



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 6, 2016

Mr. Dealis W. Gwyn
Licensing Manager
CB&I AREVA MOX Services
P.O. Box 7097
Aiken, SC 29804-7097

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO THE APRIL 2016 REVISION OF THE FUNDAMENTAL NUCLEAR MATERIAL CONTROL PLAN FOR THE MIXED OXIDE FUEL FABRICATION FACILITY, UNDER CONSTRUCTION IN AIKEN, SOUTH CAROLINA

Dear Mr. Gwyn:

By letter dated April 25, 2016, (Agencywide Documents Access and Management System [ADAMS] Accession No. ML16138A069), CB&I AREVA MOX Services submitted a revision to the Fundamental Nuclear Material Control Plan to the U.S. Nuclear Regulatory Commission (NRC) for review and approval.

As described in the enclosure to this letter, the NRC needs additional information in order to complete its review. Please provide responses to the request for additional information within 30 days of receipt of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at: <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

D. Gwyn

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If you have any questions, please contact me by phone at (301) 415-8740, or via e-mail at: David.Tiktinsky@nrc.gov.

Sincerely,

/RA/

David H. Tiktinsky, Senior Project Manager
Fuel Manufacturing Branch
Division of Fuel Cycle Safety, Safeguards,
and Environmental Review
Office of Nuclear Material Safety
and Safeguards

Docket No.: 70-3098

Enclosure:
As stated

cc: See next page

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**REQUEST FOR ADDITIONAL INFORMATION
MIXED OXIDE FUEL FABRICATION FACILITY
FUNDAMENTAL NUCLEAR MATERIAL CONTROL PLAN, REVISION APRIL 2016
DOCKET NO. 70-3098**

Title 10 of the *Code of Federal Regulations* (10 CFR) Paragraph 70.22(b) states that the application must contain a full description of the applicant's program for control and accounting of special nuclear material (SNM) or enrichment equipment that will be in the applicant's possession under the license to show compliance with the requirements of 10 CFR Part 74, "Material Control and Accounting of Special Nuclear Material," as applicable. Regulations in Subpart B, "General Reporting and Recordkeeping Requirements," and Subpart E, "Formula Quantities of Strategic Special Nuclear Material," of 10 CFR Part 74 contain the material control and accounting (MC&A) requirements for the Mixed Oxide Fuel Fabrication Facility (MFFF).

Note that the U.S. Nuclear Regulatory Commission (NRC) has prepared a draft of Revision 2 of NUREG-1280 "Standard Format and Content Acceptance Criteria for the Material Control and Accounting (MC&A) Reform Amendment," to support a draft rule change to 10 CFR Part 74. However, the rulemaking has not been promulgated at the current time (including the draft revision to NUREG-1280). Therefore the Fundamental Nuclear Material Control Plan (FNMCP) should continue to address the current regulations and guidance.

Please respond to the following request for additional information with respect to your revised FNMCP, dated April 25, 2016:

General Comments

1. The official guidance document regarding FNMCPs for licensees subject to 10 CFR Part 74, Subpart E, is NUREG-1280, "Standard Format and Content Acceptance Criteria for the Material Control and Accounting (MC&A) Reform Amendment," Revision 1. While it is acceptable to follow the format shown in the draft of revision 2, specific references to addressing the guidance should be made to Revision 1 since Revision 2 is currently a draft document.
2. Section 74.3 of the regulations has not been promulgated and should not be referenced in the FNMCP.

10 CFR 74.13 – Material status reports

10 CFR 74.13(a) requires each licensee possessing SNM in a quantity totaling one gram or more of contained uranium-235, uranium-233, or plutonium to complete and submit, in computer-readable format Material Balance Reports concerning SNM that the licensee has received, produced, possessed, transferred, consumed, disposed, or lost. The Physical Inventory Listing Report must be submitted with each Material Balance Report.

3. Clarify the description of the MC&A activities that are performed or the measures in place that ensure compliance with this reporting requirement.

Enclosure

10 CFR 74.15 – Nuclear material transaction reports

10 CFR Section 74.15 requires each licensee who transfers or receives SNM in a quantity of one gram or more of contained uranium-235, uranium-233, or plutonium to complete, in computer-readable format, a Nuclear Material Transaction Report. In addition, each licensee who adjusts the inventory in any manner, other than for transfers and receipts, shall submit a Nuclear Material Transaction Report, in computer-readable format, to coincide with the submission of the Material Balance report. Each licensee who transfers SNM shall submit a Nuclear Material Transaction Report no later than the close of business the next working day. Each licensee who receives SNM shall submit a Nuclear Material Transaction Report within ten days after the material is received.

4. Clarify the description of the MC&A activities that are performed or the measures in place that ensure compliance with this reporting requirement.

10 CFR 74.17 – Special nuclear material physical inventory summary report

10 CFR 74.17(c) requires each licensee subject to the requirements of Section 74.51 to submit a completed Special Nuclear Material Physical Inventory Summary Report on NRC form 327 not later than 45 calendar days from the start of each physical inventory required by Paragraph 74.59(f).

