

August 24, 2000

MEMORANDUM TO: Michael Tokar, Acting Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

THRU: Melanie A. Galloway, Chief /RA/ (Rex Wexcott for)
Enrichment Section
Special Projects Branch, FCSS

FROM: Wilkins R. Smith, Quality Assurance Specialist /RA/
Enrichment Section
Special Projects Branch, FCSS

SUBJECT: SUMMARY OF TECHNICAL EXCHANGE MEETING WITH DUKE
COGEMA STONE & WEBSTER TO DISCUSS SEISMIC AND QUALITY
ASSURANCE ISSUES FOR THE MIXED OXIDE FUEL FABRICATION
FACILITY

Executive Summary

On August 2, 2000, staff from the Division of Fuel Cycle Safety and Safeguards (FCSS) met with Duke Cogema Stone & Webster (DCS) to discuss seismic and quality assurance issues applicable to the mixed oxide (MOX) fuel fabrication facility. With respect to the seismic issues, DCS described their approach to the seismic hazard analysis and for determining the appropriate return period for which the facility should be designed. The NRC staff concluded that the applicant's approach seems reasonable on a conceptual basis, however, further information is necessary to support using a 0.16g ground acceleration as the seismic design basis. With respect to quality assurance issues, DCS described how the SGN (a wholly owned subsidiary of Cogema) Quality Assurance (QA) program relates to the DCS MOX Project Quality Assurance Plan (MPQAP), which has been submitted to the Nuclear Regulatory Commission (NRC) for review. The MPQAP applies to all DCS MOX project activities, including the fuel fabrication process currently being designed by SGN. DCS also discussed design quality levels for structures, systems and components (SSCs). The applicant responded to questions from FCSS staff about the DCS QA plan for the design of the MOX fuel fabrication facility.

Meeting Details

At the request of DCS, the NRC staff met with representatives from DCS and the Department of Energy in a technical exchange meeting to discuss safety assessment of the seismic design basis and QA issues for the mixed oxide fuel fabrication facility (MOX-FFF). The meeting was

open to the public and a list of attendees is presented in Attachment 1. The meeting agenda and slides used in the presentation are included in Attachment 2.

Seismic Hazard Analysis

The DCS seismic design personnel presented the seismic design basis approach being used, justification information for the selection of the earthquake return period for the seismic design basis, and reviewed the results of a simplified screening of the adequacy of the seismic design basis. The detailed seismic hazard and seismic spectra to be used for design of the MOX fuel fabrication facility are being prepared by the Savannah River Site (SRS) contractor, Westinghouse, as a subcontractor to DCS. DCS presented initial screening seismic fragility curves, event trees, and event evaluations for various seismic event magnitudes. The NRC staff cautioned that while the applicant's approach seems reasonable on a conceptual basis, further information is necessary to support using a 0.16g ground acceleration as the seismic design basis. Specifically, the seismic hazard and the response spectra for the site, the fragilities of individual systems and equipment, and the use and basis of likelihood reduction factor assumptions must be fully justified. The staff also questioned whether there are any potential accidents that could result in very high consequences and pointed out that the effects and impact of interactions of seismic events with chemical, radiological, and fire hazards must be analyzed.

Quality Assurance Program

The NRC staff noted that the NRC has approved the 10 CFR Part 70 revision requiring an Integrated Safety Analysis (ISA) and that the MOX Standard Review Plan (SRP), NUREG-1718, was expected to be published by August 31, 2000. This final revision incorporates the staff resolution of public comments on the draft version published in January 2000. The staff noted that additional QA regulatory guidance and acceptance criteria are expected to include American Society of Mechanical Engineers (ASME) NQA-1a-1995 Addenda, reference to 10 CFR Part 21 applicability and essential elements of a graded QA program. The staff is reviewing the MPQAP submitted by DCS and expects to make an initial determination of its acceptability for review and/or a request for additional information by the end of August 2000.

DCS discussed the application and implementation of the DCS MPQAP for the SGN MOX process design process activities. SGN is conducting the process design activities in accordance with the MPQAP and also in accordance with the SGN QA Manual. The SGN QA Manual has been reviewed by DCS QA personnel. DCS has determined that it meets the applicable ASME NQA-1-1994 requirements. SGN process design products such as drawings, design inputs, and technical documents are reviewed, revised, and verified, as appropriate by the DCS MOX facility design and QA organizations. QA oversight is performed by SGN internal QA, Cogema corporate QA and by DCS QA audits. The staff requested clarifications of the MPQAP organization and program descriptions, including functional responsibilities, reporting levels, and organization charts.

The definition and application of MOX Quality Levels (QLs) was presented by DCS. QL-1 through QL-4 are defined in the MPQAP; however, the methodology for assigning the QL category and its application to structures, systems, and components (SSCs) and items relied on for safety (IROFS) is in DCS QA and design procedures. DCS presented and discussed the

basis and application of QLs to SSCs that are IROFS (QL-1) and non-IROFS (QL-2, 3, 4) for fire barriers and other fire protection features and criticality alarms. The staff discussed the basis for assignment of QL-1 and -2 to SSCs and the approach to defense in depth requirements of the revised 10 CFR Part 70.

The staff discussed several items resulting from its initial review of the MPQAP, including clarification of the DCS functional organization, design responsibilities and commitment to specific requirements of ASME NQA-1-1994. The staff requested clarification of the QA Manager reporting level and the assurance of the required organizational freedom and independence. DCS presented their implementation of the ASME NQA-1-1994 requirements and indicated that clarification of the commitments would be made in subsequent revision to the MPQAP. The NRC staff stated at the meeting that it would review the implementing QA procedures and QL methodologies at an in-office review at DCS offices later in August 2000.

Attachments:

1. 8/2/00 Mtg. Attendee List
2. 8/2/00 Mtg. Agenda & Slides

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OFC	SPB*		SPB*	E	SPB*		SPB*			
NAME	WSmith:cc	APersinko		AHoadley			RGW for MGalloway			
DATE	8/24/00	8/24/00		8/24/00			8/24/00			

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August 2, 2000 Meeting

ATTENDEES LIST

<u>NAME</u>	<u>AFFILIATION</u>
Andrew Persinko	NRC
Wilkins Smith	NRC
Melanie Galloway	NRC
Robert Shewmaker	NRC
Rex Wescott	NRC
Nilesh Chokshi	NRC
Dennis Damon	NRC
David Ayres	NRC
Tim Johnson	NRC
Ed Brabazon	DCS
John McConaghy	DCS
Toney Mathews	DCS
Peter Hastings	DCS
Bill Hennessy	DCS
Jim Brackett	DCS
Jamie Johnson	DOE
Jon Thompson	DOE
Don Williams	ORNL
Faris Badwan	LANL
Charles Sanders	FCF
Jean Francois Sidaner	Cogema
Matt Moeller	DCS/Dade Moeller & Assoc.
Phil Kasik	MPR Assoc.
Daniel Hotner	Exchange/Monitor Publications

ATTACHMENT 2