

April 1, 2004

MEMORANDUM TO: Joseph G. Giitter, Chief
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

THRU: Hironori Peterson, Acting Section Chief /RA/
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

FROM: Andrew Persinko, Sr. Nuclear Engineer /RA/
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: MARCH 24, 2004, MEETING SUMMARY: MEETING WITH DUKE
COGEMA STONE & WEBSTER TO DISCUSS THE LICENSE
APPLICATION AND INTEGRATED ANALYSIS SUMMARY FORMAT
AND CONTENT RELATED TO MIXED OXIDE FUEL FABRICATION
FACILITY

On March 24, 2004, U.S. Nuclear Regulatory Commission (NRC) staff met with Duke Cogema Stone & Webster (DCS), the mixed oxide fuel fabrication facility (MFFF) applicant, to discuss the format and content of the Integrated Safety Analysis (ISA) summary and the license application that DCS intends to submit at a future date. The meeting agenda, summary, attendance list, and DCS-provided slides are attached (Attachments 1, 2, 3, and 4 respectively).

Docket: 70-3098

Attachments: 1. Meeting Agenda
2. Meeting Summary
3. Attendance List
4. DCS slides

cc:
P. Hastings, DCS
J. Johnson, DOE
H. Porter, SCDHEC
J. Conway, DNFSB
L. Zeller, BREDL
D. Silverman, DCS
G. Carroll, GANE
D. Curran, GANE

**MEETING AGENDA
MOX FUEL FABRICATION FACILITY
March 24, 2004**

March 24, 2004

1:00 PM	Introductions
1:15 PM	DCS presentation and discussion of MOX license application and ISA Summary format and content
3:00 PM	Break
3:15 PM	Discussion of MOX programmatic issues
4:00 PM	Adjourn

MEETING SUMMARY
MOX FUEL FABRICATION FACILITY
March 24, 2004

PURPOSE

The purpose of the meeting was to discuss the format and content of the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF) license application (LA), and Integrated Safety Analysis (ISA) Summary that Duke Cogema Stone & Webster (DCS) intends to submit. The date of that submittal has not yet been determined.

DISCUSSION

LA and ISA Summary Format and Content

DCS requested to meet with NRC staff as a first in a series of meetings to discuss, at a relatively high level of detail, the format and content of the MFFF LA and ISA Summary, that DCS intends to submit at a future time. The format of the meeting was that DCS presented its proposed format and content of the LA, and the ISA Summary, and the NRC staff provided feedback to DCS concerning its presentation. There were no NRC staff presentations.

DCS indicated that it intends to build upon the information presented in the CAR to take advantage of the familiarity gained by the NRC staff during its review of the CAR. In its LA, DCS intends to: 1) separate the information presented in the CAR into two documents - the LA and the ISA Summary, and to minimize duplication; 2) show the evolution from principal structures, systems and components (PSSCs) to items relied on for safety (IROFS); 3) add information required by 10 CFR Part 70; and 4) follow the guidance in the MOX Standard Review Plan (SRP)(NUREG-1718). In general, DCS intends to include programmatic information in the LA and detailed/quantitative information in the ISA Summary.

The staff noted that the words in 10 CFR Part 70 intentionally required that the ISA summary be submitted along with the LA, but not as part of the LA. The reason for this distinction is that 10 CFR Part 70 was revised to include a change process (10 CFR 70.72) to allow the licensee to make certain changes to the facility without obtaining NRC pre-approval, similar to 10 CFR 50.59 for reactors.

NRC staff commented that DCS may wish to consider developing an IROFS package as part of the ISA documentation. The package would define the boundaries of the IROFS, including the supporting functions (e.g., administrative controls and hardware such as supporting utilities and instrumentation).

The DCS slides in Attachment 4, show DCS' proposed table of contents for the LA and ISA Summary. Also in Attachment 4, DCS provided a crosswalk between the ISA requirements listed in 10 CFR 70.65 and DCS' ISA table of contents.

