



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

May 17, 2011

EA-11-058

Mr. Kelly D. Trice
President and Chief Operating Officer
Shaw AREVA MOX Services
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

**SUBJECT: MIXED OXIDE FUEL FABRICATION FACILITY – NRC INSPECTION REPORT
NO. 70-3098/2010-004 - RESPONSE TO DISPUTED NOTICE OF VIOLATION**

Dear Mr. Trice:

Thank you for your response dated March 10, 2011, to the Notice of Violation (NOV) issued on February 10, 2011. The NOV was in regards to the inspections conducted October 1 through December 31, 2010, at your Mixed Oxide Fuel Fabrication Facility (MFFF). We acknowledge receipt of your reply to NRC Inspection Report No. 70-3098/2010-004.

In your letter you dispute that Violations C (70-3098/2010-004-003) and D (70-3098/2010-004-004) are separate violations. Although you agreed with the conditions described in both violations, you contend that the descriptions are of a single condition and therefore constitute a single violation. You also dispute the severity level of Violation E (70-3098/2010-004-005). While you agreed with the violation, you contend that it does not constitute a Severity Level IV violation.

We have evaluated your response to the three violations you dispute and conclude that the violations occurred as stated. The bases for our determination are described in the enclosure to this letter. Violation 70-3098/2010-004-003 involved a failure associated with translation of applicable American Welding Society (AWS) code requirements into design documents for Nelson H4L Stainless Steel Studs used in your facility. Specifically, the minimum yield strength specified in Shaw AREVA MOX Services' (MOX Services') Design Specification DCSO1-XGA-DS-TRD-B-09053-C, December 6, 2007, "Technical Requirements Document for the Design of Concrete Embedment" was lower than the minimum requirements of the applicable code, AWS D1.6-1999, "Structural Welding Code for Stainless Steel." Violation 70-3098/2010-004-004 involved a failure associated with translation of material requirements into procurement specifications. Specifically, MOX Services did not change the requirements for the Nelson Studs (H4L) specified in Purchase Order/Subcontract Number 10888-S1381 after agreeing with the supplier's/contractor's request to deviate from the material requirements.

You contend that these two failures represent the same problem, failure to initiate an Engineering Change Request (ECR) when required. We acknowledge that the ECR process, if fully implemented, could have been used as a common fix for each violation, however, we believe that these issues represent failures of different processes affecting quality.

Violation 70-3098/2010-004-005 involved MOX Services' failure to ascertain that activities were conducted in accordance with the applicable code requirement. Specifically, the stud welding of carbon steel studs to stainless steel embedded plates was not in accordance with the requirements of the applicable code, AWS D1.1-1998, "Structural Welding Code for Steel." You disagreed with the severity level of the violation. In your response, you indicated that your confidence in the safety and quality of the welds made with low carbon steel studs to stainless steel base plates was based on the satisfaction of all purposes of your weld program, specifically that: 1) the process for welding 5/8-inch diameter carbon studs to stainless plate was proven by Nelson [the stud manufacturer] doing a stud base qualification; 2) the parameters for Specialty Maintenance and Construction, Inc. (SMCI) welding were established on a daily basis by doing the pre-production testing as required by the code; and 3) the performance of a qualified welder was demonstrated by the pre-production testing. You also stated that subsequent qualification of the welding process by the vendor did not result in any changes to the welding parameters that had been used. We acknowledge that the impact of this issue did not require modifications to the welds performed or the process used; however, the violation involved the failure to accomplish an activity affecting quality that resulted in the quality of numerous welds being indeterminate. Pursuant to our enforcement guidance, this warrants assignment of a Severity Level IV to the violation.

You are required to provide a response to Violations 70-3098/2010-004-003, 70-3098/2010-004-004, and 70-3098/2010-004-005 in accordance with 10 CFR 2.201. The three violations will remain open until the NRC has verified implementation of MOX Services' corrective actions during a subsequent inspection.

We have also evaluated your response to Violations A (70-3098/2010-004-001) and B (70-3098/2010-004-002), violations that you did not dispute, and found that your response meets the requirements of 10 CFR 2.201. Your proposed corrective actions appear to be adequate. The violations will remain open until we have verified implementation of your corrective actions during future inspections.

