based on the results of ISAs, and that 10 CFR 70 Subpart H is not intended to force licensees to revalidate existing license conditions. This discussion resulted in the follow-up action on focus of reviews.

### Review Process for Balance of Plant vs. License Amendment

The discussions on this topic focused on the conduct of NRC reviews of site wide (or balance of plant) ISA Summaries compared to ISA Summaries that accompany license amendment requests. Industry's major issues in this area related to (1) clear and timely communication between NRC project managers and licensees/applicants during licensing reviews and (2) the priorities of the types of reviews. NRC's major concern in this area was the clarity of the distinction between the ISA Summary and other portions of license amendment requests. These points are summarized in Attachment 4.

These discussions resulted in the follow-up item on priority of NRC review of actions.

### Baseline Design Criteria (BDC)

NRC reiterated that BDC do not apply to existing structures, systems, and components. Related to this are the definitions of “new” and “existing” processes or facilities. Workshop participants agreed that the evaluations of what constitutes new or existing will continue to be evaluated on a case basis.

Particular concerns for NRC are the definition of challenges to IROFS, and what’s required to satisfy the requirements of monitoring and controlling IROFS. Discussions on this latter point focused on BDC 10, concerning instrumentation and controls. NRC stated that periodic monitoring and surveillance of IROFS, commensurate with their associated risk and operating characteristics, can be an acceptable means of meeting BDC 10.

Workshop participants discussed how NRC can make a finding that BDCs have been applied in the design of new facilities or processes. NRC believes that it must make some kind of statement in this regard in a safety evaluation report. Development of a policy on this point must consider, among other things, the level of detail of the review of BDCs, and the degree to which they must be explicitly identified in license applications/amendment requests. NRC agreed with industry’s point that BDCs apply only to IROFS, and only those BDCs that are needed for IROFS availability and reliability are necessary [as additional background, see NRC slide 21 in Attachment 3 for exact language from 10 CFR 70.64(a)].

Finally, Workshop participants discussed the elements of what is needed to meet the defense in depth requirements of Section 70.64(b); a related discussion was held during the IROFS topic, which is described in the next section of this summary. This issue was tabled for future consideration.

### Choice of Items Relied On For Safety (IROFS)

The workshop discussion on selection of IROFS centered on a review of the applicable regulations.

Workshop participants discussed the concept of defining IROFS by their function. The major industry concern in this area related to the potential for NRC enforcement action should an IROFS become unable to perform its safety function. NRC stated that it does not believe that the regulations intend for enforcement action to be taken automatically in such situations. Rather, any regulatory response should be commensurate with the increase in risk resulting from a loss of IROFS. Additionally, the staff stated that Safety System and Components designated as IROFS may have non-safety functions as well as safety functions, and that a loss of non-safety functions would not necessarily mean that the safety functions, and therefore the IROFS, would be lost.

Closely related to the above, industry discussed the concept of defense in depth providing sufficient margin to serve as credit for loss of an IROFS function. One approach offered by industry was to document defense in depth elements in the ISA Summary, thereby providing a basis, in advance, to allow credit for margin. This discussion was closed out with the understanding that this issue will be addressed in the context of NRC oversight, i.e., inspection, enforcement, and performance assessment, of the implementation of Subpart H.

In view of the September 11, 2001, terrorist attacks, some industry participants expressed concern about the prudence of making the ISA Summary, and IROFS in particular, publicly available. NRC participants acknowledged this concern, and replied that the Office of Nuclear Security and Incident Response is working with the Department of Homeland Security to develop policies for handling information important to homeland security.

### Natural Phenomena

The main focus of the discussions in this topic area was on methods for determining initiating event frequencies for natural phenomena. Industry noted that, in previous license amendment reviews, NRC has accepted the use of Standard Building Codes for evaluating the risks from natural phenomena. The Director, FCSS, agreed that, for the consequences typically encountered at the existing Category 1 and 3 uranium processing facilities, it is usually appropriate to use Standard or Uniform Building Codes, as applicable, to establish a threshold for highly unlikely initiating event frequency. Workshop participants also discussed the use of qualitative risk measures across all ISA discipline areas (not just natural phenomena), and it was agreed that industry and NRC should remain engaged on this issue.

### NRC/Licensee Communications Challenges

NRC presented the “rules of engagement” that have been used by the Spent Fuel Project Office (SFPO) (see Attachment 5) to guide staff interactions with applicants during licensing reviews. During the discussion, one industry representative noted that, overall, his organization’s experiences in communicating with the NRC have been positive. A representative of the Department of Energy stated that one of the reasons the SFPO rules of engagement have been successful is that the spent fuel SRPs are more specific and structured than the fuel cycle SRP. NRC staff stated that it intends to make improvements in this regard, with due consideration of the variety and complexity of Part 70 licensees, when developing and implementing interim staff guidance for the SRP. NRC staff also committed to work with industry to develop a fuel cycle version of the rules of engagement.

### Nuclear Criticality Safety Evaluations

The focus of the discussions in this topic area were on the definitions of unlikely and highly unlikely, and how these relate to the criticality safety concept of double contingency. The Director, FCSS, stated that double contingency and highly unlikely should be synonymous. However, this may not be the case for some portions of existing facility processes. There was general agreement among workshop participants that the achievement of double contingency through the use of only administrative controls might not equate to highly unlikely. One industry participant expressed the hope that the ISA process will “weed out the bad double contingencies.” The workshop participants agreed to pursue discussion of these matters at the Criticality Safety Workshop immediately following the ISA Workshop.

## NRC Regulation of Chemical Accident Sequences

NRC provided an overview of the 10 CFR Part 70 Subpart H regulatory framework for chemical accident sequences. NRC participants stated that NMSS is continuing to evaluate appropriate criteria for determining increased radiological risk per Section 70.62(c)(iii) in a manner consistent with other agency activities, such as vulnerability assessments. Additionally, NMSS is evaluating the use of Temporary Emergency Exposure Limits (TEELs) as a means for establishing chemical consequence thresholds.

### Attachments:

1. ISA Workshop Agenda
2. NEI/Industry Slides
3. NRC Slides
4. Consolidated List of Issues
5. SFPO Rules of Engagement
6. Participants List

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