

SEP 20 2010

Urenco

LES-10-00208-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 70-3103/2010-013

Reference: Letter from James Moorman III (NRC) to David Sexton (LES), NRC Inspection Report No. 07-3103/2010-013 and Notice of Violation, dated August 20, 2010

In response to the NRC's referenced Notice of Violation (NOV), URENCO USA (UUSA) herewith provides the enclosed Reply to the Violation, for failure to adequately review the Cascade 3 Commercial Grade Dedication (CGD) Plan, conduct required inspections for critical characteristics included in the Cascade 3 CGD Plan, and review the verification results for completeness and acceptability. (See Enclosure)

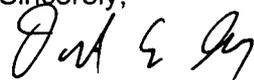
The discussion and actions described in this response relate to the Root Cause performed under UUSA Condition Report (CR) 2010-2530. The actions noted are related to the extent of condition for Cascades 1 and 2, actions to restore conformance for Cascade 3, and actions to prevent recurrence for Cascades 4 thru future Cascades subject to Commercial Grade Dedication (CGD). Corrective actions in progress to restore conformance to Cascade 3 do not rely on the root cause or corrective actions to prevent recurrence for this NOV.

The investigation determined that both the Engineering and QA programs had a weakness in the implementation oversight of IROFS 41 CGD, attributed in part to a lack of recognition of the breadth, complexity and uniqueness of the CGD program as it evolved and went through various organizational owners. The subject IROFS, critical characteristics and overall CGD process were generally determined to be appropriate. However, proper implementation and documentation of inspection requirements, turnover and traceability of individual data capture were not sufficiently present.

Pursuant to instructions specified in the Notice, the enclosed UUSA reply includes for each violation: a) the reason for the respective violations; b) corrective steps that have been taken and the results achieved; c) corrective steps that will be taken to avoid further violations; and d) the date when full compliance will be achieved.

Should there be any questions regarding this submittal, please contact Gary Sanford, Director of Quality and Regulatory Affairs, at 575.394.5407.

Sincerely,



David E. Sexton
Chief Nuclear Officer and Vice President of Operations

LE07

Enclosure: Reply to Notice of Violation 70-3103/2010-013

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ENCLOSURE

Louisiana Energy Services/URENCO USA (LES/UUSA)

REPLY TO NOTICE OF VIOLATION (NOV) 70-3103/2010-013

Restatement of Violation:

During U.S. Nuclear Regulatory Commission (NRC) inspections conducted from August 2 through 19, 2010 a violation of NRC requirements was identified.

In accordance with the NRC Enforcement Policy, the violation is listed below:

Special Nuclear Material 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 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 of 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 (CGD), conduct the required inspections of critical characteristics, and review the verification results for completeness and acceptability.

Contrary to the above, prior to August 2, 2010, the licensee's QA organization failed to adequately review the Cascade 3 CGD Plan, D-2010-012, Revision 0, conduct the required inspections of several critical characteristics included in the Cascade 3 CGD Plan, D-2010-012, Revision 0, and review the verification results for completeness and acceptability as evidenced by the following examples:

- 1. The tightening torque for header piping fixed clamps listed as critical characteristic 1a were not adequately verified.*
- 2. The tightening torque for bolts in the upper steelwork bolted connections listed as critical characteristic 7b were not adequately verified.*
- 3. The tightening torque for bolts in the upper steelwork bolted connections listed as critical characteristic 8a were not adequately verified.*
- 4. The material strengths of bolts and nuts in the pipeworks/upper steelworks listed as critical characteristic 7a were not adequately verified.*
- 5. The size of fillet welds in the upper steelworks listed as critical characteristic 10b were not adequately verified.*
- 6. The dimensions of subunit steel frames in the upper steelworks listed as critical characteristic 11 were not adequately verified.*

This is a Severity Level (SL) IV Violation (Supplement II.)

UUSA Reply to Violation

The Reason for Violation - Examples 1, 2 and 3:

During the NRC inspection of Cascade 3 Commercial Grade Dedication it was identified that the data required to document completion of QC inspection surveillances for verifying bolt torque activities for Method 3 critical characteristics (1a - tightening torque for header piping fixed clamps, 7b and 8a - tightening torque for bolts in the upper steelwork bolted connections) was missing.

