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APR 08 2011

LES-11-00054-NRC

ATTN: Document Control Desk
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Louisiana Energy Services, LLC
NRC Docket Number: 70-3103

Subject: Reply to Notice of Violation 70-3103/2011-006

Reference: Letter from M. Scott Freeman (NRC) to D. Sexton (LES), NRC Inspection Report No. 70-3103/2011-006 and Notice of Violation, dated March 31, 2010

In response to the referenced NRC Notice of Violation (Notice), URENCO USA (UUSA) herewith provides the enclosed reply (Enclosure). The violations relate to Section 2, Quality Assurance Program and Section 15, Nonconforming Items of the Quality Assurance Program Description and SNM License 2010 condition 10b.

Pursuant to instructions specified in the Notice, the enclosed UUSA reply (Enclosure) includes for the violation: 1) the reason for the violation; 2) the corrective steps that have been taken and the results achieved; 3) the corrective steps that will be taken; and 4) the date when full compliance will be achieved.

Should there be any questions regarding this submittal, please contact Wyatt Padgett, LES Licensing Manager, at 575-394-5257.

Respectfully,

Stephen R. Cowne for
David E. Sexton
Chief Nuclear Officer and Vice President of Operations

Enclosure: Reply to Notice of Violation 70-3103/2011-006

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ENCLOSURE

REPLY TO NOTICE OF VIOLATION (NOTICE) 70-3103/2011-006

Restatement of Violations:

During a Nuclear Regulatory Commission (NRC) inspection conducted on January 18-21, 2011, violations of NRC requirements were identified.

In accordance with the NRC Enforcement Policy, the violations are listed below:

A. *Special Nuclear Material (SNM) License No. 2010 requires, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF) in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), dated April 9, 2004, and supplements thereto.*

Section 2, Quality Assurance Program, of the LES NEF QAPD, states in part, that the Quality Assurance (QA) organization is responsible for selected reviews and oversight of Quality Level-1 (QL-1) processes and programs. In particular, the LES NEF QA organization reviews and concurs with the selection of the Items Relied on for Safety (IROFS) and the application of QA requirements to the IROFS, any items which are determined to be essential to the functions of the IROFS, and items required to satisfy regulatory requirements for which QL-1 requirements are applied.

LES NEF Procedure EG-3-2100-05, Revision 7, "Commercial Grade Dedication Process," states that the QA organization shall review and concur with the Commercial Grade Dedication Plan, conduct the required inspections of critical characteristics, and review the verification results for completeness and acceptability.

Contrary to the above, prior to January 18, 2011, the licensee's QA organization failed to conduct the required selected reviews and oversight of the commercial grade dedication (CGD) of IROFS. The licensee's QA organization failed to ensure that the acceptability of several critical characteristics specified for pipeworks and upper steelworks associated with the CGD of Cascade 3 components designated as IROFS 41 were adequately verified, as evidenced by the following examples:

1. *LES NEF incorrectly performed hardness testing on the fixed pipe clamps (critical characteristic 1c). The fixed pipe clamps were made of rolled aluminum but the hardness testing equipment was used with the stainless steel setting.*

2. *LES NEF performed the Leeb hardness testing method without verifying the method's reliability on the rolled aluminum (critical Characteristic 1c). The equipment manufacturer's specification did not include rolled aluminum as a material that the hardness tester could be used reliably on.*

3. *LES NEF used alternate acceptance criteria without adequate technical justification. The CGD Plan for upper steelworks required that nondestructive examinations and welds meet the requirements of American Welding Society (AWS) D1.1, which required a bare metal visual inspection of welds prior to acceptance. However, LES NEF performed visual inspections without removing paint and invoked paragraph 6.8 of D1.1 to use acceptance criteria alternative to*

Table 6.1 of D1.1 without adequate technical justification (critical characteristic 10c and 10e)

This is a Severity Level IV violation (Enforcement Policy 6.5.d)

B. *SNM License No. 2010 Condition 10b requires, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with statements, representations, and conditions in the approved Safety Analysis Report dated December 12, 2003, and supplements thereto.*

Section 3.4.22, of the Safety Analysis Report (SAR) stated that American Institute of Steel Construction (AISC) /American National Standards Institute (ANSI) N690, 1994, Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities was "applicable to the structural design of the National Enrichment Facility."

Section 11.1.6, Design Requirements, of the SAR states that the "NEF is designed and built to the NEF Licensing Code of Record identified in the Integrated Safety Analysis Summary."

Table 3.0-1 of the Integrated Safety Analysis Summary lists the codes of record for design and construction of LES NEF, and includes AISC/ANSI N690, 1994.

