

January 23, 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: Brian W. Smith, Chief /RA/
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

FROM: Wilkins R. Smith, Quality Assurance Scientist /RA/
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: JANUARY 12, 2004, MEETING SUMMARY: OPEN MEETING WITH
DUKE COGEMA STONE & WEBSTER TO DISCUSS THE QUALITY
ASSURANCE PROGRAM FOR THE MIXED OXIDE FUEL
FABRICATION FACILITY

On January 12, 2004, the 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 Mixed Oxide Project Quality Assurance Plan (MPQAP), Revision 4, submitted to NRC on November 12, 2003, procurement, construction, quality assurance oversight planning, and project management for the MFFF. The meeting agenda, summary, attendance list, and DCS presentation handouts are attached (Attachments 1, 2, 3, and 4, respectively).

Docket: 70-3098

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

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

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**MEETING AGENDA
MOX FUEL FABRICATION FACILITY**

January 12, 2004

- | | |
|---------|--|
| 1:00 PM | Discussion of changes in Revision 4 of the MOX Project QA Plan (MPQAP) submitted November 12, 2003 |
| 3:00 PM | Discussion of Procurement and Construction Planning, including DCS management, QA, and QC oversight and interfaces |
| 4:00 PM | Discussion of Project Status and Management Issues |
| 5:00 PM | Adjourn |

NOTE: Other than start time, above times are approximate.

MEETING SUMMARY
MOX FUEL FABRICATION FACILITY
January 12, 2004

Purpose

The purpose of this meeting between the NRC and Duke Cogema Stone & Webster (DCS) was to discuss the Mixed Oxide (MOX) Project Quality Assurance Plan (MPQAP) Revision 4, submitted November 12, 2003, for NRC review and approval. The meeting agenda also included discussion of related quality assurance (QA) and management issues for the MOX Fuel Fabrication Facility (MFFF) including procurement, construction, and QA oversight planning, and the overall project status and management issues.

Discussion

The meeting began with introduction of the meeting participants, including the new DCS President, Ron Barnes. NRC presented background information on DCS' submittal and NRC review of prior MPQAP revisions and the NRC evaluations of the MFFF QA program implementation during in-office reviews at DCS offices in the United States and France beginning in August 2000.

During the meeting, DCS made a presentation (Attachment 3) on the changes made in Revision 4 of the MPQAP. DCS stated that the scope of Revision 4 addresses the requirements for MFFF start-up and operation activities, as well as those for design and construction activities, which were addressed in Revision 3. DCS noted that Revision 4 is not intended to reduce the DCS QA program commitments or requirements. The general changes presented included updating of the organization titles, revising the organization descriptions based on a functional structure rather than specific organization titles, and identification of the program requirements separate from background or reference information. DCS stated that Revision 4 has been approved by its management, but it has not been implemented pending NRC review and approval. NRC staff noted that Revision 3 had included narrative and commitments that addressed specific issues raised during the NRC staff technical review. DCS stated that they had reviewed the documentation of prior reviews and believed that all prior commitments and clarifications were retained in Revision 4.

Additional specific changes in the MPQAP, Revision 4, discussed during the meeting included:

- The introduction section of the MPQAP was updated to separate commitments from background information. DCS stated that this section provides a greater linkage between QA and management measures because management measures (e.g., configuration management, QA audits, management assessments) apply across the facility.
- The definitions of graded quality levels (QL) for items relied on for safety (IROFS) have been revised based on DCS' experience during the MFFF design, licensing, and engineering activities. DCS stated that the revision is basically a simplification of the categorizations and brings additional clarity to the process. Under the Revision 4

definitions, those structures, systems, and components (SSCs) needed to meet the performance requirements of 10 CFR Part 70.61 will be categorized as QL-1a IROFS. Those SSCs designated as IROFS for defense-in-depth purposes will be categorized as QL-1b IROFS.

