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MOX SERVICES, LLC

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U.S. Nuclear Regulatory Commission
Washington, DC 20555

DCS-NRC-000406
02 December 2015

Subject: Docket Number 070-03098
CB&I AREVA MOX Services
Mixed Oxide Fuel Fabrication Facility
Response to Request for Additional Information Regarding MOX Project Quality Assurance Plan (MPQAP) Amendment Number: MPQAP-2015-002

Reference: NRC-DCS-000740, letter from NRC to CB&I AREVA MOX Services, dated September 08, 2015, Request for Additional Information Related to Amendment Number: MPQAP-2015-0002 of the MOX Project Quality Assurance Plan

CB&I AREVA MOX Services, LLC (MOX Services) hereby submits to the U.S. Nuclear Regulatory Commission (NRC) responses to a request for additional information related to MOX Project Quality Assurance Plan (MPQAP) Amendment Number: MPQAP-2015-0002 (Reference). These RAI responses did not require revision of Amendment MPQAP-2015-0002.

If you have any questions, please feel free to contact me at (803) 442-6485 or Dealis Gwyn, Licensing and Nuclear Safety Manager, at (803) 819-2780.

Sincerely,

David Del Vecchio
President and Project Manager

Enclosure:

MOX Services Response to Request for Additional Information Regarding Amendment Number: MPQAP 2015-0002

cc (w/encl.):

David Tiktinsky, USNRC/HQ

cc (w/o encl.):

Kevin Buchanan, NNSA/SRS
Scott Cannon, NNSA/SRS
Carol Elliott, NNSA/SRS
William Gloersen, USNRC/RII
Mark Gober, MOX Services
Dealis Gwyn, MOX Services
Chad Huffman, USNRC/SRS
Dennis Ivey, MOX Services
Robert Justice, MOX Services
Kevin Morrissey, USNRC/HQ
Gilles Rousseau, MOX Services
Deborah Seymour, USNRC/RII
Donald Silverman, ML&B
Paul Whittingham, MOX Services
Bryan Wilkes, MOX Services
Lauren Wylie, MOX Services
Douglas Yates, MOX Services
MOX Project Management Office Document Control Administrator (moxpmodca@srs.gov)
EDMS: Corresp\Outgoing\NRC\2015 NRC

Enclosure

MOX Services Response to Request for Additional Information Regarding Amendment Number: MPQAP 2015-0002

MOX Services Response to Request for Additional Information Regarding
Amendment Number: MPQAP-2015-0002

The following three paragraphs provide additional background information that is supportive of the specific RAI responses contained within this enclosure.

The MOX Services procurement process follows the MPQAP Section 4, Procurement Document Control, and Section 7, Control of Purchased Material, Equipment, and Services. Through these requirements, MOX Services selects suppliers appropriate to the items being procured. Selection of suppliers is based on an evaluation performed before the contract and/or purchase order is awarded. This evaluation may be by audit, survey or other allowable method. Purchase documents contain the applicable technical/quality requirements for the items being procured and are reviewed by QA prior to issuance. Depending on the acceptance method used, MOX Services may verify the quality requirements during on-site shop inspection, receipt inspection, commercial grade dedication, post-installation testing or a combination of the methods available.

Attachment B of the MPQAP was created only to address the specific requirements for QL-1LR items. These QL-1LR items are procured as commercial grade and dedicated for use as necessary. In the acquisition of QL-1LR, this attachment requires compliance with our procurement processes in Section 4 and Section 7 of the MPQAP with an exception on FM/UL certified material where our documented technical requirements do not exceed the FM/UL qualification report. If the item being procured has additional requirements beyond the FM/UL qualification, those requirements are addressed through our normal processes. This is currently addressed in the MPQAP and included in the proposed Amendment MPQAP-2015-0002 (Section 4.1, 4th bullet).

