



DCS-NRC-000237  
09-June-2009

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Subject: Docket No. 70-3098  
Construction Authorization No. CAMOX-001  
Reply to a Notice of Violation

Reference: 1. Letter from M. Scott Freeman to David Stinson dated May 11, 2009 entitled "MIXED OXIDE FUEL FABRICATION FACILITY-NRC INSPECTION REPORTS 70-3098/2009-007 and 008 AND NOTICE OF VIOLATION"

In accordance with 10 CFR 2.201, Shaw AREVA MOX Services hereby responds to the Notice of Violation contained in Reference 1. Our response is attached. MOX Services does not dispute the violation; however, as explained in our attached response, we disagree with four of the nine examples of the violation.

If you have any questions, please contact Dealis Gwyn, Licensing and Regulatory Compliance Manger, at (803) 819-2780.

Sincerely,

*for* *W L Elliott*  
David Stinson  
President and COO

*JE09*  
*NMSS*

*A/1*

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Violation 70-3098/2009-007-001 states in part, "...MOX Services failed to ensure that services were controlled to assure conformance with specified technical and QA requirements, as evidenced by the following examples where the individual suppliers failed to meet a basic requirement of NQA-1."

MOX Services has divided the nine violation examples into four categories as follows:

- Submittal Deficiencies – this category includes examples BF Shaw 1, 2, and Joseph Oat Corporation (JOC) 1.
- Supplier Audit Deficiency - this category includes example BF Shaw 4.
- Supplier Oversight Deficiency - this category includes example JOC 4.
- Items that MOX Services believes should not be examples - this category includes examples BF Shaw 3, 5, JOC 2, and 3.

## **Submittal Deficiencies**

### **Independent Submittal Review Evaluation**

As a result of the deficiencies discussed at the two supplier site inspection exit discussions, MOX Services initiated an independent evaluation into the submittal review process. This evaluation identified the following two general weaknesses within the submittal review process.

1. The submittal review process does not have a control element to clearly verify that submittals required to support specific milestones, such as commencement of welding, have been submitted and approved. Condition Report (CR) 20090147 was initiated to develop a corrective action plan. The corrective actions include:
  - The Procurement Engineering Group within MOX Services Engineering has been assigned to evaluate and appropriately revise the supplier submittal management process. This work is on-going and currently planned for completion by 15-July-2009.
  - MOX Services plans to evaluate awarded QL1 subcontracts/orders to ensure required technical and quality-related submittals (as specified in both the invoked specifications and subcontract/order terms and conditions) are clearly known to the Subcontract Technical Representative (STR) and supplier, to evaluate if submittals required to begin a phase of work or milestone have been received, and make clear the time frame of need for submittals not yet submitted. This evaluation is planned for completion by 15-August-2009.
  - Changes to the supplier submittal management process, approved in a 12-May-2009 revision to PP10-14 have been assigned as required

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reading to affected personnel. In addition, MOX Project personnel are routinely advised of procedure changes via email and personnel are directed to review the changes before performing work to the procedure.

2. The implementation of the submittal review process does not provide sufficient guidance to ensure consistency of interface reviews and ensure those reviews are complete prior to disposition of the submittal. CR 20090135 (incorporating CR 20090149) was issued to address this weakness. The corrective actions for CR 20090135 are scheduled to be complete by 30-September-2009.

In addition to the above, each of the examples discussed in the inspection report are discussed below.

**BF Shaw Example 1:**

Inadequate disposition of "Use-As-Is" for nonconformance Reports V2382 and V2389. These reports were submitted to MOX Services for their review and approval. In both cases, MOX Services approved the nonconformance with the disposition of "Use-As-Is" without the required technical justification provided. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 15, Nonconforming Materials, Parts or Components.