- In response to an NRC staff question, DCS stated that the practical effect or actual changes to current design work of the QL definition changes would probably be limited to some items currently designated as QL-1b being changed to QL-1a.
- DCS noted that Revision 4 also includes changes in the use of audits and assessments of the project and QA activities after they are baselined, and is intended to permit flexibility in audit or assessment approach and the application of resources where most appropriate and needed.
- DCS commented that the decision by the Department of Energy (DOE) to reduce the controlled area boundary (CAB) of the MFFF did not affect any revision changes to the MPQAP.

DCS and NRC discussed the plans for MFFF procurement and construction, including QA oversight of these activities. DCS stated that the plans and implementation methods for procurement and construction are still under discussion with the DOE, and should be described only as the current planning basis. DCS' current planning basis is for MFFF ground-breaking by the summer of 2004 and for safety-related construction to begin January 2005. Currently, DCS has not issued any procurements of equipment, although some advance vendor equipment/system design activities have been initiated. As part of the procurement process, DCS has begun, and will continue to perform, technical evaluations and audits of vendor's QA programs to verify adequate compliance with the MFFF QA program requirements. DCS described their validation planning process which is DCS' strategy to procure, assemble, test, and accept process units. The validation planning process is an approach for looking ahead and identifying potential difficulties during design, procurement, and construction, determining the inspections or actions that would prevent or mitigate the issues, and estimating the appropriate actions, inspections, and time frame from a benefit-cost analysis. The validation planning process is expected to be applied at staging facilities, or integration platforms, which may be established near the MFFF site in South Carolina and in France. The integration platforms would be used to assemble, test, and inspect a number of SSCs or process units off-site. DCS noted that each process unit will have its own test and inspection plan to aid in the validation planning.

NRC staff noted that, should NRC authorize MFFF construction, Region II will take the lead in performing inspections at the various DCS offices and facilities, including the MFFF Savannah River Site, as well as inspections of DCS vendor sites. NRC staff requested that Region II and FCSS be kept informed of DCS' plans for QA audits and procurement oversight, as well as procurement and construction planning in general.

NRC and DCS discussed the current project status and project management issues. DCS stated that they were encouraged with the progress made in the last few months on the eleven open items remaining on the MFFF Construction Authorization Request (CAR). DCS and NRC expected to continue communication in an attempt to resolve the open items. DCS is currently evaluating the effects of the CAB to the CAR and expects to submit a revised CAR to NRC once their evaluation is complete. NRC noted that receipt of a revised CAR and resolution and definition of the specific MOX license application submittal and MFFF construction plans and dates is needed as soon as possible, so that NRC can adequately budget resources taking into

consideration other fuel cycle facility license applications. DCS noted that it will need small amounts of source material in the MFFF processes during cold start-up, and that it may be required that DCS attain a license to handle this material prior to the approval of a license to possess and use special nuclear material. DCS also discussed the QA oversight of the lead test assemblies (LTAs) planned to be fabricated by Cogema in France. Fuel design, licensing, and QA oversight of the LTAs is the responsibility of DCS team member Framatome ANP under their QA program. The Framatome QA program and specific QA plans are subject to the DCS MPQAP. Duke Power will perform a detailed audit of the MPQAP to ensure that product quality is adequate since DCS will be a supplier to Duke Power. In the event that process events or product defects occur at the French plants (i.e., La Hague, Melox) that could be of impact on the MFFF processes, product, or activities, DCS will be informed through the Cogema design/operations departments. Cogema will remain engaged throughout the progress of the MFFF.

NRC Action Items

No specific NRC actions resulted from this meeting. NRC will continue its technical review of Revision 4 of the MPQAP.

Attendance List

<u>Name</u>	<u>Affiliation</u>
Wilkins Smith	NRC/NMSS/FCSS
William Gloersen	NRC/RII/DFFI
Jerome Blake	NRC/RII/DRS
Scott Gordon	NRC/NMSS/FCSS
Daniel Horner	McGraw-Hill
Herbert Feinroth	Gamma Engineering
David Brown	NRC/NMSS/FCSS
Brian Smith	NRC/NMSS/FCSS
Bill Troskoski	NRC/NMSS/FCSS
Joel Kramer	NRC/RES/DSARE
Andrew Persinko	NRC/NMSS/FCSS
Ron Barnes	DCS
Tommy Touchstone	DCS
Peter Hastings	DCS
Ken Ashe	DCS
James R. Cassidy	DCS
Dave Alberstein	DOE/NNSA NA-26
Joesph Giitter	NRC/NMSS/FCSS
Robert Pierson	NRC/NMSS/FCSS