A review of the circumstances leading to this condition identified a number of elements contributing to these examples. In brief they are (1) Inadequate and undefined processes to support CGD of Cascade systems, structures and components associated with IROFS 41, (2) Less than adequate management structure/oversight of complexities associated with CGD process for IROFS 41, (3) Less than adequate resources both in quantity and level of experience, (4) Less than adequate turnover between individuals associated with the CGD of IROFS 41, and (5) Human performance errors related to omission such as failure to catch missing bolt torque surveillances and errors in recorded documentation of information that should have been verified as part of the CGD process.

The first CGD Plan for IROFS 41 was issued on April 28, 2009 (D-2009-006, Rev. 0). The Quality Assurance Requirements Determination (QARD) was issued on the same date. D-2009-006 was revised two times, on 5/14/09 and 8/20/09. The QARD was revised on 5 occasions with the last, Rev 5, being issued on 10/21/09. These documents governed CGD activities for the time period when most of the construction of Cascades 1 thru 3 took place. During this time the CGD Team consisted of an experienced group of QC inspectors, a contractor CGD team lead and a consulting engineering firm with experience in CGD.

The surveillance of torque activities for bolts was complete for Cascade 1 when 1001-MECH-457-002 was closed on December 8, 2009. In addition, the sampling of torquing activity in Cascade 3 called for in the QARD had also been completed.

During the timeframe of March 25, 2010 (completion date of NRC Cascade 1 inspection finding acceptability for Cascade 1 CGD) and April 15, 2010 (when CGDP D-2010-012 was issued for Cascades 2 thru 4) the experience base for CGD QC inspectors and engineering associated with IROFS 41 was significantly reduced due to resignation of the IROFS 41 CGD team lead and the conclusion of the consulting firm contract. The remaining personnel familiar with the CGD of Cascade 1 and related CGD activities were gone by May 1, 2010. Resources allocated to the subsequent dedication of future cascades were reduced significantly both in quantity and level of experience. Details of the CGD process for IROFS 41 and methods used for Cascade 1 dedication were not well communicated, due to a less than adequate turnover process and no clearly defined detailed dedication process. Less than adequate management oversight to ensure proper documentation, turnover and tracking of essential CGD activities associated with IROFS 41 contributed to this condition.

CGD Plan D-2010-012, Rev. 0 for Cascades 2 thru 4 was issued on April 15, 2010. By that time the bolting in Cascades 2 and 3 had been completed for some months. The CGD Plan called for Method 3 surveillances of the torquing of bolts in Cascade 3, but no one then associated with the CGD of Cascade 3 at that time realized that more bolt torque data was required than had been completed under Work Plan 1001-MECH-457-002.

When the 1001-MECH-457-002 was closed in December, all of the torque surveillances had been completed for Cascade 1 and the sampling torque surveillances called for in the QARD were completed in Cascades 2 and 3. The requirement for surveillance of torquing, other than a sample of the bolts, in Cascade 3 did not come into existence until the CGD Plan for Cascades 2 thru 4 was written in April of 2010. No new work plan was initiated to capture those additional surveillances.

After investigation of related documents and interviews, it was concluded that the closure of Work Plan 1001-MECH-457-002 on 12/8/2009 created an error trap that was triggered by subsequent events. The work crews and the QC inspection crews were working all four cascades during the time period from the fall of 2009 through late spring – early summer of 2010. These activities were not done in a concise 1 through 4 sequence, but rather the work was done on an “opportunistic” basis as a result of organizational need, availability and cascade access.

Matrices for Cascades 2 and 3 were e-mailed in April of 2010 from an original team member for Cascade 1 to individuals who were assuming responsibility for the CGD of Cascades 2 through 4. The matrices identified that the Method 3 torque surveillances were not complete; however, due to personnel leaving the project and a less than effective turnover, this information was not well understood. In addition, the two team members available after May 1, 2010 believed that they were responsible for Method 1 inspections and that the surveillances using Method 3 were the responsibility of someone else.

In addition to the above, specific reviews were not performed to verify/validate that the Method 1 and 3 required data for Cascade 3 CC's were complete and accurate. This was primarily due to less than adequate communication between QA, QC and the CGD team and the lower experience level of the newer assigned personnel who performed the reviews.

