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MAY 14 2010

LES-10-00100-NRC

ATTN: Document Control Desk
Director
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 70-3103/2010-009

Reference: Letter from James H. Moorman III, (NRC), to Gregory Smith, (LES), NRC Inspection Report No. 70-3103/2010-009 and Notice of Violation. dated May 7, 2010

The referenced letter transmitted the results of the Nuclear Regulatory Commission's (NRC's) inspections associated with the construction activities of the Louisiana Energy Services, LLC, National Enrichment Facility (LES NEF). The purpose of the inspection was to evaluate the Commercial Grade Dedication (CGD) program. Emphasis was placed on evaluating CGD programmatic activities and procedures, interviewing personnel involved in CGD activities, and reviewing existing CGD plans and packages. Based on the results of this inspection, the NRC has determined that violations of NRC requirements occurred.

The specific activities cited in the Notice of Violation (NOV) are being addressed through LES' corrective action program and related evaluation processes. The associated corrective steps completed to date and the corrective steps that are being taken to restore compliance and avoid further violations are described in the Attachment to this letter.

LES' Reply to the NOV addresses the reason for the violations; corrective steps that have been taken and the results achieved; corrective steps that will be taken to avoid further violations; and the date when full compliance will be achieved.

If you have any questions please contact Gary Sanford, Director of Quality and Regulatory Affairs at 505.394.5407.

Sincerely,

Stephen Cowne for
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IE07

cc/ with attachment:

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Attachment

Louisiana Energy Services / National Enrichment Facility (LES/NEF)

REPLY TO NOTICE OF VIOLATION (NOV) 70-3103/2010-009-001

Restatement of Violation A:

During a Nuclear Regulatory Commission (NRC) inspection conducted on March 29 to April 1, 2010, one violation of NRC requirements was identified.

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

Violation A

Special Nuclear Material (SNM) License No. 2010 requires, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, LLC, 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. The LES NEF QAPD commits to American Society of Mechanical Engineers (ASME) -1-1994, Quality Assurance Requirements for Nuclear Facility Applications, including supplements as revised by the ASME NQA-1a-1995 Addenda for implementation of 10 CFR 50 Appendix B.

Basic Requirement 7, Control of Purchased Items and Services, of ASME NQA-1-1994 states, in part, that the procurement of items and services shall be controlled to assure conformance with specified requirements. It further states that "When receiving inspection is used, purchased items shall be inspected as necessary to verify conformance to specified requirements, taking into account source verification and audit activities and the demonstrated quality performance of the Supplier.",

Section 7 of Purchased Material, Equipment and Services, of the LES NEF QAPD states, "Supplier generated documents shall be controlled, processed and accepted by LES in accordance with the requirements established in the applicable QA procedures. Measures shall be implemented to ensure that the submittal of supplier-generated documents is accomplished in accordance with the procurement document requirements. These measures shall also provide for the acquisition, processing and recorded evaluation of technical, inspection and test data compared against the acceptance criteria."

Contrary to the above, prior to March 29, 2010, LES NEF did not control procurement of items and services to assure conformance with specified requirements on several occasions in accordance with ASME NQA-1 Basic Requirement 7 and the QAPD Section 7. LES NEF conducted less than adequate control of purchased items and services in that the data recorded on multiple test results received and accepted by LES NEF from their suppliers did not meet the requirements set forth in their Commercial Grade Dedication Plans (CGDP), as demonstrated by the following examples:

1. Tests results received and accepted by LES NEF for BETEC 140 grouting material show that tests were not conducted within the acceptable temperature range as specified in the American Society of Testing and Materials (ASTM) C109 standard test method that was required by the CGDP.

2. The compressive strength documented in several test reports received and accepted by LES NEF for BETEC 140 grouting material was less than the required compressive strength specified in the CGDP.
3. Tests results received and accepted by LES NEF for Chockfast Grey epoxy grout show that the tests were conducted under a different ASTM standard test method than the one specified in the CGDP.
4. Test results received and accepted by LES NEF for Chockfast Grey epoxy grout show that tests were not conducted within the acceptable temperature range as specified in the ASTM D695 standard test method that was required by the CGDP.

