June 19, 2001

Mr. Peter Hastings, Licensing Manager
Duke Cogema Stone & Webster
P.O. Box 31847
Charlotte, NC 28231-1847

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON THE DUKE COGEMA STONE & WEBSTER (DCS) MIXED OXIDE PROJECT QUALITY ASSURANCE PLAN, REVISION 2

Dear Mr. Hastings:

We have completed the initial technical review of the Duke Cogema Stone & Webster (DCS) Mixed Oxide (MOX) Project Quality Assurance Plan (MPQAP), Revision 2, transmitted by letter dated January 29, 2001. We note that your submittal of Revision 2 of the MPQAP incorporates the DCS changes resulting from the Nuclear Regulatory Commission (NRC) review of Revision 1 for design activities and our Request for Additional Information, transmitted by letter, Hastings/Persinko dated October 6, 2000. It is our understanding that the current MPQAP revision is intended to address the design and construction activities associated with the MOX project, and that subsequent revision(s) will address startup testing and operation. Consequently, we have reviewed it only for design and construction related activities, including procurement and fabrication of the structures, systems and components of the facility.

Our review of the MPQAP, Revision 2, has identified additional information or clarification that is needed to determine its acceptability for the MOX project design and construction related activities. During our reviews, we are using NUREG-1718, "Standard Review Plan (SRP) for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility," dated August 2000. If the additional information, specified in the enclosure, results in a revision of the MPQAP, DCS should submit the revised MPQAP to the NRC for review. DCS may respond separately to information requested in the enclosure.

If you have any questions regarding these actions, I can be reached at (301) 415-7299.

Sincerely,

/RA/

Timothy C. Johnson, Project Manager
Enrichment Section
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Docket: 70-3098

cc: J. Johnson, DOE
H. Potter, SC Dept. of HEC
J. Conway, DNFSB
D. Moniak, BREDL
E. Foster
R. Thomas, Environmentalists, Inc.
G. Carroll, GANE

Request for Additional Information
MOX Project Quality Assurance Plan (MPQAP), Revision 2
Letter Submittal Dated January 29, 2001
Duke Cogema Stone & Webster (DCS)
Mixed Oxide Fuel Fabrication Facility
Docket: 70-3098

1. Provide a full description of the applicant's organization for construction. Identify the responsibilities and functions of all Duke Cogema Stone & Webster (DCS) and other quality assurance (QA), quality control (QC) or inspection organizations where construction activities are delegated.

   The DCS Mixed Oxide Project Quality Assurance Plan (MPQAP) Section 2.1 commits to the requirements of NQA-1-1994 Part I as revised by NQA-1a-1995 Addenda of NQA-1-1994 and Regulatory Guide 1.28 (Rev. 3), for describing a DCS QA program that meets the 10 CFR 50.23 requirement of meeting the 10 CFR Part 50, Appendix B QA criteria. NQA-1 Basic Requirement 1, Organization, states that the organizational structure, functional responsibilities, levels of authority and lines of communication for activities affecting quality shall be documented. The applicant's identification and functional description of the specific organizational groups responsible for constructing the facility should include contractors, consultants, and other outside service organizations in addition to the applicant. This should also include, but not be limited to, the process designers, architect engineering firm, and the construction contractor(s).

   The MPQAP has brief descriptions relating to "construction management," but does not address the actual construction responsibilities and interfaces. Clarify if there will be major delegation of work such as to an architect/engineer, a mixed oxide (MOX) plant constructor, an integration contractor, system suppliers, or other on- or off-site organizations. Where work is delegated, the responsibilities and functions of the DCS QA, QC, inspection and/or construction management organizations and those of the subcontractors should be identified. The authorities and responsibilities among the organizational groups and the means of communication should be addressed, including the DCS design and engineering functions and interfaces and those of the various contractors during construction. Organization charts should reflect the lines of responsibility and authority. Clear and unambiguous controls and communications, and responsibility and authority between the construction, equipment, and system suppliers and DCS design, engineering, project management, procurement, construction management, and QA, should be identified. All key management positions for construction activities should be adequately addressed. Specific activities such as inspection and testing of construction activities, equipment, and structures, systems, and components (SSCs) should be adequately addressed as to what organization performs them, and what, how, and by whom, QA controls and management measures are applied.

2. Discuss DCS' application, and implementation of, 10 CFR Part 21 requirements and procedures on the MOX project activities before operation, including MOX facility construction and design and MOX fuel design and qualification activities. Also, explain why only Items Relied on for Safety (IROFS) SSCs and not Quality Level (QL) 2 SSCs would be subject to Part 21 requirements.

NUREG-1718, “Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility,” (SRP) Section 15.4.3.D states that the requirements of 10 CFR Part 21 should be addressed by the applicant.

3. Clarify the requirements and application of DCS QA program commitments for subcontractor QA Programs and activities.

   SRP Section 15.1.5.2.A, Construction Approval, states that the review should result in a determination that there is reasonable assurance that the applicant's and the applicant's principal contractors' QA programs will provide reasonable assurance against natural phenomena and the consequences of potential accidents through the QA program's application to the design, fabrication, construction, testing, and operation of the applicant's SSCs.