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

K. Trice

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If you have any questions regarding this correspondence, please contact Kathleen O'Donohue at 404-997-4469.

Sincerely,

/RA/

Jimi T. Yerokun, Acting Director
Division of Construction Inspection

Docket No: 70-3098
Construction Authorization No.: CAMOX-001

Enclosure: NRC Evaluation and Conclusion

cc w/encl: (See next page)

If you have any questions regarding this correspondence, please contact Kathleen O'Donohue at 404-997-4469.

Sincerely,

/RA/

Jimi T. Yerokun, Acting Director
 Division of Construction Inspection

Docket No.: 70-3098
 Construction Authorization No.: CAMOX-001

Enclosure: NRC Evaluation and Conclusion

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE

ADAMS: Yes ACCESSION NUMBER: M11137A077 SUNSI REVIEW COMPLETE

OFFICE	RII: DCI	RII: DCI	RII: DCI	RII: DCP	RII: DCP	RII: DCI	RII: CCI
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NAME	B. Davis	A. Masters	K. O'Donohue	W. Gloersen	D. Seymour	J. Yerokun	C. Ogle
DATE	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/5/2011	5/5/2011
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII: EICS	OE					
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Letter to Kelly Trice from Jimi Yerokun dated May 17, 2011

SUBJECT: RESPONSE TO DISPUTED NOTICE OF VIOLATION

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NRC EVALUATION AND CONCLUSION

1. Violations 70-3098/2010-004-003 and 70-3098/2010-004-004

Violations 70-3098/2010-004-003 and 70-3098/2010-004-004 were identified during an inspection completed by the NRC RII staff on December 13-17, 2011. The inspection was conducted for the purposes of evaluating ongoing construction activities at the Mixed Oxide Fuel Fabrication Facility (MFFF) and follow-up of previously opened items regarding the specification and use of Nelson studs. During the inspection, the staff identified a violation that involved the failure to translate design requirements into design documents (VIO 70-3098/2010-004-003: Failure to Translate Applicable Design Requirements into Design Documents) and a violation that involved the failure to maintain accurate procurement documents (VIO 70-3098/2010-004-004: Failure to Maintain Accurate Procurement Documents).

Shaw AREVA MOX Services (MOX Services) agreed that the violations occurred as stated. However, they disagreed with the staff's conclusion that the violations were separate. MOX Services contended that only one violation existed with the overall condition described in the two violations cited by the NRC.

A. Specific Basis for Disputing VIOs 70-3098/2010-004-003 and 004 Being Separate

In a letter dated March 10, 2011, MOX Services replied to the Notice of Violation associated with Inspection Report 70-3098/2010-004. In the letter, MOX Services disagreed with the staff's conclusion regarding Violations 70-3098/2010-004-003 and 70-3098/2010-004-004 being separate violations. MOX Services contended that the descriptions were of a single condition and hence a single violation.

MOX Services indicated the following as the basis for disputing the staff's conclusion that the violations were separate: "the descriptions are of a single condition and hence a single violation. The failure with regard to configuration control of the yield strength requirement for the studs and the failure to issue a contract change were both the same problem, failure to initiate an Engineering Change Request (ECR) when required. Two different procedures required the same action. Our single failure does not merit two violations."

B. NRC Evaluation of Licensee's Response

The staff carefully reviewed MOX Services' response and could not substantiate MOX Services' assertion that the two violations were of a single condition, failure to initiate an Engineering Change Request (ECR) when required. The staff determined that the two violations were separate conditions involving separate processes that occurred at separate times. Although the staff acknowledges that the ECR process could have addressed the causal effects of the violations, it would not have addressed the reasons for the violations. The bases for this are outlined below:

VIO 70-3098/2010-004-003 described a condition where an activity affecting quality was not conducted in accordance with Section 3, Design Control, of the MOX Project Quality Assurance Plan (MPQAP). Specifically, the violation described where MOX Services did not accurately translate the design requirements of AWS D1.6-1999 into design specification DCS01-XGA-DS-TRD-B-09053-C. MOX Services acknowledged that the violation occurred as stated. MOX Services also acknowledged that the violation was due to the use of a vendor data cut sheet to establish the yield strength design requirements without confirming that the values stated by the

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vendor in the data sheet met applicable code requirements. The staff acknowledges that the ECR process, if fully implemented, could have been used to correct the design specification once the error was identified. However, the ECR process would not have corrected MOX Services practice of using data from vendor cut sheets to develop design specifications without confirming the data met applicable code requirements. Thus, the failure to initiate an ECR was not the cause of the violation.