An investigation performed as a part of the resolution to this NOV determined that the current QA program, as implemented by both Engineering and QA, had a weakness in the oversight of the program and program implementation for IROFS 41 CGD. Similar to other observations, this weakness is attributed in part to a lack of recognition of the breadth, complexity and uniqueness of the CGD program as it evolved. The subject IROFS, critical characteristics and overall CGD process were generally determined to be appropriate. However, proper implementation and documentation of inspection requirements, turnover and traceability of individual data capture were not present.

In summary, the missed surveillances of bolt torquing in Cascade 3 were the result of:

- the closure of the original work plan for Cascades 1 thru 4 in early December 2009;

- inspections and surveillances in Cascades 2 and 3 that had not been completed when the work plan was closed were unknown to those preparing the NRC submittal for Cascades 2 and 3;
- the installation and torquing of the bolts was already completed in the Cascades (there were no hold points) and additional Method 3 surveillances could not be done;
- the turnover of CGD personnel between the time of NRC acceptance of the CGD of Cascade 1 and the submittal of documentation for the dedication of Cascades 2 and 3;
- the lack of proper turnover between those who dedicated Cascade 1 and those remaining after May 1, 2010; and,
- the failure to perform adequate reviews to confirm that bolt torque surveillances for CCs 1a, 7b, and 8a were completed.

Corrective Steps Taken and Results Achieved for Violation - Examples 1, 2 and 3:

1. Surveillance 2010-S-08-509 dated 6 August 2010, was performed to collect documentation of torque verifications as performed by vendor personnel and witnessed by UUSA QC Inspectors. This surveillance was performed in conjunction with Surveillance 2010-S-07-503 (covering torque verification of bolts for Turnbuckles and Main Header Fixed Pipe Clamps in Cascade 3) for the satisfaction of requirements in the CGD Plan for Upper Steelwork bolt torque verification in Cascade 3 Method 3 critical characteristics 1a, 7b, and 8a. Completed 8/6/10
2. Developed desktop guide EG-4-2100-11, Critical Characteristic Verification Package, to provide detailed instruction for verification of Critical Characteristics (CC) being used for extent of condition reviews. The methodology contained in this desktop is to be used in procedures for future Cascades CGD. This methodology provides specific actions for CC verification including QC reviews for completion of CC requirements. Completed 9/3/2010
3. Personnel associated with inspections for IROFS 41 have attended Human Performance Training. Completed 7/23/10

Corrective Steps That Will Be Taken To Prevent Further Violation - Examples 1, 2 and 3:

1. Procedure EG-3-2100-05, Commercial Grade Dedication, shall be revised to include independent QA review of CGD documentation for complex commercial grade dedication items such as IROFS 41. Due Date: 10/31/10
2. Conduct a detailed review of all data associated with Cascade 3 CGD requirements. From this effort, a detailed matrix will be developed that provides a detailed listing of documentation to demonstrate that all requirements for each critical characteristic for Cascade 3 have been met. The information in the matrix will be used as a template for future cascade dedication packages. In addition,

CGD plans are to be revised for IROFS incorporating lessons learned. Due Date: 9/30/10

3. The CGD team will appoint a Project Manager for IROFS 41 and develop a Project Plan that addresses the requirements of the process necessary to dedicate IROFS 41. This project plan must include appropriate training such that the individuals implementing the plan are aware of their roles and responsibility. Due Date: 11/5/10.
4. As an enhancement, assign QC inspectors to the CGD team to perform required inspection in order to eliminate communication issues between QA, QC, and CGD team. Due Date: 10/10/10.
5. As an enhancement, the annual audits of the criteria of the QAPD that the UUSA Quality organization implements shall include at least one member that has a Security Clearance at the UUSA facility. This will allow review of any CGD or other inspection and audit activities that are conducted on classified programs or systems, or in areas that cannot be accessed without a Security Clearance. This requirement should be incorporated in the QA Audit Schedule proceduralized in QA-3-2000-01 Quality Assurance Audits. Due Date: 12/31/10
6. As an enhancement, perform supplemental reviews of the in-process activities to ensure that the CGD activities associated with Cylinder Receipt and Dispatch Building (CRDB) and Autoclave comply with the relevant corrective actions above. Due Date 11/1/10
7. As an enhancement, perform supplemental reviews of the in-process activities to ensure that the CGD activities associated with UF6 Stations complies with the relevant corrective actions above. Due Date 11/1/10
8. As an enhancement, the QA Organization shall conduct quarterly surveillances of the CGD Process related to IROFS 41 beginning in January, 2011 for at least three quarters. This will cover the last quarter of 2010 and the first two quarters of 2011 to ensure that QC activities in support of the CGD of IROFS 41 are being conducted in accordance with UUSA procedures and processes. Areas to be addressed include accuracy of data being recorded on a day to day basis, review of any work plans that have been closed since the prior assessment/surveillance, and review of any completed Receipt Inspection Reports and Form 3 packages since the previous assessment/surveillance. Due Date: 7/15/11