**Response to BF Shaw Example 1:**

This deficiency occurred due to an inadequate MOX Services project procedure, PP10-14, on management of supplier submittals. The procedure did not recognize the special circumstances that need to be taken into account for management of supplier submitted nonconformance reports (NCRs), particularly related to those with proposed disposition of "Repair" or "Use-As-Is". This deficient procedure led to personnel being improperly instructed and trained on the required actions related to processing, review and acceptance of supplier NCRs. As a result, personnel involved in the processing, review and approval of BF Shaw's NCRs V2382 and V2389 were not aware that the technical justification for NCRs dispositioned "Use-As-Is" required the technical justification to be documented. MOX Services Engineering personnel reviewed and evaluated the dispositions proposed by BF Shaw, agreed with and approved the proposed action, but failed to understand the need to ensure the technical justification was documented and linked to the NCR (i.e. included in the NCR or in a document referenced by the NCR).

Upon identification of the deficiency, MOX Services initiated CR 20090096. This CR was initiated on 16-March-2009 and approved as a Level C CR by the Management Review Committee on 19-March-2009. Our investigation of the CR concluded that this event was an indicator of a lack of understanding by MOX Services Engineering personnel of the requirement to ensure that documentation

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demonstrating that an adequate technical justification for the changes involved with Engineering Change Requests (ECRs) and NCRs with proposed dispositions of "Use-As-Is" or "Repair" is provided. Two actions were identified in the CR to correct the identified deficiencies. First, Engineering was assigned the action to develop a training course for Engineering staff and to present the training to personnel that would be involved in developing or accepting technical justifications for engineering changes. The course has been developed and presented to appropriate Engineering personnel via classroom instruction/discussion. Second, Interim Change Notice (ICN) No. 1 was issued to revise Project Procedure PP10-14, revision 3, to provide specific instructions to project personnel on the handling of supplier submitted NCRs, with particular emphasis on NCRs with a proposed disposition of "Repair" or "Use-As-Is".

MOX Services personnel with Project Procedure PP10-14 identified in their training profile will complete required reading training within the time frame and under the controls established in the MOX Services training program. This action for affected personnel should complete by 30-June-2009, unless circumstances require an extension of time for specific individuals. In addition, Project personnel are advised of procedure changes via email and personnel are directed to review the changes before performing work to the procedure.

MOX Services believes that the actions discussed above were appropriate, timely and responsive to the cited deficiency example, and have resulted in correcting the deficient procedure that was the main contributor to the failure by MOX Services to ensure technical justifications were documented in the cited BF Shaw NCRs. We believe the procedure change coupled with the awareness training regarding the importance of and need for documented technical justifications for engineering changes that was conducted with appropriate Engineering personnel will avoid future issues.

**BF Shaw Example 2:**

BF Shaw procedure BFS-8754-VT-1, Visual Inspection Procedure, Revision 0, did not meet the requirements of ASME Boiler and Pressure Vessel Code (BPVC), Section V, Article 9, Visual Examination. This procedure was to be used for inspections during the fabrication of Quality Level (QL)-1 piping and was reviewed and accepted by MOX Services. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 9, Control of Processes.

**Response to BF Shaw Example 2:**

The apparent cause of this example of the violation was that the Subcontractor Technical Representative (STR) did not properly coordinate the review of BFS-8754-VT-1, Visual Inspection Procedure, with MOX Services' Level III, NDE expert.

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MOX Services has reviewed previous BF Shaw NDE procedures approved by the STR. The review concluded that the other NDE procedures were adequate. The subject VT procedure (BFS-8754-VT-1) has been revised, reviewed and approved.

CR 20090135 was generated to address the concern. Corrective actions are scheduled for completion by 30-September-2009.

**Joseph Oat Corporation (JOC) Example 1:**

JOC was not in compliance with the requirements of MOX Services Specification DCS01-KKJ-DS-SPE-L-16265-3, Section 4.6, and MOX RFI-1415-057, dated August 13, 2009 (sic), which specified requirements for reporting of weld defects and repairs to MOX services. JOC fabricated tanks without a formal weld repair/rework procedure in place. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 5, Instructions, Procedures and Drawings. MOX Services accepted QL-1 and QL-2 tanks with this deficiency.

**Response to JOC Example 1:**

The apparent cause is that MOX Services did not provide effective oversight of supplier submittal process to ensure that a weld repair procedure was submitted and approved prior to initial welding.