On the other hand, VIO 70-3098/2010-004-004 described a condition where an activity affecting quality was not conducted in accordance with Section 4, Procurement Document Control, of the MPQAP. Specifically, the violation described where MOX Services failed to initiate a procurement requisition after agreeing with a supplier's request to deviate from procurement requirements. MOX Services acknowledged that the violation occurred as stated. However, MOX Services contended that an ECR, if generated, would have resulted in the initiation of a new purchase requisition. The staff acknowledges a new purchase requisition could have resulted from the initiation of an ECR to evaluate the deficiency in the specification referenced in the purchase requisition. However, the violation was focused on MOX Services' failure to initiate a new purchase requisition, as required by Project Procedure PP10-10, Rev. 2, when a supplier's request to deviate from procurement requirements is approved. Thus failure to follow procedure was the reason for the violation, not failure to initiate an ECR.

The staff evaluated the conditions described in the violations using the current NRC enforcement guidance and found them to be as stated. Section 2.2.A.1 of the Enforcement Manual, Rev. 7, defines a violation as "a licensee's failure to comply with a legally binding requirement, such as a regulation, rule, order, license condition, or technical specification." Each condition described in VIOs 70-3098/2010-004-003 and 70-3098/2010-004-004 was found to meet this definition on its own merit.

Each violation demonstrated a separate quality process that MOX Services failed to implement. During the development of design specification DCS01-XGA-DS-TRD-B-09053-C, MOX Services' design control group failed to translate design requirements into the design specification and failed to detect the error in the design review process as required by the MPQAP, Section 3. This was separate from the condition where MOX Services' Subcontract Technical Representative failed to follow procedure and initiate a new purchase requisition after accepting a suppliers request to deviate from purchase order requirements.

To determine if the violations should be cited as examples under one violation, the staff reviewed Section 2.13.7, Documenting Multiple Examples of a Violation, of the Enforcement Manual, Rev. 7. Subpart B of this Section states, in part, "when determining whether multiple examples should be cited in a single violation, consideration should be given to whether different root causes are involved." In the staff's judgment, the reason for VIO 70-3098/2010-004-003 was MOX Services' failure to confirm data listed on a vendor cut sheet met applicable code requirements. In the staff's judgment, the reason for VIO 70-3098/2010-004-004 is MOX Services' failure to follow procedure and initiate a new purchase requisition after agreeing to a supplier's request to deviate for procurement requirements.

C. NRC Conclusion

Based on the preceding evaluation, the staff concluded that no additional information has been provided to consider re-characterizing violations VIO 70-3098/2010-004-003 and VIO 70-3098/2010-004-004 as one violation. Therefore, violations VIO 70-3098/2010-003-003 and VIO 70-3098/2010-003-004 are separate violations and occurred as stated in the Notice.

2. Violation 70-3098/2010-004-005

Violation 70-3098/2010-004-005 was identified during an inspection completed by the NRC RII staff on December 13-17, 2011. The inspection was conducted for the purposes of evaluating ongoing construction activities at the MFFF and follow-up of previously opened items regarding the specification and use of Nelson studs. During the inspection, the staff identified a violation that involved the failure to ensure that the stud welding of carbon steel studs to stainless steel plate, performed by Specialty Maintenance and Construction, Inc. (SMCI), was conducted in accordance with procurement requirements (VIO 70-3098/2010-004-005: Failure to Ensure Supplier Services were in Accordance with Procurement Requirements).

MOX Services agreed that the violation occurred as stated, but disagreed with the violation being classified as a Severity Level IV violation by the staff. MOX Services based their contention on the lack of potential safety consequence of not performing the application qualification as required by AWS D1.1-1998.

A. Specific Bases for Disputing the Severity Level of VIO 70-3098/2010-004-005

In a letter dated March 10, 2011, to the NRC, MOX Services disagreed with Violation 70-3098/2010-004-005 being a Severity Level IV as assigned by the staff.