MOX Programmatic Issues

In response to questions from DCS, NRC staff stated that two different positions had been developed for nine of the ten open chemical safety items, and that these positions had been provided to management for a decision. These positions followed the positions discussed at an Advisory Committee on Reactor Safeguards (ACRS) meeting in November 2003. Staff stated that DCS submitted information regarding the electrolyzers letter dated March 12, 2004, and the staff is reviewing the DCS response.

NRC staff explained the reorganization of the former Special Projects Branch into two sections. Brian Smith is the Section Chief of the Gas Centrifuge Facility Licensing Section. Hironori Peterson is the Acting Section Chief of the Mixed Oxide Facility Licensing Section.

In response to an NRC question, DCS stated that Department Of Energy (DOE) made its decision to relocate the MFFF controlled area boundary (CAB) from being largely coincident with the boundary of the 310 square mile Savannah River Site (SRS), to being largely coincident with the MFFF site boundary, which encompasses 41 acres in SRS F-area. In November 2003, DOE directed DCS to relocate the CAB to be coincident with the restricted area boundary, which encompasses approximately 14 acres. DCS is in the process of revising its safety and environmental analyses to reflect these changes but expects that these changes will be small. DCS stated that the process cell ventilation system will become a PSSC. DCS expects to submit revised construction authorization page changes and environmental report page changes to DOE in early May, and expects that the information will be submitted to NRC in early June.

In response to an NRC question regarding a recent quality assurance in-office review that NRC conducted where significant deficiencies in the DCS implementation, communication, and oversight of MFFF quality assurance (QA) program requirements for design and supplier activities were identified, DCS stated that it is reviewing the conduct of the DCS supplier.

CONCLUSION

NRC staff stated that the approach taken by DCS for preparation of the LA and ISA Summary appeared reasonable.

NRC and DCS agreed to have future meetings to further discuss the licensing activities including level of detail that should be provided in the LA and ISA Summary, NRC physical protection requirements, and acceptable methods for demonstrating acceptable likelihoods.

MEETING ATTENDEES

<u>NAME</u>	<u>AFFILIATION</u>
Andrew Persinko	Nuclear Regulatory Commission (NRC)
Brian Smith	NRC
Hironori Peterson	NRC
William Troskoski	NRC
David Brown	NRC
Rex Wescott	NRC
Fred Burrows	NRC
Wilkins Smith	NRC
Patti Silva	NRC
Ken Ashe	Duke Cogema Stone & Webster (DCS)
Peter Hastings	DCS
Gary Kaplan	DCS
Phil Hammond	DCS
Darrell Gardner	DCS
Dave Alberstein	Department of Energy (DOE) National Nuclear Security Administration (NNSA)
Sam Glenn	DOE NNSA - Savannah River
Jim Clark	Gamma Engineering
Herbert Feinroth	Gamma Engineering
Lewis Csedrile	Morgan Lewis
Alex Polonsky	Morgan Lewis
Edwin Lyman	Union of Concerned Scientists
Paloma Sarria	Numark Associates
Daniel Horner	McGraw-Hill



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LA & ISA Summary Format and Content



24 March 2004



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Agenda

- Welcome & Introductions
- Meeting Purpose
- DCS Proposed Approach
- Flow from CAR to LA/ISA Summary
- LA Discussion
- ISA Summary Discussion
- Discussion of Project Status and Management Issues



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Meeting Purpose

- Present Proposed Format and Content for the Mixed Oxide Fuel Fabrication Facility License Application and Integrated Safety Analysis Summary
- Obtain NRC feedback on proposed approach



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DCS Proposed Approach

- Build off the information presented in the Construction Authorization Request and the familiarity gained over the last several years of NRC review
- The keys to success are:
 - To adequately separate the information presented in the CAR into the two required documents (i.e., the License Application and the ISA Summary), while minimizing duplication
 - To show the evolution from Principal SSCs to IROFS
 - Add safety information required by 10 CFR Part 70 and
 - Follow the guidance in the SRP (NUREG 1718)