Paragraph Q1.0.1 of AISC/ANSI N690 requires that "The provisions of this Specification shall apply to the design, fabrication, and erection of steel safety-related structures and structural elements of nuclear facilities...The engineers of any system of design or construction within the scope of this specification, the adequacy of which has been shown by successful use or by analysis or test, but which does not confirm to or is not covered by this Specification, shall have the right to present the data on which their design is based to the Regulatory Authority for review and approval." AISC/ANSI N690 Paragraph Q1.17.1 specifies that AWS D1.1, Structural Welding Code, applies to work performed within the scope of AISC/ANSI N690.

Contrary to the above, prior to March 22, 2011, LES NEF used a system of design or construction within the scope of AISC/ANSI N690, the adequacy of which was shown by analysis, but which did not conform to the code, without presenting the data to the NRC for review and approval. Specifically, LES NEF invoked paragraph 6.8 of AWS D1.1 to develop alternate acceptance criteria for visual inspection of welds through paint. AWS D1.1 required the welds to be visually accepted prior to painting. Since AISC/ANSI N690 was the governing code for design, fabrication, and erection of structures that invoked AWS D1.1, LES NEF was required to use the visual inspection requirements of AWS D1.1 or submit the alternate acceptance criteria for welds to the NRC for review and approval prior to the use of those criteria.

This is a Severity Level IV violation (Enforcement Policy 6.5.d)

C. *Special Nuclear Material (SNM) License No. 2010 requires, in part, that the licensee shall conduct activities at the Louisiana Energy Services, L.L.C., National Enrichment Facility (NES NEF) in accordance with statements, representations, and conditions, in the approved Quality Assurance Program Description (QAPD), dated April 9, 2004, and supplements thereto.*

Section 15, Nonconforming Items, of the QAPD states, in part, that "The disposition, such as "use-as-is," "reject," "repair," of "rework," of nonconforming items shall be identified and documented. The technical justification of the acceptability of a nonconforming item that has been dispositioned "repair" of "use-as-is" shall be documented.

LES procedure EG-3-2100-09 Rev. 5, Identification, Disposition, and Resolution of Nonconforming Items, States, in part, in paragraph 5.1.2d. 1) "Disposition of "repair" of "use-as-is" require technical justification for the acceptability of the nonconforming item to be documented and shall be subject to design control measures commensurate with those applied to the original design."

Contrary to the above, on January 5, 2011, LES NEF issued nonconforming reports 2010-3965 and 2010-3976 which documented five missing welds on the cascade 3 upper-steel works and dispositioned them for use-as-is without including the required technical justification.

This is a Severity Level IV violation (Enforcement Policy 6.5.d)

UUSA Reply to Violation A:

1) The Reason for the Violation A (Example 1)

(No Response required, as stated by NRC in Inspection Report 070-3103/2011-006)

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2) The Reason for the Violation A (Example 2)

(No Response required, as stated by NRC in Inspection Report 070-3103/2011-006)

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1) The Reason for the Violation A (Example 3)

During the Cascade 3 inspection NRC inspectors identified that URENCO USA (UUSA) visual weld inspections/assessments were performed without removing paint and invoked paragraph 6.8 of D1.1 to use acceptance criteria alternative to Table 6.1 of D1.1 without adequate technical justification (critical characteristics 10c and 10e). In addition, the CGD plan for upper steelworks required that nondestructive examinations and welds meet the requirements of AWS D1.1, which required a bare metal visual inspection of welds prior to acceptance.

Review of this condition identified that as part of the response to a trend in weld defects for upper steel manufactured by the fabricating facility, UUSA performed an extent of condition evaluation of both partial joint penetration (PJP) and fillet welds of Cascades 1 through 3. A sample of 49 fillet welds on Cascade 1 was inspected

with paint removed which detected several defects. During the analysis of these defects, a structural engineer generated TQ 2010-102, which was approved by ETC the Engineer of Record, to provide guidance in analyzing defects for acceptability. As part of this TQ, UUSA determined that structurally significant defects would be detected via through paint assessments, so Cascades 1 through 3 were evaluated for such defects through paint. In addition, the PJP welds were all inspected with paint removed as the fabrication facility did not perform a dye penetrant test as required for such welds.

UUSA did not view the fillet weld assessment through paint as a code compliance inspection, rather it was performed as a response to a non-conformance extent of condition to detect structurally significant defects rather than reestablishing compliance with AWS D.1-1 inspection requirements. UUSA performed these through paint assessments to determine the acceptability of the structural steel to meet design requirements based on TQ 2010-102 approved by the Engineer of Record.