The Date When Full Compliance Will Be Achieved for Violation - Examples 1, 2 and 3:

Full compliance will be achieved upon the completion of a detailed review of all data associated with Cascade 3 CGD, scheduled for 9/30/10.

Actions impacting the quality of future cascade submittals (i.e., Cascade 4 and forward) will be complete prior to CGD package submittal.

The Reason for Violation - Example 4:

Issues identified and discussed with the NRC during the inspection were related to the material strengths of bolts and nuts in the pipeworks/upper steel works, Critical Characteristic 7A (CC7A), as not being adequately verified. The first example was related to the selection of sample sizes for mechanical and chemical testing of bolts not meeting the EPRI guidance and the CGDP. The second example was related to tests not being performed on a specific batch of bolts that were installed in the upper steel in the "battleship".

The inadequate sample size resulted from several causes including, (1) the focus on Cascade 1, (2) poor communication of sample size requirements between various organizations, (3) the lack of a formal process, and (4) tracking difficulties which resulted from not being able to readily identify total lot and sample size information used for multiple cascades.

Bolt sample sizes for Cascade 1 were originally determined by reviewing EPRI guidance for selection of samples as described in the CGDP and then communicating the sample sizes required to the vendor. For later cascades, vendor personnel utilized the sample selection tables specified in the CGDP to determine how many additional bolts needed to be tested per cascade. Some sample sizes were sufficient for Cascades 1 through 4, while others were cascade specific. The variation in batches and heats used in each cascade, and over multiple cascades, combined with communication errors regarding requirements between UUSA and the vendor, led to discrepant sample sizes being selected in some cases.

In addition to the causes described above, installation of non-tested bolts in the battleship installation (upper steel) was due to the battleship being lowered for weld repair, which required previously tested bolts to be removed. No bolts from that batch were left and bolts that had not been tested were used as replacements.

The most significant factor related to these specific errors was the lack of a detailed and formal tracking process for the CGD of IROFS 41 for bolt testing and other IROFS 41 critical characteristics. Bolts associated with IROFS 41 are not processed in the same fashion as other bolts that are dedicated and/or procured by UUSA. Bolts for IROFS 41 are procured by the vendor, delivered to the vendors warehouse, issued to the field, installed, then a sample is handed over to LES, for testing based on a determination of what bolts were installed, and then made QL-1 as part of the total Cascade CGD.

Corrective Steps Taken and Results Achieved for Violation - Example 4:

1. The applicable bolt types, heats and number of each bolt type requiring testing were sent to an outside vendor for destructive testing to satisfy the requirements of EPRI TR-017218 Table 2-2 on 08/07/2010. QC Receipt inspection was performed upon receipt of tested bolts. Completed 8/12/10
2. The four M24X85 bolts installed in the upper steel (battleship) were removed and replaced with bolts from a heat lot that had been tested. Completed 8/07/10

3. The M12x45 and M10x30 bolts were sent to an outside vendor for testing on 8/7/10. The receipt inspection for the M12x45 and M10x30 bolts destructive testing results was performed. Completed 8/12/10

Corrective Steps That Will Be Taken To Prevent Further Violation - Example 4:

1. CGD team is to appoint a Project Manager for IROFS 41 and develop a Project Plan that addresses the requirements of the process necessary to dedicate IROFS 41. This project plan must include appropriate training such that the individuals implementing the plan are aware of their roles and responsibility. Due 11/5/10.
2. As part of the extent of condition review, a matrix is being developed to document that testing for all bolt types used in Cascade 3 was completed, and the required test data is acceptable. Due Date: 9/30/10
3. As an enhancement, develop new procedures or revise existing procedures to ensure that all aspects of the control of procurement and installation of SSCs covered by cascade work are fully incorporated. Due Date: 12/31/10

The Date When Full Compliance Will Be Achieved for Violation - Example 4:

Full compliance was achieved on 8/12/10.