JOC has issued procedure WPS-2656-1, Rev. 0 titled "Repair of Weld and Base Metal Defects". MOX Services has reviewed and approved the procedure with exceptions ("Approved – Except As Noted") as of 19-May-2009.

There is no impact on the tank welds performed prior to approval WPS-2656-1 since reworked welds were radiographed after rework, and tanks were subjected to helium leak tests and hydrostatic tests.

Actions to preclude recurrence are described in our submittal review process self-evaluation described on Page 1 of this Attachment.

## **Supplier Audit Deficiencies**

**BF Shaw Example 4:**

MOX Services failed to review the BF Shaw implementation and use of weld repair/rework memos and quality control (QC) memos. These documents were described in the BF Shaw Quality Manual. And, while they were adequate for documenting weld defects that require repair, MOX Services failed to identify that the BF Shaw program was not in compliance with Section 3.7 of the specification DCS01-KKJ-DS-SPE-M-15120-1, Shop Fabrication of Piping, Revision 1. Audit BFS-08-VE37 did not sample the vendor's use of either the QC memo or the

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weld repair/rework memo. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 9, Control of Processes.

**Response to BF Shaw Example 4:**

The apparent cause was incomplete review by the audit team. While the audit team did select a sample of NDE procedures, associated qualifications, Nonconformance Reports and Corrective / Preventative Action Reports, they did not select a sample of the QC memos and repair/rework memos for review during the audit. There was an overreliance on the use of classical documents (Nonconformance report, corrective action document) rather than identifying the complete set of documents used.

On 20 April 2009, the MOX Quality Assurance Supplier Audit Group had a training session to discuss this issue which was documented on Condition Report 20090101. The training focused on attention to detail when reviewing supplier quality programs with emphasis on unique vehicles, (e.g. QC memo, weld repair/rework memo), used to document quality activities.

To resolve the inconsistency with the specification, B.F. Shaw procedure BFS-8754-VT-1 was revised to require the noted memos to be retained with the shop copy of the drawing and to be submitted to MOX Services for review at final inspection.

MOX Services was in full compliance as of 20-April-2009.

## **Supplier Oversight Deficiencies**

**JOC Example 4:**

JOC had not performed liquid penetrant testing of repair welds following radiography as dictated by the MFFF procurement specification, DCS01-KKJ-DS-SPE-L-16265-3. Section 4.6, of this specification, Repairs While in Fabrication, stated in part, "All weld repairs to process boundary materials and completed welding shall be fully radiographed and PT tested." This represented a noncompliance to the requirements of NQA-1, Basic Requirement 5, Instruction, Procedures, and Drawings.

**Response to JOC Example 4:**

The apparent cause was that JOC and MOX Services did not recognize the specific requirements contained in paragraph 4.6 of DCS01-KKJ-DS-SPE-L-16265-3 which requires developing a weld repair procedure and the required penetrant test (PT) to be performed in addition to radiography test (RT) on repaired welds.

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Supplier/Subcontractor Deviation Disposition Request (SDDR) 1415-042, was submitted by JOC on 13-May-2009. The SDDR lists Deficiency Notices (DNs) for tanks which had weld repair with RT testing but where JOC failed to perform the required PT test after the RT. The SDDR provides technical justification for acceptance of the tank repair welds when the PT had not been performed after the RT. The SDDR and technical justification was accepted by MOX Services on 19-May-2009.

Three Condition Reports (CRs) were initiated to resolve clarification of reporting of weld defects to MOX Services. CR 2009-0115 references Request For Information (RFI)-1415-057 Rev 0 which requests a specification clarification in the reporting of defects. Based on the RFI, Engineering has initiated ECR-002242 to address the issue of reporting weld defects. CR 2009-0116 was initiated to identify that JOC is required to submit a weld repair procedure for approval per Specification DCS01-KKJ-DS-SPE-L-16265-3 paragraph 4.6, "Repairs While In Fabrication". CR 2009-0202 was issued to document that neither MOX Services source verification nor receiving inspection identified that required PT inspection reports were missing from the documentation package for eight of the delivered tanks. Based on the investigation PTs were not done for weld repairs on seven of those tanks and on one tank the weld repair PT was performed but not included in the package. MOX Services performed interim corrective action by having the receipt inspection staff formally briefed on the specific circumstances regarding this condition and having receipt inspection enhance their inspection to verify that any repair welds had appropriate NDE reports in the documentation package. This inspection is in addition to the documentation verifications performed at the supplier's facility. The investigation into this condition is currently in process and will be complete by 7-July-2009. Until the corrective action plan is developed and implemented the interim actions shall remain in place.