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Flow from CAR to LA & ISA Summary

- In general Programmatic information will be in the LA and detail/quantitative information will be provided in the ISA Summary
- For example, it is easy to see how:
 - Some Chapters move directly from the CAR to the LA (i.e., 2, 3, 4, 12, 13, 14, 15)
 - Others are divided but not complicated (i.e., 1, 5, 9, 10)
 - Yet, others are divided but potentially complicated/duplicative (i.e., 6, 7, 8, 11)



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LA Table of Contents

- 1.0 GENERAL INFORMATION
- 2.0 FINANCIAL QUALIFICATIONS
- 3.0 PROTECTION OF CLASSIFIED MATTER
- 4.0 ORGANIZATION AND ADMINISTRATION
- 5.0 INTEGRATED SAFETY ANALYSIS (ISA)
- 6.0 NUCLEAR CRITICALITY SAFETY (NCS)
- 7.0 FIRE PROTECTION
- 8.0 CHEMICAL SAFETY
- 9.0 RADIATION SAFETY
- 10.0 ENVIRONMENTAL PROTECTION
- 11.0 PLANT SYSTEMS
- 12.0 HUMAN FACTORS ENGINEERING
- 13.0 SAFEGUARDS
- 14.0 EMERGENCY MANAGEMENT
- 15.0 MANAGEMENT MEASURES

- Bold highlights indicate Chapters transferring directly from CAR to LA



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A Divided but not Complicated Example of a License Application Chapter

- 1.0 General Information
 - 1.1 Facility and Process Overview
 - Described in LA
 - 1.2 Institutional Information
 - Described in LA
 - 1.3 General Site Description
 - Brief high-level description in LA, Detailed Description in ISA-Summary



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Potentially Complicated and/or Duplicative Example of a License Application Chapter

- 8.0 CHEMICAL SAFETY
 - Chemical Process Description
 - Hazardous Chemicals and Potential Interactions
 - Chemical Safety Controls
 - Chemical Process Safety Interfaces
 - Chemical Safety Analysis Methodology



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ISA Summary

- 10 CFR Part 70
 - 10 CFR 70.65 – Additional Contents of Applications
- Guidance Documents
 - NUREG 1718 – Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility
 - NUREG 1520 – Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility
 - NUREG 1513 – Integrated Safety Analysis Guidance Document



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ISA Summary Table of Contents

- ISA Summary Chapters
 - 1.0 Overview
 - 2.0 Site Description
 - 3.0 Facility Description
 - 4.0 Process and System Descriptions
 - 5.0 General ISA Method, ISA Team, and Accident Sequences



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Chapter 1 - ISA Summary

- Introduction and Overview of the Document
- Purpose and Regulatory Framework
- Identifies suite of Document Types that comprise the ISA
- Provides the relationship between the ISA and ISA Summary
- Overall Conclusion
 - Part 70 Performance requirements have been met



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Chapter 2 - Site Description

- Contains information similar to the contents of CAR section 1.3
 - No significant change from CAR expected



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Chapter 3 - Facility Description

- Contains information similar to the contents of CAR sections 11.1 (Civil Structural Systems) and 11.12 (Seismic Qualification of Equipment, Systems and Components)
 - Functions
 - System Description
 - Major Components
 - Control Concepts
 - Interfaces
 - Design Basis for IROFS Structures
 - Demonstration that Civil/Structural IROFS Satisfy Requirements
 - Seismic Qualification of System, Structures, and Components
- New information
 - IROFS descriptions



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Chapter 4 - Process and System Descriptions

- Contains information similar to the contents of CAR sections 11.2 and 11.11 and appropriate System Description information from Chapters 6, 7, 9 & 10
 - Functional Description
 - Description and Major Components
 - Control Concepts
 - Interfaces
 - IROFS Descriptions and Design Basis
- New Information
 - IROFS descriptions



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IROFS Information Provided in ISA Summary

- Physical description
- Safety requirements
- Functional requirements
- Satisfaction of safety and functional requirements
- Applicable codes and standards
- Identification of parameters
- IROFS failure detection method
- Applicable Management Measures