FM/UL provides their certification after a rigorous evaluation and verification of the items specific production process and test results. The process is initiated by the manufacturer requesting FM/UL certification of their product. FM/UL will verify the technical and quality controls for design and testing. MOX Services has performed surveillances on FM and UL to verify these certification processes. Based on the results of the surveillances, MOX Services considers the technical and quality review/oversight performed by FM and UL sufficient to allow acceptance of their certification. Reference the responses below for additional information on the FM/UL processes.

(1) The current version of Attachment B, Section 4.1 states that the supplier shall submit the UL or FM qualification report for the item to be procured, the UL or FM process evaluations report for the supplier, the supplier's QA manual, and the supplier's UL or FM accreditation certificate. However, the proposed amendment Attachment B, Section 4.1 states that the supplier shall submit the UL or FM qualification report for the item to be procured and the supplier's UL or FM accreditation certificate.

a. What is the technical justification for not requiring the UL or FM process evaluations reports for suppliers and the supplier's QA manual for the item to be procured?

RESPONSE: The items covered by Attachment B of the MPQAP are items that have been determined "Low Importance to Safety" and are designated in our program as QL-1LR.

MOX Services performed the onetime surveillance on both Factory Mutual (FM) and Underwriters Laboratories (UL). FM and UL perform a detailed evaluation of the item prior to providing a certification.

At the time MOX Services made the commitments for the QL-1LR program, surveillances at Underwriters Laboratory and Factory Mutual had not been performed to understand their certification or approval process. Since that time, MOX Services has performed an evaluation of UL and FM as committed to during their submittal of Revision 11, Change 3 of the MOX Project Quality Assurance Manual. Audit reports and auditor qualifications/training were reviewed as part of the MOX surveillance and no significant issues were identified (Reference MOX Surveillance Report UWL-13-VS-189 and FMA-13-VS-180). The commercial supplier is required to provide certification that he made the items requested in accordance with the QA program/processes as evaluated by UL or FM. MOX Services has determined that the process evaluation controls of UL/FM are satisfactory.

UL

The manufacturer submits samples of their product along with drawings and specifications. Certification is performed in accordance with a certification scheme that has been established for that product category. The UL engineer reviews the specification and drawings and verifies the design meets the reference standards and codes and all necessary design documentation has been received. Based on the certification scheme the appropriate standards are selected. The standards identify the requirements that must be verified through analysis or test for the product to be available for certification.

At the completion of the evaluation, a UL technical evaluation report and a procedure are prepared. The technical evaluation report documents the product investigation including test results with supporting documentation and determines whether the product meets the certification requirements. The technical procedure is provided to the customer (Manufacturer) and to the UL Follow-Up Services (FUS) inspector. The technical procedure provides direction to the customer of any special requirements, such as tests or inspections, which must be performed by the customer in order to apply the UL Mark. It also identifies to the customer any special requirements for follow-up inspection and is used by the UL FUS inspector for the initial and future follow-up inspections of the manufacturer's facility/control processes/product.

In some instances testing may be done by the customer. In these instances the customer is either pre-qualified for the performance of this testing or UL monitors the performance of the testing at the customer's facility. In all instances the results are provided to the UL engineer who evaluates the results and makes determination regarding acceptability.

Once testing is complete the tested component is broken down. A critical parts list is developed by the engineer and the information regarding the individual parts comes directly from the tested component. The critical parts list is included in the technical evaluation report and the technical procedure that is sent to the customer and the follow-up inspector.

The critical parts list is used to confirm configuration control of the component is being maintained. The customer is contractually required to notify UL of any proposed changes and obtain UL approval prior to implementation.

Accreditation of UL by others:

The list below summarizes some of the external third party organizations that have accredited UL:

1. ANSI - accredits UL as a conformity assessment body. Recertified every 5 years to ISO/IEC Guide 65, General Requirements for Bodies Operating Product Certification Systems.