MOX Services' bases for disputing the staff's conclusion of the assigned severity level are summarized as follows:

1. The facets of a classical welding program were satisfied. This was based on the process for welding 5/8-inch diameter low carbon steel studs to stainless steel base plates in the flat position being proven by Nelson [the stud manufacturer] doing a stud base qualification; verification of the parameters for SMCI welding being established on a daily basis by doing the pre-production testing as required by AWS D1.1, Section 7.7; and the performance of a qualified welder being demonstrated by the pre-production testing performed at the beginning of each shift.
2. Upon identification by the NRC, MOX Services required SMCI to qualify the welding process which did not result in any changes to the welding parameters that had been used.

B. NRC Evaluation of Licensee's Response

The staff carefully reviewed MOX Services' response and concluded that the violation occurred as stated in the Notice and the assigned severity level was appropriate. The bases for this determination are outlined below:

1. The staff reviewed the stud base qualification for 5/8-inch diameter ASTM A108 Nelson H4L studs to ASTM A240 Type 304 stainless steel plate. The staff found that it did meet the requirements of a stud base qualification, but did not meet the requirements of a stud welding application qualification in accordance with AWS D1.1-1998, Section 7.6.7, which states, "Application Qualification Test Data shall include the following:
 - 1) Drawings that show shapes and dimensions of the studs and arc shields,
 - 2) A complete description of stud and base materials, and a description (part number) of the arc shield,

- 3) Welding position and settings (current and time),
- 4) A record, which shall be made for each qualification and shall be available for each contract.”

The staff determined that the stud base qualification performed by Herron Testing Laboratories, Inc. did not meet the requirements of Items 1, 2, and 4 referenced above.

- Contrary to Item 1, the stud used in production was of different shape and dimension than that used in the stud base qualification.
- Contrary to Item 2, the description of the stud used in production, Nelson D2L, was different than the description of the stud used in the stud base qualification, Nelson H4L. The Nelson D2L was a non-headed stud with a deformed shank and the Nelson H4L was a headed stud with a smooth shank.
- Contrary to Item 4, a record (Welding Procedure Specification) was not made from the stud base qualification and provided with the contract.

Given this, the staff concluded the stud base qualification did not demonstrate the adequacy of welding ASTM A108 deformed bars (Nelson D2L studs) to ASTM A240 Type 304 stainless steel plate, rendering the quality of the activity indeterminate.

The staff also compared the pre-production test requirements to the test requirements for application qualification testing. The staff determined that the pre-production tests were not sufficient to demonstrate that the welding parameters used by SMCI were in accordance with AWS D1.1-1998. For pre-production tests, AWS D1.1-1998, Section 7.7.1.4, requires the test studs be bent 30 degrees from their original axis in one direction only. For application qualification tests, AWS D1.1-1998, Section 7.6.6.1, requires the test studs be bent 30 degrees in alternating directions until failure or be bent 90 degrees from the original axis and demonstrate that failure (fracture) occurs in the stud shank or base material and not in the weld. Pre-production tests were necessary to demonstrate adequate production control and operator qualification in accordance with AWS D1.1-1998, Section 7.7. However, given the pre-production tests were less stringent than application qualification testing requirements, they were not an appropriate substitute for application qualification testing. In the letter to the NRC dated March 10, 2011, MOX Services acknowledged that pre-production tests were less stringent than application qualification tests. Therefore, the staff concluded that the welding parameters used by SMCI were not adequately demonstrated in accordance with AWS D1.1-1998 code requirements by the use of pre-production testing, rendering the quality of the welding activity indeterminate.

VIO 70-3098/2010-004-005 described a condition where an activity affecting quality was not conducted in accordance with Section 7, Control of Purchased Material, Equipment, and Services, of the MOX Project Quality Assurance Plan (MPQAP). Specifically, the violation described where MOX Services failed to verify that the stud welding of carbon steel deformed studs to stainless steel embed plates, performed by SMCI, was in accordance with the applicable AWS code requirements as specified by Subcontract 10888-S13181. MOX Services acknowledged that the welding process used by SMCI for welding carbon studs to stainless steel plate was not in accordance with AWS D1.1-1998. MOX Services also acknowledged that they failed to identify this condition in their assessments of SMCI services and quality control reviews.