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Changes in Revision 4 of MOX Project Quality Assurance Plan

12 January 2004



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General Changes

- Replaced Duke Engineering & Services (DE&S) with Duke Project Services Group, Inc.
 - Revised document to reference activities and phases of the project
 - Included activities related to the start-up and operation in the Scope of the QA Program
 - Revised paragraph structure to present requirements in indentured outline format.
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Introduction

- The Introduction provides background material on the QA Program development and implementation philosophy.
 - Descriptions from Rev. 3 Paragraph 2.1.2 Use of Subcontractor QA Programs and Paragraph 2.2 Graded Quality Assurance were added to the Introduction.
 - Requirements for continuing QA were moved from the Introduction in Rev. 3 to Paragraph 1.3.6.
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Section 1 - Organization

- The Project Manager is replaced with the DCS President/Chief Executive Officer.
 - The Engineering and Construction functions were separated
 - Start-up and Operations interfaces were added
 - Paragraph 1.3 of Rev. 4 contains the requirements from Rev.3 Paragraphs 1.3, 1.4, 1.5, and 1.6 and the requirements for continuing QA from the Rev. 3 Introduction.
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Section 2 – QA Program

- The table of NQA-1 Part II Subparts in Paragraph 2.1 of Rev. 3 removed. Subpart 2.7 is specifically addressed in Paragraph 3.2.7.
 - Paragraph 2.1.1 Program Basis was revised to include activities related to start-up and operation. The definition for quality affecting was changed to: “deeds, actions, processes, tasks or work which influence the achievement or verification of quality requirements and objectives necessary for 1) fabrication and delivery of MOX fuel assemblies to the mission reactors and 2) Quality Level 1 and 2 structures, systems and components (SSCs) and their associated activities.”
 - Paragraph 2.1.2 Use of Subcontractor QA Programs in Rev. 3 moved to the Introduction.
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Section 2 – QA Program (Continued)

- Paragraph of 2.2, Rev. 3 overview is condensed in Rev. 4 Paragraph 2.1.2 Graded Quality Assurance, with the specific requirements from Revision 3 addressed in Revision 4.
 - Paragraph 2.2.1 is a new section addressing the Application of QA Controls for Product.
 - The definitions for QL-1a and QL-1b have been revised for clarity of application, all IROFS remain Quality Level 1.
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Section 2 – QA Program (Continued)

- Paragraph 2.2.3 addresses Identification of QA Controls for MFFF, including the requirements for QA grading from Rev. 3 Paragraph 2.2.2.
 - Paragraph 2.2.4 addresses the requirements for the Application of Graded QA Controls from Rev. 3 Paragraph 2.2.3.
 - Paragraph 2.2.5 addresses Feedback Mechanisms and Reassessing Safety Significance, including the requirements from Rev. 3 Paragraph 2.2.4.
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Section 2 – QA Program (Continued)

- Paragraph 2.2.6 addresses *Personnel Indoctrination, Training, and Qualification*, combining and expanding the requirements from Rev. 3 Paragraphs 2.3, 2.5, and 2.6.
 - Paragraph 2.2.7 addresses *Management Assessments*, replaces Rev. 3 Paragraph 2.4. This revision expands the requirements implementing criteria addressed in NUREG 1718 Section 15.6 and providing a linkage between the audit and assessment activities.
 - Paragraph 2.2.8, *Quality Assurance Program Status Reporting*, addresses the requirements from Rev. 3 Paragraph 2.7.
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Section 3 – Design Control

- Divided Rev. 3 Paragraph 3.2.2H. into 3.2.2H. and I. to emphasize these as two distinct requirements.
 - Moved and revised Rev. 3 Paragraph 3.2.4G.3 to 3.2.2J. ensuring it applies to QL-1&-2 SSCs.
 - Revised Paragraph 3.2.3D. to more clearly reflect the requirements of NQA-1.
 - Revised Paragraph 3.2.7 to more clearly reflect the requirements of NQA-1 Subpart 2.7.
 - Minor Editorial Changes
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Section 4 – Procurement Document Control