2. ANSI -accredits UL for the development of standards.

3. International Accreditation Services (IAS) – Accredits UL for testing such as fire, physical, structural and fire fighting systems to ISO/IEC 17025,

4. OSHA Recognition of UL as a Nationally Recognized Testing Laboratory (NRTL).

5. Standards Council of Canada (CSA Standards) - Biennial (every 2 years) Certification to ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories. Additionally, carries a separate certification to ISO/IEC Guide 65, General Requirements for Bodies Operating Product Certification Systems.

FM

The manufacturer submits samples of their product along with drawings and specifications and request certification to a protection level/rating. The FM engineer reviews the specification and drawings and verifies the design meets the reference standards and codes and all necessary design documentation has been received. This becomes the design document set. Based on the protection class/rating the appropriate FM standards are selected. The FM standards identify the requirements that must be verified through analysis or test for the product to be available for certification. At the completion of the evaluation an Engineering Evaluation and FM Approval Document is prepared that is used for the initial evaluation of the manufacturer's facility. These documents are prepared by one individual reviewed by another and approved by a third. The final documents, if all aspects are found satisfactory, are the FM Approval report, the Technical Evaluation Report and the PDR (Project Data Record). The FM Approval reports clearly state that no changes to any documents in the design set used to perform the Engineering Evaluation may be changed without prior FM Approval.

After the satisfactory completion of the technical evaluation by analysis and/or testing a FM Approvals Report is prepared and provided to the surveillance audit person who performs the

supplier evaluation at the manufacturer's facility. The FM approval report identifies the document set that was used for the technical evaluation and testing including revision status and any special production requirements, such as testing. The evaluation is done at the facility where the product is manufactured. If the manufacturer allows the manufacture to be performed at another location, either completely or critical portions including testing, then the alternate facility is evaluated as well.

Accreditation of FM by others:

The list below summarizes some of the external third party organizations that have accredited FM Approvals to perform their activities:

1. ANSI, Standards Development Organization - accredits FM Approvals for the development of standards. Recertified every 5 years.

2. International Accreditation Services (IAS)- Accredits FM Approvals for testing such as fire, physical, structural and fire fighting systems to ISO 17025, General requirements for the competence of testing and calibration laboratories. IAS also accredits FM Approvals to ISO 17020. ISO 17020 specifies requirements for the competence of bodies performing inspection and for the impartiality and consistency of their inspection activities.

3. OSHA- Annual Certification to ISO 17025, General requirements for the competence of testing and calibration laboratories.

4. Standards Council of Canada (CSA Standards) – Biennial (every 2 years) Certification to ISO 17025, General requirements for the competence of testing and calibration laboratories

The response does not change the proposed amendment language.

b. If the supplier's process evaluation report and QA manual are not received, how does MOX Services verify the acceptability of the supplier during the purchase requisition/bid evaluation phase?

RESPONSE: Factory Mutual and Underwriters Laboratory perform detailed evaluations as stated above. By surveillance of FM and UL MOX Services has determined that receiving the FM or UL qualification report and the FM or UL accreditation certificate is sufficient for QL-1LR items. Evaluation of suppliers is performed in accordance with Section 4 and Section 7 of the MPQAP with exceptions for QL-1LR items as allowed by Attachment B.

The response does not change the proposed amendment language.

(2) In the justification for the proposed amendment, MOX Services stated that both UL and FM

perform follow-up surveillance audits after the initial certification or approval process.

a. What is the scope, frequency, and acceptance criteria for UL or FM periodic inspections of UL or FM certified/approved manufacturers to determine the manufacturer's continued compliance to requirements and design features?

RESPONSE: The FM and UL certifications require notification of any changes in the item's design documents. Both UL and FM perform follow-up surveillance audits after the initial certification or approval process, depending on the agency, is completed. These follow-up surveillance requirements are performed where the product is manufactured. If the manufacturer allows manufacturing to be performed at another location, either completely manufactured or critical portions of the manufacturing which includes testing of the item, then UL or FM then evaluates the alternate facility.