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Chapter 5 - General ISA Method, ISA Team, and Accident Sequences

- Contains information from the contents of CAR Chapters 5, 6, 7, and 8
 - ISA Method
 - methodology descriptions
 - ISA Team
 - ISA Results
 - Hazard assessment
 - Accident evaluation
 - Bounding consequence assessment
 - Likelihood assessment
 - Accident sequences and identification of IROFS
 - Demonstration that event sequences are highly unlikely for required events

DRAFT

70.65 Requirement	Implementing Documents
(a) In addition to the contents required by §70.22, each application must include a description of the applicant's safety program established under §70.62.	Ch 5 of the LA will make these commitments
(b) The integrated safety analysis summary must be submitted with the license or renewal application (and amendment application as necessary), but shall not be incorporated in the license. However, changes to the integrated safety analysis summary shall meet the conditions of §70.72. The integrated safety analysis summary must contain:	Ch 5 of the LA will make these commitments
(1) A general description of the site with emphasis on those factors that could affect safety (i.e., meteorology, seismology);	Ch 2 of the ISA Summary
(2) A general description of the facility with emphasis on those areas that could affect safety, including an identification of the controlled area boundaries;	Ch 3 of the ISA Summary
(3) A description of each process (defined as a single reasonably simple integrated unit operation within an overall production line) analyzed in the integrated safety analysis in sufficient detail to understand the theory of operation; and, for each process, the hazards that were identified in the integrated safety analysis pursuant to §70.62(c)(1)(i)–(iii) and a general description of the types of accident sequences;	Ch 4 of the ISA Summary for process and system descriptions; Ch 5 of the ISA Summary for accident analysis
(4) Information that demonstrates the licensee's compliance with the performance requirements of §70.61, including a description of the management measures; the requirements for criticality monitoring and alarms in §70.24; and, if applicable, the requirements of §70.64;	Ch 5 of the ISA Summary for conformance to the 70.61; Ch 4 of the ISA Summary for identification of specific management measures associated with specific IROFS, Ch 15 of the LA for commitments and programmatic descriptions of management measures; Ch 6 of the LA for Programmatic Criticality Monitoring Commitments*; Ch 4 of the ISA Summary for CAS Specifics* Ch 4 of the ISA Summary for 70.64 compliance **
(5) A description of the team, qualifications, and the methods used to perform the integrated safety analysis;	Ch 5 of the ISA Summary
(6) A list briefly describing each item relied on for safety which is identified pursuant to §70.61(e) in sufficient detail to understand their functions in relation to the performance requirements of §70.61;	Ch 3 (facility related) and Ch 4 (process and system related) of the ISA Summary
(7) A description of the proposed quantitative standards used to assess the consequences to an individual from acute chemical exposure to licensed material or chemicals produced from licensed materials which are on-site, or expected to be on-site as described in §70.61(b)(4) and (c)(4);	Ch 5 of the ISA Summary
(8) A descriptive list that identifies all items relied on for safety that are the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of §70.61; and	Ch 3 (facility related) and Ch 4 (process and system related) of the ISA Summary
(9) A description of the definitions of unlikely, highly unlikely, and credible as used in the evaluations in the integrated safety analysis.	Ch 5 of the ISA Summary

* 10 CFR 70.22 (a) (7) requires the license application to provide a description of the criticality accident alarm system. 10 CFR 70.65 requires the ISA Summary to include a description of the compliance with 70.24 (criticality accident requirements). It is not clear within the regulations which portions of 70.24 are to be addressed in which document, nor is it clear how to avoid duplication of information. This is a topic that needs to be discussed with NRC staff.

** While the bulk of the information requested under 70.64 is provided in the ISA Summary, some of the programmatic information requested is in fact more appropriately addressed within the License Application since it is not specific to a summary of analyses. Examples of programmatic information under 70.64 is commitment to double contingency principle for criticality and commitment to maintain quality standards and records.