This is a Severity Level (SL) IV violation (Supplement II)

The Reason For Violation A, Examples 1 and 2:

During the course of the NRC Operational Readiness Review (ORR) of the Overall Commercial Grade Dedication Program, NRC inspectors noted deficiencies in commercial grade dedication (CGD) activities in connection with the two grout materials which are the subject of this NOV.

As a result of the issues raised in this Notice of Violation and the identification of related issues with the CGD process, URENCO USA (UUSA) recognized that the CGD process procedures were not adequate to ensure compliance and has undertaken significant corrective actions to bring the process in conformity with commitments and regulatory requirements. As the result of issues raised by individuals within UUSA and the NRC during other inspections in the same general time frame as the instant NOV, there were a number of causal evaluations, including Detailed Apparent Causes, addressing the CGD program during the first several months of 2010.

Examples 1 and 2 for Violation A involve commercial grade dedication activities with BETEC grout. Two Condition Reports were initiated to address these related examples, CR 2010-1158 and -1156. In Example 1, the NRC inspector noted that "the QISI test reports for BETEC grout showed that the temperatures of mixing water and ambient temperatures were not always in compliance with ASTM C109 requirements. They also noted that ASTM C109 has a humidity requirement of not less than 50% humidity. The test reports did not indicate that these requirements had been met." The materials were commercially grade dedicated under CGD Plans # D-2008-045 and # D- 2008-046.

Unfortunately, there is a significant disconnect between what was viewed as missing data and what was required under the CGDP and related standards. CGDP # 28683-CGDP-0045 was prepared by a contractor, WGI, in 2008 using procedure PSP 09-04. The single critical characteristic for this material was deemed to be compressive strength. The CGD plan required that:

> One bag from each date code shall be mixed and tested in accordance with ASTM C109. A break test shall be performed to ensure the material obtains a compressive strength of 45 MPa after 28 days when crushing a standard cylinder OR a Compressive strength of 55 MPa after 28 days when crushing a standard cube.

ASTM C109 is the standard test method for the compressive strength of hydraulic cement

mortars, not grout. The ASTM for this type of grout is ASTM C1107 which requires the use of "applicable portions of ASTM C109" for compressive strength. The practice in the industry is to use sections 10.5 thru section 12 of C109 for testing the compressive strength of grout cubes. The sections of C109 that precede section 10.5, and follow section 12, do not apply to the testing of grout cubes. Those sections, which contain the temperature and humidity requirements noted in the NOV and related CR, relate to mortar and not grout. While certain data, including temperature, were recorded on the data sheets, they are not required parameters for the compressive strength testing of grout cubes. As a further point of interest, according to QISI personnel interviewed during the investigation of the condition report associated with this matter (CR 2010-1148) the temperatures recorded were of the material being tested during mixing and not of the surrounding environment and were recorded for the benefit of engineering analysis, should one be required.

In Example 2, the NRC determined that the data processing by QISI for ASTM C109 for the testing of BETEC grout was incomplete. The NRC inspector noted the CGDP required a minimum compressive strength of 55 MPa (7977 psi) for cubes at 28 days.

ASTM C109, Section 13, requires averaging of the 3 results and comparison of the individual results to the average with individual sample deviations deemed to be faulty if they exceed certain parameters. As stated above, only sections 10.5 thru 12 of ASTM C109 apply to the testing of grout. The other sections (Sections 1 thru 10.4 and Section 13, et seq.) do not apply when testing grout. However, a review of the test results shows that even if Section 13 did apply, there would not have been a problem in terms of meeting the required values.

In addition, QISI contacted the Construction Material Engineering Council (CMEC) and spoke with their Director, regarding the use of ASTM C-109 for testing of grout both in the lab and in the field. The director explained that at this time there is no specification or standard available for the testing of grout in the field using cubes. He went on to explain that the use of C-109 in its entirety is only for the design and verification of mortars and grouts that are designed as specified in the standard. (Detailed apparent Cause Evaluation CR 2010-1148 Attachment 8, page 1)

During the course of the investigation of CR 2010-1148 it was also discovered that instead of the value of 7977 psi as the standard for the compressive strength, a value of 7000 was the stated standard on the test forms used. Interviews with QISI personnel, confirmed by interviews with URENCO USA (UUSA) personnel, indicate that QISI did not routinely receive the CGD Plan from UUSA. Rather, when the material was brought for testing by either a contractor or a field engineer, accompanied by a QC person, QISI was instructed to run a compression test. Any values, such as minimum compression values, were supplied by either the UUSA engineer or the UUSA QC personnel who had the CGDP in their possession. In this specific example, it is assumed that the value of 7000 was supplied by the individuals requesting the test or was erroneously written by the testing personnel. However, this could not be verified. Given that the 7000 psi value was incorrect it was either incorrectly supplied or incorrectly approved by quality control personnel. This would appear to have been a human performance issue. This issue was captured in CR 2010-1156.