The response does not change the proposed amendment language.

b. What oversight does MOX Services perform regarding UL and FM periodic inspections of UL or FM certified/approved manufacturers?

RESPONSE: MOX Services performed surveillances at both FM and UL as delineated in the MPQAP. This was a onetime requirement (Reference MPQAP, Attachment B Section 4.1). As previously committed, MOX Services will continue to request UL or FM Qualification Report and the supplier's UL or FM accreditation certificate and perform a technical review of these documents prior to accepting QL-1LR items for use at MOX. MOX Services will perform oversight of suppliers as described in the MPQAP Section 4, Procurement Document Control; Section 7, Control of Purchased Material, Equipment and Services, and Attachment B, Augmented QA Program for IROFS (Low Importance to Safety).

The response does not change the proposed amendment language.

(3) In the justification for the proposed amendment, MOX Services states that EPRI NP-5652, Method 4, Item/Supplier Performance Record, discusses allowing the purchaser to accept commercial grade items based on confidence in the supplied item through proven performance of the item. MOX Services also states that it committed to monitor both UL and FM on a quarterly basis and review recalls from both of these organizations in order to continuously monitor products for quality issues. EPRI NP-5652, Method 4 states that a documented item or supplier performance record is a method of acceptance that may be used under certain stipulations to verify acceptability of one or more of the identified critical characteristics of a commercial-grade item or service. As stated in NRC Generic Letter 89-02, Method 4 should not be employed alone unless the established historical record is based on industry-wide performance data that is directly applicable to the item's critical characteristics and the intended safety-related application.

a. How does monitoring UL and FM recalls on a quarterly basis to monitor products for quality issues establish an effective item performance record, provide assurance that critical characteristics have been met, and assure that the intended safety-related application will be satisfied?

RESPONSE: As stated above, once that FM or UL has provided certification of the item, changes have to be re-evaluated and approved. FM and UL use public notification "alerts" to warn users of items which may be faulty or counterfeit. By reviewing these "alerts" MOX Services can evaluate items to determine if any have been received or used. Any item with a potential of having been used is evaluated to determine if it was procured and used on the project. This evaluation is monitored through the Lessons Learned Program. All evaluation results and actions are captured in the records.

The response does not change the proposed amendment language.

(4) The current version of Attachment B, Section 4.1 states that the accreditation organizations test/qualification report for the item to be procured in conjunction with normal construction/preoperational/start-up testing is reviewed by MOX Services and has been determined to be sufficient to demonstrate that the item will perform its safety function.

However, in the proposed amendment MOX Services deleted the word "test" from "the accreditation organizations test/qualification report."

a. What is the technical justification for deleting the requirement for the test report?

RESPONSE: The qualification report contains the necessary testing information. By using both test and qualification it was implied that two different reports were received.

The response does not change the proposed amendment language.

(5) The proposed amendment of Attachment B, Section 4.1 MOX Services deleted the statement that the accreditation organizations evaluation of the technical and quality capability of the suppliers' process controls is reviewed by MOX Services and has been determined to be sufficient to provide reasonable assurance that the manufactured items are representative of the item tested.

a. What is the technical justification for deleting the requirement for the MOX Services review of the accreditation organizations evaluation of the technical and quality capability of the suppliers' process controls?

RESPONSE: MOX Services performed surveillances at both FM and UL as delineated in the MPQAP. This was a onetime requirement (Reference MPQAP, Attachment B Section 4.1). Electric Power Research Institute document NP-5652 (as conditionally endorsed by NRC Generic letter 89-02) discusses four methods of acceptance for the verification of critical characteristics. One of those methods, Method 4- Acceptable Supplier/Item Performance, discusses allowing the purchaser to accept commercial grade items based on confidence in the supplied item through proven performance of the item. Performance of the item is established via UL/FM test and their auditing of supplier tests for specific UL/FM items. MOX services committed to monitor both UL and FM on a quarterly basis and review recalls from both of these organizations in order to continuously monitor products for quality issues. This requirement is listed in Attachment B, Augmented QA Program for IROFS (Low Importance to Safety), to the MPQAP.