Examples of minor violations can be found in Inspection Manual Chapter (IMC) 0613, Documenting 10 CFR Part 52 Construction and Test Inspections, referenced by Section

2.3.1 of the Enforcement Policy. The minor violation screening criterion provided in IMC 0613 is also used by the staff for assessing the significance of violations identified at fuel facilities during the construction phase.

Section 1-3, Question 2, of IMC 0613 Appendix B, states that a violation is greater than minor if the answer to the following question is yes; "Does the issue, if left uncorrected, represent a condition adverse to quality that renders the quality of a structure, system, or component (SSC) or activity, unacceptable or indeterminate and is associated with an unqualified process, procedure, tool, instrument or personnel used for a construction activity that either invalidated previously accepted activities, or required requalification?" In regards to this question, the staff concluded that the quality of the welding performed by SMCI for carbon studs to stainless steel plate was indeterminate, as previously discussed in this evaluation. MOX Services stated in the letter to the NRC dated March 10, 2011, that SMCI was required to qualify the procedure in accordance with AWS D1.1-1998. The staff also applied IMC 0613 Appendix B, Section 1-3, Question 3, which states that a violation is greater than minor if the answer to the following question is yes; "Does the issue, if left uncorrected, represent the failure to establish, implement, or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate?" In regards to this question, the staff concluded MOX Services failed to maintain an adequate vendor oversight function for review of welding procedures and qualifications thereby rendering the quality of the construction activity indeterminate. MOX Services acknowledged they failed to identify that SMCI was performing welding services that were not in accordance with the applicable code.

To determine if the violation was isolated, the staff referred to Section 2.10.B of the Enforcement Manual. Section 2.10.B states, "Issues that represent isolated (i.e., "isolated" in that based on a reasonable effort, the staff determines that the issue is not recurring nor is it indicative of a programmatic issue such as inadequate supervision, resources, etc.) failures to implement a requirement and insignificant safety or regulatory impact should normally be categorized as minor violations." Based on its review, the staff determined that the issue was recurring and therefore was not isolated. On June 24, 2010, the NRC identified a violation that described MOX Services failure to verify welding performed by a vendor was in accordance with applicable code requirements. This was documented in inspection report 70-3098/2010-002 as Violation 70-3098/2010-002-003: Welding Process Control Problems. During the December 13-17, 2010, inspection, the NRC also identified where MOX Services failed to verify welding performed by a vendor was in accordance with applicable code requirements as Cited in Violation 70-3098/2010-004-005. In the letter to the NRC dated March 10, 2011, MOX Services acknowledged deficiencies in their performance of vendor weld procedure reviews and referenced Condition Report 10-308 which discusses the deficiency identified by the staff and proposes corrective actions.

The staff concluded that the quality of the welding was indeterminate, that MOX Services' failure to maintain an adequate oversight function left the quality of the welding indeterminate, and that the issue was not isolated.

2. During an August 23-27, 2010 inspection, NRC inspectors identified concerns with the weld process used by SMCI for welding carbon steel studs to stainless steel base plates not being qualified in accordance with the AWS D1.1 code. The inspectors requested MOX Services to provide a copy of the weld procedure used by SMCI. MOX Services

was unable to provide a copy of the weld procedure prior to completion of the inspection. Therefore, the concern was documented as Unresolved Item (URI) 70-3098-2010-003-004: Review of Stud Welding Procedure Qualification, in Inspection Report 70-3098/2010-003. On December 13-17, 2010, a NRC inspection team reviewed MOX Services' actions related to URI 70-3098/2010-003-004. During this inspection, MOX Services was still unable to provide the inspection team with a qualified weld procedure for welding carbon steel studs to stainless steel base plates prior to completion of the inspection. Following NRC identification of this issue in August and December 2010, the staff understands MOX Services required SMCI to qualify the welding procedure in accordance with the AWS D1.1-1998 code. The staff acknowledges that the qualification of the weld procedure did not result in any changes to the welding process parameters used prior to qualification. Nevertheless, the qualification does not change the fact that MOX Services failed to identify and correct the condition, rendering the quality of activity indeterminate until the subsequent corrective actions were taken.

C. NRC Conclusion

On the basis of the foregoing and review of MOX Services' response, the staff concluded that MOX Services did not provide an adequate basis for reclassification of the violation; therefore, the staff maintains that the violation occurred as stated and the assigned severity level was appropriate.