   MPQAP Section 1.4, Organization, states that, “All DCS quality affecting activities shall meet the requirements of this document except when work is performed under an approved subcontractor QA program as addressed in section 2.1.” Describe how these requirements flow down, how they are implemented by the subcontractors’ QA programs, and how DCS assures the adequacy and implementation of the DCS QA commitments. Discuss DCS’s plans for submittal for review and/or approval by NRC of principal subcontractors’ QA programs or the justification and adequacy for not submitting these programs.

4. Please amplify the application and definitions of QL-1, QL-2, and QL-3 presented in MPQAP Section 2.0, QA Program. Also, provide a full description of the methods for grading the application of QA controls for various QL levels.

   SRP 15.1.4.3, Regulatory Acceptance Criteria, states that the applicant should describe, if used, the graded approach for application of QA. The methods for grading should be described, including how the QA program controls are applied or not. Amplify the discussion of the definitions of QL-1, QL-2 and QL-3. Discuss the relationship between the QL definitions and designations and the performance criteria of 10 CFR 70.61, and to what extent probability performance or failure rates are factored in the application of QLs and QA controls. Please explain the relationships and differences between the QL and applied QA controls and the engineering requirements and specifications for QL-1 and QL-2 SSCs.

   Examples may be used for illustrative purposes. For example, specifically identify which MPQAP provisions will apply to criticality controls classified QL-1b. It would appear that most criticality safety controls would be graded QL-1b, on account of the double contingency principle. It is stated in the MPQAP that all MPQAP requirements pertain to controls graded QL-1a but, not necessarily QL-1b. Also, please identify the differences in the application of QA controls for SSCs that are produced routinely or to standard requirements and have a well-defined failure experience base such as thermocouples and those which may be customized with little or no failure rate data such as electrolyzer controls. Examples that compare the application of QA controls for a simple passive SSC to that for a complex active SSC would also be useful in providing a full description of the methods of defining QL categories and applying graded QA controls.

5. Clarify what is meant in MPQAP Table 2-1 by "a condition compromising criticality safety," and explain the differences or discrepancies between this statement and the MPQAP Section 2.2.2 statements regarding QL-1a and -b and SSCs whose single failure, or failure with another SSC, can result in a criticality.

   SRP 15.1.4.3, Regulatory Acceptance Criteria, states that the applicant should describe, if used, the graded approach for application of QA. MPQAP Section 2.2.2 states that SSCs whose single failure can directly result in a criticality accident are designated QL-1a, and SSCs with an additional, independent, and unlikely failure of an SSC could result in a criticality accident. However, QAP Table 2-1 states that QL-1a controls are those which can cause "a condition compromising criticality safety." This information is necessary to ensure that the quality assurance program provides reasonable assurance of protection against a criticality accident.

6. Provide justification for classification of the criticality monitoring and criticality alarms as QL-2 and not QL-1 (IROFS).

   SRP 15.1.4.3, Regulatory Acceptance Criteria, states that the applicant should describe, if used, the graded approach for application of QA. MPQAP Section 2.0 and Table 2-1 classify radiological and criticality monitoring and alarm SSCs as QL-2. In processes dealing with liquids, it is possible to get a pulsating cycle between critical and non-critical conditions, and as such, criticality monitors and alarms could be considered to be mitigating IROFS. Please discuss the functions and/or importance of criticality monitors and alarms for prevention of or mitigation for a pulsating criticality or other events at the MOX facility.

7. Explain why the requirements of Section 7.2.12, Commercial Grade Items, are applied only to IROFS and not to QL-1 SSCs.

   SRP 15.1.4.3, Regulatory Acceptance Criteria, states that the applicant should describe, if used, the graded approach for application of QA. The methods for grading should be described, including how the QA program controls are applied or not.

8. Clarify the QA requirements for subcontractors' control of special processes for, or during, fabrication, assembly, and construction. Confirm that subcontractors are required to implement the requirements of NQA-1 for special processes or justify the DCS requirements for subcontractors.

   The MPQAP commits to compliance with NQA-1, but MPQAP Section 9.0, Control of Special Processes, is not clear on the commitments and requirements for subcontractors.

9. Clarify the intent of the wording in MPQAP Section 10.2.4, Statistical Sampling, or commit to the NQA-1, supplement 10S-1, Section 5.2 wording that the sampling procedure be based on recognized standard practices.

   The SRP Chapter 15.1 states that the applicant's QA program may commit to conformance with NQA-1-1994, etc. The MPQAP commits to compliance with NQA-1,

but Section 10.2.4 only states that statistical sampling shall be based on practices specified by DCS approved procedures.

10. Clarify the QA requirements for subcontractors' QA records during construction, both for records in general and for temporary storage. Confirm that subcontractors are required to implement the requirements of NQA-1 for QA records or justify the DCS records requirements for subcontractors.

    The MPQAP commits to compliance with NQA-1, but MPQAP Section 17.0, QA Records, and in particular Section 17.2.2.2.E, is not clear on the commitments and requirements for subcontractors.

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