- Added requirement 4.2.1B.4
 - Revised 4.2.1C. to clarify that flowdown of 10CFR50 Appendix B requirements and defect reporting requirements in accordance with 10CFR21 apply to QL-1 procurements.
 - Deleted final sentence from Rev. 3 Paragraph 4.2.2B.
 - Editorial clarifications
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Section 5 – Instructions, Procedures, and Drawings

- Approval of procedures is assigned to the DCS Manager responsible for the activity.
 - Other minor Editorial Changes
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Section 6 - Document Control

- Entire section reformatted
 - Paragraph 6.2.6 addresses the requirements from Paragraph 6.2.5 of Rev. 3, adding clarification of specific requirements for controlled distribution where access to the Electronic Data Management System is not available.
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Section 7 – Control of Purchased Material, Equipment, and Services

- Paragraph 7.2.2E. was deleted.
 - Paragraph 7.2.11 revised to reflect NQA-1.
 - Paragraph 7.2.13 added to address the process for procuring QL-2 SSCs.
 - Paragraph 7.2.14 address requirements from Rev. 3 Paragraph 7.3
 - The term ‘supplier’ was replaced with ‘supplier/subcontractor’ throughout the document.
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Section 8 – Identification and Control of Material, Parts, and Components

- The general requirements in the second paragraph of 8.1 apply to both QL-1 and QL-2 items.
 - The detailed requirements of Paragraph 8.2 are identified for QL-1 only.
 - Other editorial corrections.
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Editorial Corrections

- Section 9 – Control of Special Processes
 - Section 10 – Inspection
 - Section 13 – Handling, Storage, and Shipping
 - Section 14 – Inspection, Test, and Operating Status
 - Section 15 – Nonconforming Materials, Parts, or Components
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Section 11 – Test Control

- Paragraph 11.2.6 was revised to define the requirements for qualification of test personnel.
 - Editorial Corrections
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Section 12 – Control of M&TE

- Added “when practicable” to end of Paragraph 12.2.1C
 - Paragraph 12.2.4 was revised to include damaged M&TE and reference Section 15 for the evaluation.
 - Editorial Corrections
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Section 16 – Corrective Action

- The 10CFR21 reporting considerations (Rev. 3 Paragraphs 16.2.1.2 C. and D.) are revised in Paragraphs 16.2.1B.3), 4), and 5).
 - Paragraph renumbering
 - Other Editorial Corrections
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Section 17 – Quality Assurance Records

- Entire section reformatted
 - Retention requirements from Rev. 3 Paragraph 17.2.2.1 were consolidated in Paragraph 17.2.6, *Retention of Records*.
 - Rev. 3 Paragraph 17.2.2.2E. was deleted. This requirement is addressed in Paragraph 4.2.1F.
 - Removed the references to the specific records storage area location. Paragraph 17.2.4A. (both Rev. 3 and Rev. 4) requires this level of detail to be addressed in an approved QA Procedure.
 - Editorial Corrections
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Section 18 - Audits

- Entire section reformatted
 - Paragraph 18.2 lead in revised to provide linkage between the audit and assessment activities.
 - Paragraph 18.2.1 revised the frequency for internal audits to be based on performance and extend the periodicity to three years. This approach involves the use of Management Assessments to supplement the audit process and requires annual evaluation of quality affecting activities in conjunction with Paragraph 2.2.7.
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Section 18 – Audits (Continued)

- Paragraphs 18.2.7, 18.2.8, and 18.2.9 were revised to reference Section 16 *Corrective Action* for addressing conditions adverse to quality.
 - Moved technical specialist qualifications to the end of Paragraph 18.2.9.
 - Combined and revised Rev. 3 Paragraphs 18.2.9 A through E with Paragraph 18.2.9.2 C to reflect NQA-1.
 - Rev. 3 Paragraph 18.2.10 was converted to Figure 18-1.
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