MOX Services Specification DCS01-KKJ-DS-SPE-L-16265-3 paragraph 4.6 is vague and open to various interpretations relative to weld repairs. The specification requirements have been revised by ECRs-002242 and 002143 to provide clarity toward the weld repair NDE requirements as required by ASME Section VIII and the MOX Services weld procedure submittal requirements.

### **Items that MOX Services Believes Should not be Examples**

MOX Services believes that the examples below should not be examples of the violation; nonetheless, these examples require resolution. The actions to resolve the conditions are discussed below.

#### **BF Shaw Example 3:**



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One BF Shaw Level II examiner did not meet the minimum passing score for a certified Level II examiner in visual examination and in magnetic particle examination. This represented a noncompliance with Supplement 2S-2 of NQA-1, Basic Requirement 2, Quality Assurance Program. This NDE examiner was to be used for inspections during the fabrication of QL-1 piping and the examiners was authorized for the MFFF project.

**Response to BF Shaw Example 3:**

This issue is not a MOX Services supplier oversight/review issue. When performing the review of personnel qualifications it is not normally a function of the MOX Services reviewer to verify that each specific test score is correctly tabulated. If during the review of the qualification records the reviewer observes an inconsistency in the records they may perform a more in-depth review.

The apparent cause for the violation was inattention to detail on the part of the BF Shaw QC Manager during the performance of scoring the General, Specific and Practical Examinations for BF Shaw NDE personnel.

The BF Shaw QC Manager was coached on attention to detail.

BF Shaw has administered a re-test in the methods of VT and MT to the noted examiner. MOX Services reviewed re-test results in the methods of VT and MT administered to the noted examiner and verified that the scores of the re-test meet the minimum requirements. The review verified that the noted examiner has been re-qualified/re-certified to perform VT and MT activities.

MOX Services QA performed a surveillance at the BF Shaw facility and evaluated the testing documentation for five BF Shaw inspection personnel assigned to perform NDE activities for the MOX Project. The evaluation determined that they were qualified and certified to perform their assigned duties with passing examination scores. However, the scores for three of the five BF Shaw individuals evaluated were determined to have incorrectly tabulated scores for one or more of the following examinations, i.e. General, Specific and/or Practical. However, none of these math errors affected the qualifications of the BF Shaw inspection personnel. It was determined that no work has been performed for the MOX Project to date by these three individuals. MOX QA issued SDR (BFS-09-VS159-01) to identify these inconsistencies.

**BF Shaw Example 5:**

BF Shaw failed to enter and track the disposition of the Supplier Deficiency Reports (SDRs) resulting from the MOX Services audit findings of June 8, 2008 into their corrective action program. These SDRs contained several findings that were conditions adverse to quality. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 16, Corrective Action.

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**Response to BF Shaw Example 5:**

MOX Services does not agree that this issue is a violation of NQA-1 or that it was related to inadequate oversight. The SDRs are MOX quality records and are maintained and tracked in the MOX SDR Log. MOX Services sees this issue as an Opportunity for Improvement for BF Shaw to enhance their QA program in the area of tracking deficiencies identified by an external source.

MOX Services supplier audit findings are processed and tracked in accordance with NQA-1 Supplement 7S-1, Section 9 entitled "Control of Supplier Nonconformance's and Supplement 18S-1, entitled "Supplementary Requirements for Audits", Section 5, "Reporting" and that NQA-1 criteria 16 did not apply.

The SDR's that were issued to BF Shaw in audit report BFS-08-VE37 have been reviewed, verified and closed by MOX QA.