NRC inspection results concluded that the analysis for the visual inspection through paint was insufficient. TQ-2010-102 did not provide sufficient justification of the through paint inspections in that it did not include reference to an analysis of paint thickness and did not include a statistical analysis demonstrating that significant defects could be adequately identified and evaluated or would be found through paint. The apparent cause, conducted by UUSA personnel, determined the cause of this condition to be a failure of TQ 2010-102 to provide sufficiently detailed technical justification for performing through paint inspections of accessible fillet welds in lieu of inspections with the paint removed.

Subsequent to Cascade 3 CGD documents being submitted to the NRC for approval TQ 2011-004, which validated the 2010-102 methodology, was written. The basis for TQ 2011-004 included the inspection results from Cascade 4, both through paint and with paint removed which provided an appropriate technical justification for the through paint assessment performed on Cascades 1 and 2.

UUSA has committed to inspecting accessible welds on Cascades 3 through 8 with paint removed to fully comply with AWS D.1-1 inspection requirements because of the flawed inspections performed at the fabrication facility. UUSA will assess future cascade inspections results to determine when ETC and UUSA corrective actions for the AWS D1.1 factory inspections are effective and when satisfied that the factory inspections are correctly implemented, will revert to a sampling of welds to satisfy CGD requirements

2) <u>The Corrective Steps That Have Been Taken and Results Achieved for Violation A (Example 3)</u>

Strip paint and perform bare metal inspections on Cascade 3 per AWS D1.1 table 6.1

3) <u>The Corrective Steps That Will Be Taken for Violation A (Example 3)</u>

All corrective actions for the identified condition will be taken as described in item 2 above.

4) The Date When Full Compliance Was Achieved for Violation A (Example 3)

Full compliance achieved upon completion of the weld inspections on Cascade 3, by April 18, 2011

UUSA Reply to Violation B:

1) The Reason for the Violation

The NRC identified that URENCO USA (UUSA) used a system of design or construction within the scope of AISC/ANSI N690, the adequacy of which was shown by analysis, but which did not conform to the AWS D 1.1 code, without representing the data to the NRC for review and approval. A review of the circumstances associated with this condition identified that approval by the regulatory authority (NRC) for the alternate through paint assessment methodology was not obtained per ANSI N690 Section Q1.01 in that it was not considered to be required by UUSA.

UUSA considered the code inspections performed by Form Fabrications to be the code of record inspection and therefore executed the through paint assessment methodology as part of a nonconformance report. The Engineer of Record approved the use of the alternate acceptance criteria in accordance with AWS D1.1 Section 6.8. During the above mentioned processes, approval by the regulatory authority for use of the alternate through paint assessment methodology was not obtained as use of N690 Section Q1.10.1 to obtain regulatory approval for this approach was not considered necessary because it was an assessment undertaken as part of an NCR disposition rather than a code compliance weld inspection.

TQ 2010-102 provided for implementation of the alternate through paint weld assessment methodology. In addition, TQ 2011-004, which validated TQ 2010-102, was provided to the NRC for review; however the NRC did not accept these documents as precluding the need for regulatory approval under ANSI/AISC N690 Section Q1.0.1.

The NRC both verbally and through the inspection report informed UUSA that regulatory approval is necessary. Therefore UUSA is obtaining regulatory approval for use of alternate acceptance criteria from the NRC with LAR-11-04 for cascades 1 and 2 (letter LES-11-00041-NRC, dated March 22, 2011). For Cascade 3, UUSA is stripping paint and performing bare metal inspections per AWS D.1.1 table 6.1. In addition, ETC is inspecting welds with paint removed per AWS D1.1 (Cascade 4 and 5 are inspected as such, and weld inspections have begun on Cascade 6). UUSA expects to see 'factory inspected' steel around MH2A-C5 or so (Cascade 13) and intends to perform some inspections in the factories as well.

2) The Corrective Steps That Have Been Taken and Results Achieved

1. Submittal of LAR 11-04, letter LES-11-00041-NRC, dated March 22, 2011.

2. Stripping paint and performing bare metal inspections on Cascade 3 per AWS D1.1 table 6.1

3) The Corrective Steps That Will Be Taken for Violation

All corrective actions for the identified condition have been taken as described in item 2 above.

4) The Date When Full Compliance Was Achieved

Full compliance was achieved with the completion of the LAR 11-04 submittal and completion of weld inspections on Cascade 3 as noted in response to violation A.

UUSA Reply to Violation C:

1) The Reason for the Violation

(No Response required, as stated by NRC in Inspection Report 070-3103/2011-006)