Corrective Steps Taken and Results Achieved For Violation A, Examples 1 and 2:

1. Revised and resubmitted to document control the incorrect BETEC compressive strength test reports showing the correct 7977 psi requirement. In all cases the testing exceeded the compressive strength test requirements. Detailed Apparent Cause CR 2010-1148 and CR 2010-1156, CA-3, completed 4/19/2010.
2. Revised specification LES-S-S-04820 and CGDP 2008-45 and 2008-46 to clarify the sections of ASTM C-109 that should apply to BETEC grout. Detailed Apparent Cause CR 2010-1148 and CR 2010-1156, CA-4, completed 4/19/10.
3. The CGD process as depicted in flowcharts to Attachment 2 of the Detailed Apparent Cause for CR 2010-1148 and CR 2010-1156, CA-1, completed 4/30/2010.
4. New and revised CGD Procedures were issued and users of the CGD process were trained to those procedures. Detailed Apparent Cause CR 2010-1148 and CR 2010-1156, CA-2. Same as actions 3 and 4 and of CR 2010-0725, completed 4/30/2010.
5. During the training sessions described in No. 4 immediately above, emphasis was placed on having a "questioning attitude" when performing CGD process duties at UUSA. Detailed Apparent Cause CR 2010-1148 and CR 2010-1156, CA-6, completed 4/30/2010.

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

In recognition of the need for pervasive changes to its CGD program, UUSA initiated the following programmatic corrective actions under CR 2010-725. These changes, in addition to those described in the preceding section, have been taken to prevent further violations.

1. A multi-discipline team comprised of individuals from Procurement, Procurement Engineering, Configuration Management, Engineering, Warehouse, Quality Assurance, Quality Control, and other groups involved in the CGD process was formed to evaluate the process and to identify what steps would be required to assure the process conforms to commitments and requirements. CR-2010-725, CA #s 2 and 3, Completed 4/15/30.

2. All CGD processes from procurement and acceptance of commercial grade items through use of material in the field and related interfaces/services were reviewed and flowcharted. CR-2010-725, CA # 2, completed 4/15/2010.

3. Responsibility for the CGD Program was assigned to the Engineering (Configuration Management) organization. CR-2010-725, CA # 1, Completed 3/31/2010.

4. A comprehensive review was conducted of licensing commitments, Condition Reports, NRC Inspection Reports, NRC Inspection Procedures, QA Audits, and EPRI documents related to the CGD issues. CR-2010-725, CA #s 2 and 3, Completed 5/9/2010.

5. A Procurement Directive (PR-2-2000-01, *Procurement, Dedication, Receipt and Material Issuance*) was developed and issued to direct the inter-relationship between

CGD procedures from the initiation of a CGD plan to the issuance of affected products for implementation. CR-2010-725, CA-3, Completed 4/10/2010.

6. Procedures related to the CGD process were reviewed and revised as needed to address commitments. In all, 29 procedures were reviewed, 9 procedures have been revised and reissued. CR-2010-725, CA # 3, Completed 4/30/2010.

7. The necessary procedural changes were made to ensure that the needed handoffs occur between responsible individuals/organizations and that necessary tasks are properly completed to assure quality and to preserve physical evidence and traceability of the chain of custody. CR-2010-725, CA-3, Completed 4/15/2010.

8. Training has been, and continues to be, provided for process and procedural changes for individuals involved in the CGD process. CR-2010-725, CA-4, Completed 4/30/2010.An effectiveness review will be performed after all procedures are revised and implemented to identify any process weaknesses that may have been missed during the initial program evaluation. This review is scheduled to be completed prior to July, 2010. CR-2010-725, CA # 8

9. An additional mandatory effectiveness review will be performed just prior to the completion of software development described below to identify process weaknesses that may have been missed. This will help prevent implementation of software that does not match the CGD process. This review will be completed prior to September, 2010. CR-2010-725, CA # 11.