BF Shaw initiated corrective action document C/PAR 222 to track this item. BF Shaw's path forward was discussed with MOX QA and was determined to be an enhancement to current practices. A "Log of External Deficiency Reports" has been established at BF Shaw to track externally identified deficiencies. It will identify future deficiencies with a unique number. The corrective action also requires changes to the BF Shaw QA Manual to reflect these additional requirements, and this is scheduled to be complete by 31-July-2009.

**JOC Example 2:**

MOX Services reviewed the applicable welder qualifications and failed to identify that a welder, who had welded on Mixed Oxide Fuel Fabrication Facility (MFFF) small diameter piping, was not qualified in accordance with ASME Section IX QW-302.2 requirements. Specifically, the welder qualification was performed on 5¼ inch (") length of test coupons for a Nominal Pipe Size (NPS) that required a minimum of 6". This represented a noncompliance to the requirements of NQA-1, Basic Requirement 9, Control of Processes.

**Response to JOC Example 2:**

The identified welder qualifications were submitted to MOX Services for approval prior to JOC performing any welding activities. The qualifications were determined to be acceptable within the qualification limitations. The welder performed welding outside the limitations approved by MOX Services. MOX Services source surveillance / inspection monitors welding activities and qualifications of welders at the JOC location. For example, report JOC-08-VS200, reviewed the qualification records for five welders to verify that the welders were qualified for the welding being observed. The welder in question (ID485) was included in this review. However, at that time the welder was

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welding within the qualification limitations. The fact that NRC observed the welder working on another weld outside his qualification, contrary to JOC procedures, does not represent an example of oversight process failure. However, it does identify a condition that requires investigation and correction.

The apparent cause was that the JOC welder was working outside his qualified range, because, in part, the foreman failed to verify the individual welder's qualification prior to assigning the individual to welding activities.

The condition identified by the NRC Inspector resulted from inattention to detail by the responsible welder and foreman and where the internal process lacks sufficient controls to assure the welder qualifications and limitations are verified to be within the parameters of the welding activity prior to assignment of the individual.

JOC qualified welder # 485 for small diameter pipe. Additionally, JOC reviewed welder qualification files to determine extent of condition. Based on evaluation of welder performance and successful NDE of welds performed by welder, no additional review of welding by this individual is necessary.

JOC provided training on welder qualifications including ASME Section IX requirements and instituted a software program to track welder qualification and prevent their assignment to welding activities outside of their qualification limits. These actions were completed on 22-May-2009.

**JOC Example 3:**

While observing an in-process liquid penetrant examination and visual examination of QL-1 Tank 31, weld No.100, a level II examiner failed to perform the examination in accordance with the approved procedures. This represented a noncompliance to the requirements of NQA-1, Basic Requirement 9, Control of Processes.

**Response to JOC Example 3:**

The condition is considered to be an isolated occurrence and not indicative of inadequate supplier oversight or review. The apparent cause was a lack of attention to detail by an individual inspector who failed to re-test an inspection clean area after the area became potentially contaminated from coming in contact with a dirty roller.

The NRC Inspector's concern regarding weld spatter located on the inside of tank #31 was discussed with the JOC QC Manager who indicated the Inspector was assigned to perform the PT on tank #31 Weld #100. The inspection did not include an internal inspection of the tank. The existence of weld spatter on the inside of the tank would have been identified during the tank internal inspection.

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The internal inspection had not yet been completed at the time of the PT examination.

Tank 31, Weld 100 PT examination was re-performed on 03-Apr-2009 with satisfactory results. The weld spatter inside the tank was removed and the area re-examined. Additionally, JOC provided training to inspection personnel on 21-Apr-2009.

The condition is considered to be an isolated occurrence where the weldment was determined to be acceptable based on a re-examination. Conversation with JOC NDE personnel confirmed the tanks are typically positioned on the rollers to avoid potential roller contact with the welds to be inspected. Training was provided by Joseph Oat Company to inspection personnel on attention to detail to ensure their understanding of the procedure requirements.