



U.S Nuclear Regulatory Commission  
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Washington, DC 20555-0001

DCS-NRC-000455  
25 April 2017

Subject: Docket No. 070-03098  
CB&I AREYA MOX Services  
Mixed Oxide Fuel Fabrication Facility  
Amended Response to Apparent Violations in NRC Inspection Report 70-3098/2016-005, EA-16-010

Reference: Letter from David Del Vecchio to US NRC, DCS-NRC-000431, dated 17 August 2016 entitled "Response to Apparent Violations in -NRC Inspection Report 70- 3098/2016-005, EA-16-010"

MOX Services is issuing an amendment to the NRC Letter, DCS-NRC-000431 dated 17 August 2016. The amendment provides clarification on the implementation of the Corrective Actions taken by MOX Services in response to the Apparent Violations identified in NRC Inspection Report 70-3098/2016-005. Specifically, Sections 3 and 4 of the DCS-NRC-000431 are rewritten consistent with MOX CR 15-112 and implementation of the subsequent corrective actions. These are contained in the attached enclosure.

If you have any questions, please contact me at (803) 442-6485, or Eric Radford, Regulatory Compliance Manager, at (803) 819-8625.

Sincerely,

David Del Vecchio  
President and Project Manager

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Enclosure:

CB&I AREVA MOX Services Amended Response to Apparent Violations

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Enclosure  
CB&I AREVA MOX Services  
Amended Response to Apparent Violations

Updated Sections:

### **3. *Corrective steps that have been taken and the results achieved***

The defective ledger plates were procured during the 2008-2010 time frame. Prior to discovery of the ledger plate welding issues in 2015, MOX Services initiated additional enhancements to improve vendor quality starting in the spring of 2010. This effort was the result of an analysis of project NCRs that identified supplier performance issues. Enhancements included:

- Recalling shop inspection personnel for refresher training as to management expectations, process tools to be used, and inspector responsibilities.
- Developing a MOX Quality Assurance Source Inspection Process Checklist that was provided to all MOX Shop Inspection Personnel. Both the checklist and the management expectations for checklist use were discussed with the shop inspectors.
- Developing a Shop Inspection Expectations document. The purpose of the expectation document was to clearly communicate to the shop inspection personnel the expectations for verification of design compliance, verification of materials of constructions, verification during the fabrication process, verification of test and inspection performance, and product acceptance, packaging and testing.

In addition to the above stated changes, the shop inspection resources were increased as well as the number of in-process inspections at the supplier shops. The purposes for the in-process inspections were to:

- Establish confidence that suppliers were implementing their approved QA program.
- Provide reasonable assurance that supplier product would be in compliance with specification requirements at final release.

On the basis of these actions, supplier non-conformances were significantly reduced over a 2-year period.

MOX Services has also completed the following additional corrective actions.

- Confirmation that subcontract submittals required by the procurement specification were provided and reviewed by the appropriate parties. Specifically, a comprehensive review of submittals from 38 Vendors was performed that verified required submittals were received, reviewed, and approved in accordance with the specification submittal requirements.
- Confirmation that Receipt Inspection Packages contain the documentation required by the procurement specification. (Examples of appropriate documentation included drawings, welder qualifications, shop travelers, weld maps, inspector qualifications, CMTRs, radiographs, hydro tests, etc.)
- Confirmation that receipt inspectors have completed an 8-hour training course in weld inspection
- Establishment of criteria for progressive shop inspections to confirm technical and quality attributes throughout manufacturing.
  - a) Development of QOP-008, Rev.0 - *QC Program Vertical Slice Inspections* for performing surveillances to confirm that the Supplier is performing in accordance with procurement documents.

- b) Development of guidelines for record reviews based on results of a sampling of each record type.
  - c) Conduct vertical slice inspection surveillance of Suppliers using newly developed QOP-008, Rev.0 - *QC Program Vertical Slice Inspections* procedure.
  - d) Added requirement for Final Shop Inspection and Receipt Inspections to ensure documented objective evidence of what was inspected and the criteria evaluated against (design, code, and standard acceptance criteria).
- Conducted an audit of SMCI on 4 June 2015, SMCI-15-VE50 R1. Based on the results of the audit:
    - a) SMCI is maintained on the MOX Services Approved Supplier List as a QL-1 supplier of metal fabrication (i.e. embed plates, beams) and supplier of raw materials, (i.e. plates, pipe, and bar stock).
    - b) Added following ASL restriction for SMCI:
      - “MOX Services Supplier Deficiency Reports (SDRs), (SMCI-15-VE50-01 through 12) To be satisfactorily addressed, accepted, and verified by MOX Services prior to issuance of additional procurements for the MOX Project.” This is in addition to the current restrictions which still apply:
        1. SMCI's qualification for welding is limited to automatic stud welding. MOX approval is required prior to any other types of welding being performed.
        2. SMCI is not authorized to perform Design Activities.

#### **4. Corrective steps that will be taken**

In addition to the actions taken, the additional items below are either in progress or planned consistent with CR-15-112 corrective action plan.

To ensure there are no issues with other SMCI supplied components, SMCI fabricated welds in inventory will be evaluated for compliance with specification requirements consistent with a defined sampling plan. NCRs will be initiated for any identified non-conformances.

While there is no evidence that a similar issue exists with other vendor supplied welded equipment, any welded equipment delivered to MOX Services between November 2008 and June 2010 will be subject to inspection based on a statistical sampling plan. NCRs will be initiated for any identified non-conformances.

To further enhance the vendor oversight process at MOX Services, Project Assurance in collaboration with Engineering will update the Quality Inspection Plan to capture engineering design attributes to be inspected both in the vendor facility as well as during receipt inspection. These enhanced inspection plans will address:

- Surface finish for powder
- Window Frame Flatness
- Weld configuration
- Verification of critical dimensions
- Verification of base plate mounting holes
- Surface finish and flatness of electrical penetrations
- Verification that Vendor inspectors/welders are performing work in accordance with approved procedures
- Verification that work is being performed in accordance with approved procedures

In addition, receipt inspectors will be required to obtain 10 hours of on-the-job weld inspection with a certified weld inspector.

The above completed and planned corrective actions will restore compliance with the licensing design basis, further improve MOX Services vendor oversight, and enhance the receipt inspection process to minimize the potential of a recurrence of a similar issue. In addition to these actions, MOX Services is also utilizing the issue to spotlight the need for a questioning attitude when working in a nuclear environment. This will be done through a video entitled "Spotlight on HPI – A Questioning Attitude" which will be required of MOX staff during annual CAT training.