10. A web based program is being developed to follow the development of all CGD plans and subsequent daughter products until product issuances for implementation are executed. The program will give each individual who has a role in the process the ability to remotely provide real-time statuses and upload all pertinent documents. Procedural handoffs will be paralleled in this program. This web based program will be developed and initiated prior to September, 2010. CR-2010-725, CA # 9.

The Date When Full Compliance Will Be Achieved For Violation A, Examples 1 and 2:

UUSA achieved full compliance for Examples 1 and 2 of Violation A upon completion of correcting specifications, revising CGDP documents, procedure revisions, and training for actions taken by 4/30/2010.

The Reason For Violation A, Examples 3 and 4:

CGDP # D-2010-002 was prepared to commercially dedicate Chockfast Gray epoxy grout (Chockfast Gray). CGDP D-2010-002 was transmitted to QISI. Section J of the CGDP (Critical Characteristics and Acceptance Criteria/Method) cites ASTM **D** 695-95 thru ASTM **D** 695-02a as the compressive strength characteristic acceptance criteria. In addition, the CGD Plan cited 73° F plus or minus 3.6° F as the compressive strength test temperature. The corresponding QISI Compressive Strength Test Reports did not reference this ASTM standard. QISI Test Reports recorded values of 59.7° F and 59.2° F respectively.

QISI performed the test pursuant to ASTM **C** 695. QISI did not have data sheets for ASTM **C 695** so they chose to use the data sheets they used for ASTM C **109**. This was a human performance issue. However, this issue was, in retrospect, overwhelmed by the failure to use

the correct ASTM standard. Through a series of human and process errors, it has come to light that the appropriate ASTM standard to use would have been what was originally called for in the CGDP (ASTM **D** 695). In an unusual twist of events it was discovered that the supplier's technical bulletin for the material in question erroneously calls for the use of ASTM **C** 695 (the test QISI used) when in fact the material should be tested to ASTM **D** 695, the test called for in the CGDP. (See Attachment 6 to the Detailed Apparent Cause Evaluation for CR 2010-1136, which consists of the technical data sheet from the material supplier and a series of emails between UUSA engineers and the manufacturer.)

As a result of the typographical errors on both the Chockfast Gray supplier's data sheet and the CGDP 2010-002 (Attachment 4), testing occurred to the incorrect ASTM standard (not to ASTM **D** 695). UUSA CR/NCR 2010-1224 was generated on April 8, 2010 to document this deficiency. The NCR documents the nonconformance of all Commercial Grade Dedicated Chockfast Gray placed on site.

Corrective Steps Taken and Results Achieved For Violation A, Examples 3 and 4:

Revised CGDP-2008-002 to clarify the correct tests that need to be utilized for the Chockfast Gray grout. CR 2010-1136 CA-1, completed 4/19/2010

Subsequent to the NRC inspection it was discovered that no Chockfast Gray epoxy is required to be Commercial Grade Dedicated or foreseen to require Commercial Grade Dedication. The nonconforming Chockfast Gray material has been dispositioned by Engineering in NCR 2010-1224 to use-as-is (Closed 4/12/2010). It has been determined that the Chockfast Gray material has been used only for QL3 applications at UUSA. The Metaflex Stations (Hotboxes) in the UF6 area, in one application where Chockfast Gray was used, do contain IROFS (IROFS 1, 2, 4 and 5). However, the AREVA Seismic Analysis (AA-32-9100509) relies upon concrete undercut anchors for the mounting and support of the stations (not the Chockfast Gray placed beneath the base plates). The other application where Chockfast Gray has been used does not contain IROFS and the material is not credited as providing structural support of any kind. An EG-3-3100-03-F-1 QA Level Assignment form was completed to downgrade the quality of the Chockfast Gray for the Metaflex Stations (Hotboxes) in the UF6 area.

Corrective Steps That Will Be Taken To Prevent Further Violation A Examples 3 and 4:

Actions pertaining to the CGD program in general apply to examples 3 and 4 regarding corrective steps that will be taken to prevent further violations. See actions 1 thru 3 for examples 1 and 2.

The Date When Full Compliance Will Be Achieved For Violation B Examples 3 and 4:

UUSA achieved full compliance on 4/12/2010. CR/NCR 2010-1224, Closed.