The response does not change the proposed amendment language.

(6) The proposed amendment of Attachment B, Section 4.1 states that the accreditation organizations qualification report for the item to be procured in conjunction with normal construction/preoperational/start-up testing is reviewed by MOX Services and has been determined to be sufficient to demonstrate that the item will perform its safety function.

Following this section, MOX Services added the following note: If UL or FM approves an item to a standard and engineering determines that meeting that standard meets the needed safety requirements, then the UL or FM report is no longer required.

a. Please describe how MOX Services engineering performs its review and documents its determination, and where the records are maintained, of whether the UL or FM accreditation qualification report for the item to be procured, in conjunction with normal construction/preoperational/ start-up testing, is sufficient to demonstrate that the item will perform its safety function.

RESPONSE: The submittals requested by the manufacturer/supplier will be supplied and processed in accordance with PP10-14, SUPPLIER/SUBCONTRACTOR TECHNICAL DOCUMENT SUBMITTAL MANAGEMENT. Once the contract is awarded, the Subcontract Administrator/Subcontractor Technical Representative shall provide basic information to the Project Records Center (PRC) needed by the PRC to process Contractual Submittals using Form PP10-14A: Subcontract Submittals Information. The manufacturer/supplier of the UL/FM item will submit the required documentation which will then be forwarded to the responsible engineer for evaluation against the required technical requirements for the item. Upon receipt of the completed PP10-14A, the PRC establishes a folder within the electronic Document Management System for filing the subcontract documents which are linked to the contract. Subsequent procurements for the same UL/FM item which is manufactured to the same technical and quality requirements as reviewed and approved by UL/FM may not require re-submittal of the same documents. However, a link to the documents which were originally submitted and approved for the UL/FM item shall be maintained.

The response does not change the proposed amendment language.

b. Please clarify what UL and FM reports are no longer required and the technical justification for eliminating the requirement for the documentation.

RESPONSE: If UL or FM approves an item to a standard and engineering determines that meeting that standard satisfies the needed safety requirements; then the UL or FM report is no longer required.

The response does not change the proposed amendment language.

(7) Attachment B, QL-1LR Applicability, of the MPQAP references Attachment B, Sections 4.1A,

B, C, and D. However, Attachment B, Section 4.1 does not identify subsection letter designations. Please clarify the subsection letter designations listed in Attachment B.

RESPONSE: The formatting was lost in Attachment B, Section 4.1 when changes were made in Revision 13 of the MPQAP. The change involved moving 4.1.C to Section 7 of the MPQAP. The formatting will be re-established during the annual update in January 2016.

The response does not change the proposed amendment language.

(8) Attachment B, Section 4.1 states that "IROFS may be procured directly from suppliers...."

a. Please clarify whether MOX Services procures IROFS directly from suppliers, or if it procures SSCs that will be designated as basic components and subsequently identified as IROFS through the dedication process.

RESPONSE: MOX Services may procure IROFS either directly from suppliers or as SSCs that will be designated as basic components. All procurements designated QL-1 or QL-2 are controlled under the requirements of Sections 4 and 7 of the MPQAP. Items designated as QL-1LR are procured under the requirements of Sections 4 and 7 of the MPQAP with the exceptions noted in Attachment B, Section 4.1 of the MPQAP.

The response does not change the proposed amendment language.

b. Please clarify if Attachment B, Section 4.1 applies to the procurement of commercial grade items alone or if it also applies to the procurement of basic components. If basic components are procured using the UL/FM accreditation process how is the UL/FM accreditation process used?

RESPONSE: Attachment B of the MPQAP identifies controls which apply to those items designated as “QL-1LR” (Low Relative Importance to Safety). The controls for procurement are found in Section 4 and 7 of the MPQAP and Attachment B identifies exceptions for those items identified as QL-1LR.

The response does not change the proposed amendment language.