The Reason for Violation - Example 5:

The issue identified by the NRC was that the number of weld inspections documented on data sheets for Critical Characteristic 10b (CC10b) in Work Plan 1001-MECH-453-021, did not equal the number of welds identified on referenced drawings.

Work Plan (1001-MECH-453-021) requires a visual assessment of the fillet welds in the units listed to confirm their size. The number of weld inspections documented on data sheets correlated directly to the number of weld symbols that were present on the associated drawings instead of the actual number of welds inspected. It is not uncommon for one weld symbol to identify more than one weld. This is standard reference for weld symbols on drawings associated with IROFS 41. The data sheets that were assembled to document the visual weld inspections described above contained one signature block for each weld symbol as opposed to one for each weld. When interviewed, the QC inspectors stated that their interpretation of the work plan step and the critical characteristics based on the associated drawings illustration meant that they were signing for multiple welds associated with a weld symbol with one signature. QC inspectors stated that they always inspected all welds associated with a weld symbol prior to signing off the inspection on the data sheets.

Both methods of counting welds or documenting inspections were considered acceptable. This condition did not lead to any welds not being inspected. As part of the extent of condition, detailed weld maps are being prepared for use in future weld inspections.

In addition to the above, programmatic reasons and actions stated in Examples 1, 2, and 3 specific to the CGD process apply to this example.

Corrective Steps Taken and Results Achieved for Violation - Example 5:

A review of the design drawings was performed and verification of weld inspections to confirm the subject welds had been inspected. These supplemental verifications were completed on 8/9/10.

Corrective Steps That Will Be Taken To Prevent Further Violation - Examples 5:

1. Conduct a detailed review of all data associated with Cascade 3 CGD requirements. From this effort a detailed matrix will be developed that provides a detailed listing of documentation to demonstrate that all requirements for each critical characteristic for cascade 3 have been met. The information in the matrix will be used as a template for future cascade dedication packages. In addition, CGD plans are to be revised for IROFS incorporating lessons learned. Due Date: 9/30/10

The Date When Full Compliance Will Be Achieved for Violation E - Examples 5:

Full compliance was achieved on 8/9/10.

The Reason for Violation - Example 6:

The issue identified by the NRC inspection was that the documentation of critical characteristic 11 for the H frame vertical dimension was not documented in the correct manner. The CGD Plan and the Work Plan, 1001-MECH-453-011, both called for the center line of six mounting holes to be measured to the bottom of the base plate. The measurements were made from the center line of the bolt to the top of the base plate as opposed to the bottom as required by the Work Plan and CGD Plan. In some instances the measurements were from bolt center to bolt center which was contrary to the work plan instruction.

A review of the drawing revealed that there were basic dimensions annotated to delineate geometric tolerance requirements. In addition, there are linear measurements shown with traditional plus or minus tolerances. The physical measurements are best taken to the top of the plate with measurement of the plate thickness taken separately but added to the top measurement. The CGD Plan and the Work Plan did not specifically call for this method of measurement thus leading to the discrepancies between the values on the drawing and the measurements recorded in the work plan.

Neither the CGD Plan nor the Work Plan listed the acceptance criteria but rather gave a general tolerance of plus or minus 3 mm or plus, or minus 4 mm if the measurement was to the center of the installed bolt, without specifying where the tolerance should be applied.

In addition to the above, programmatic reasons and actions stated in Examples 1, 2, and 3 specific to the CGD process apply to this example.

Corrective Steps Taken and Results Achieved for Violation - Example 6:

A total of 14 base plate measurements in Cascade 3 were performed. An evaluation was performed to determine that the base plate measurements taken demonstrated that the vertical dimension measurement requirements were met. Completed 8/13/10.

Corrective Steps That Will Be Taken To Prevent Further Violation - Example 6:

A Project Manager will be assigned for IROFS 41 and a resource loaded project plan will be developed that addresses the requirements of the process necessary to dedicate IROFS 41. This project plan must include appropriate training such that the individuals implementing the plan are aware of their roles and responsibilities. The project plan will include provisions to provide acceptance criteria in the CGDP and Work Plan to help assure proper measurements are documented. Due Date: 11/5/10.

The Date When Full Compliance Will Be Achieved for Violation - Example 6:

Full Compliance was achieved on 8/13/10