5. Clarify the description of the MC&A activities that are performed or the measures in place that ensure compliance with this reporting requirement.

10 CFR 74.19 – Recordkeeping

10 CFR 74.19(b) requires each licensee authorized to possess SNM in a quantity exceeding one effective kilogram at any one time to establish, maintain, and follow written MC&A procedures that are sufficient to enable the licensee to account for the SNM in its possession under license. These procedures shall be maintained until the Commission terminates the license that authorizes possession of the material and retain any superseded portion of the procedures for 3 years after the portion is superseded.

Furthermore, 10 CFR 74.19(d) requires that the records may be the original or reproduced copy and may be stored in electronic media with the capability of producing legible, accurate and complete records during the required retention period. The licensee shall maintain adequate safeguards against tampering with and loss of records.

6. Clarify the description of the MC&A activities that are performed or the measures in place that ensure compliance with these recordkeeping requirements.

10 CFR 74.55 – Item Monitoring

10 CFR 74.55(b) requires the licensee to verify on a statistical sampling basis, the presence and integrity of strategic special nuclear material (SSNM), and specifies the required frequency of tests for Category IA and IB materials. The MFFF describes in the FNMCP, Section 4.6.3, “Item Monitoring Conditions for Specific Storage Areas,” the item monitoring activities for Category IA and IB materials.

7. Specify the frequency for verifying the PLC data as referenced throughout Section 4.6.3 in the following statement “...PLC data will be verified periodically.”

10 CFR 74.59(d) – Measurements

10 CFR 74.59(d) requires the licensee to establish, utilize, and maintain a system of measurements to ensure that all quantities of SNM/SSNM in the accounting records are based on reliable measurements. In the introductory text of Section 7, “Measurements,” MFFF states the following: “Heterogeneous scrap that cannot be accurately measured in its as-received form, provided such scrap is measured after dissolution within 18 months of receipt, shall include measurement...” Furthermore, MFFF states in the FNMCP, Section 12.5, “Recovery of Offsite Scrap,” that offsite scrap is not received.”

8. Clarify the description of activities regarding receipt of offsite scrap.

In the FNMCP, Section 7.2, “Measurement Systems,” MFFF describes the measurement systems utilized for MC&A purposes. Furthermore, Table G in Annex A of the FNMCP provides information regarding these measurement systems.

9. Clarify the descriptions of all of the measurement systems used for MC&A purposes.

In the FNMCP, Section 7.5, “Scrap Control,” MFFF states that “the regulatory requirements to control and measure scrap materials do not apply to the MFFF.” However, Section 12, “Scrap Control,” describes the program for compliance with scrap requirements in 10 CFR 74.59(h)(2).

10. Clarify the descriptions regarding the scrap control program.

10 CFR 74.59(e) – Measurement Control

10 CFR 74.59(e) requires the licensee to ensure that the quality of SSNM measurement systems and material processing practices is continually controlled to a level of effectiveness sufficient to satisfy the capabilities required for detection, response, and accounting.

11. Clarify the descriptions of the engineering analyses and evaluations associated with the measurements systems to be used for MC&A purposes, as required by 10 CFR 74.59(e)(1).

12. Clarify the descriptions of the process and engineering tests associated with existing procedures for mixing and sampling SSNM, as required by 10 CFR 74.59(e)(2).
13. Clarify the description of the program for monitoring cumulative shipper-receiver differences, as required by 10 CFR 74.59(e)(7).
14. Clarify the description in the FNMCP, Section 9.3, "Bias Corrections," to comply with the requirements of 10 CFR 74.59(e)(6)(i).

10 CFR 74.59(f) – Physical inventory

10 CFR 74.59(f) requires the licensee to maintain inventory control and perform inventories at specific time periods to confirm that a loss, theft, or diversion of SNM/SSNM has not occurred. In the FNMCP, Section 10.4, "Facility Preparation," consists solely of the following statement: "The preparation of the facility for physical inventory is described as follows:"

15. Clarify the description in Section 10.4 regarding the activities that are performed in preparing the facility for physical inventory.

In the FNMCP, Section 10.6.6, "Historical ID Variance," MFFF states that "an example of an historical ID variance calculation can be found in Annex A."

16. Clarify whether an example of this calculation will be provided in Annex A of the FNMCP.

10 CFR 74.59(f)(2)(i) – Tamper-Safing

10 CFR 74.59(f) requires the licensee to establish and maintain a program for tamper-safing containers or vaults containing SSNM not in process that includes adequate controls to assure the validity of assigned SSNM values. In the FNMCP, Section 15, "tamper-safing," MFFF states that "items stored in areas that do not provide storage equivalent to tamper-safing are tamper-safed."

17. Clarify whether laboratory samples are included in the tamper-safing program.

cc:

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