



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

September 24, 2010

Dave Sexton, Chief Nuclear Officer  
and Vice President of Operations  
National Enrichment Facility  
P.O. Box 1789  
Eunice, NM 88231

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2010-002 AND NOTICE OF  
VIOLATION

Dear Mr. Sexton:

During the three month period from June 1 through August 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) conducted routine inspections associated with the construction activities of the Louisiana Energy Services, LLC, National Enrichment Facility (LES NEF). The purpose of the inspections was to evaluate quality assurance program implementation and safety-related construction activities to determine whether these activities were conducted safely and in accordance with NRC requirements and your license requirements. The enclosed inspection report documents the inspection results that were discussed with you and other members of your staff on July 22, 2010.

Areas examined during the inspections are identified in the report. Within these areas, the inspections consisted of a selective examination of procedures, representative records, calculations, and drawings; a review of the new equipment installed; interviews with personnel; and observations of activities in progress.

Based on the results of these inspections, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. These violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is available on the NRC's Web site at [www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html](http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html). The violations are cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding them are described in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration, NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," is available on the NRC's Web site. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

If you contest these violations or their significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region II; and (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," this document may be accessed through the NRC's public electronic reading room, Agency-Wide Document Access and Management System (ADAMS) on the internet at <http://www.nrc.gov/readingrm/adams.html>.

Should you have any questions concerning this letter, please contact me at (404) 997-4465.

Sincerely,

/RA/

Anthony D. Masters, Acting Chief  
Construction Projects Branch 1  
Division of Construction Projects

Docket No. 70-3103  
License No. SNM-2010

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 70-3103/2010-002  
w/attachment

cc w/encls: (See next page)

If you contest these violations or their significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region II; and (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC.

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DATE	08/06/10	08/17/10	08/13/10	08/16/10		
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Letter to Dave Sexton, Chief Nuclear Officer and Vice President of Operations from Anthony D. Masters, Acting Chief, Division of Construction Projects Branch 1 dated September 24, 2010.

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2010-002 AND NOTICE OF VIOLATION

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## NOTICE OF VIOLATION

Louisiana Energy Services, LLC  
Eunice, N.M.

Docket No. 70-3103  
License No. SNM-2010

During U.S Nuclear Regulatory Commission (NRC) inspections conducted from June 1 through August 31, 2010, three violations of NRC requirements were identified.

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

- A. Special Nuclear Material License Number (No.) 2010 states, 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.

Section 5, Instructions, Procedures, and Drawings, of the LES NEF QAPD states, in part, that activities affecting quality shall be prescribed by and conducted in accordance with approved procedures and other implementing documents.

LES Work Plan (WP) 1003-CIVIL-811-002, Site Excavation and Backfilling-Building 1003, WP Instruction Step No. 10, Subgrade Visual Inspection, contains a Construction/Field Engineer (CE/FE) visual inspection hold point and Quality Control (QC) witness. This step required partial area inspections to be performed and documented in an attachment to the WP.

Contrary to the above, prior to July 20, 2010, LES NEF performed WP Instruction step No. 11, Proof Roll Inspection, on Separations Building Module (SBM)-1003, column-line K, elevation 3404' subgrade, prior to performing and documenting the visual inspection required by step No. 10.

This is a Severity Level IV violation (Supplement II)

- B. Special Nuclear Material License No. 2010 states, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with statements, representations, and conditions in the approved QAPD, dated April 9, 2004, and supplements thereto.

Section 15, Nonconforming Items, of the LES NEF QAPD states that, "Employees of LES and LES contractors have a procedural obligation to identify and document nonconformances."

Procedure EG-3-2100-09: Identification, Disposition, and Resolution of Nonconforming Items, Revision (Rev.) 3, Section 5.1.1b states, "When a nonconformance is identified, then initiate a Nonconformance Report (NCR) per this procedure."

Contrary to the above, on July 22, 2010, NRC inspectors identified that the licensee failed to initiate NCRs for non-conforming on two occasions as evidenced by the following two examples:

1. Detailed Apparent Cause Evaluation, Rev. 0, for Condition Report (CR) 2010-1478 identified a potential non-conformance and a NCR was not initiated as required. Specifically, the Detailed Apparent Cause Evaluation identified one concrete compressive strength test that did not meet the requirement of 1,000 pounds per square inch (psi) prior to removal of form-work for the associated load bearing walls, as required by Section 3.1.4b of Specification 114489-S-S-03312. The 1-day concrete compressive strength for wall 1001 5.8 line D.3 second lift was found to be 650 psi.
2. Apparent Cause Evaluation for CR-2009-2036, issued on July 2, 2009, did not evaluate 44 potential non-conforming reinforcing steel releases listed in Consolidated Power Supplies (CPS) letter dated July 1, 2009, and the licensee did not provide documentation to show an evaluation was performed. Specifically, the CPS letter notified LES NEF of 44 rebar releases that contained units with potentially nonconforming minimum bend diameters. The corrective actions for the Apparent Cause Evaluation were completed on March 2, 2010, without evaluating all potential non-conforming items.

This is a Severity Level IV violation (Supplement II)

- C. Special Nuclear Material License No. 2010 states, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with statements, representations, and conditions in the approved QAPD, dated April 9, 2004, and supplements thereto.

Section 17, Quality Assurance Records, of the QAPD states, in part, that documents that are designated to become records shall be legible, accurate and completed appropriate to the work accomplished. Additionally, the QAPD states, in part, that individuals creating records shall ensure the records are legible, accurate, and complete.

Contrary to the above, a work plan that was designated as a quality assurance record was not accurate in that erroneous inspection data was included in the record, and the individuals responsible for creating and approving the record did not ensure that the record was legible, accurate and complete.

This is a Severity Level IV Violation (Supplement II)

Pursuant to the provisions of 10 CFR 2.201, Louisiana Energy Services, LLC is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copies to the Chief, Technical Support Group, Division of Fuel Cycle Safety and Safeguards, NMSS, and the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a

Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> to the extent possible, it should not include any personal privacy, proprietary, classified, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 24th day of September 2010.



**NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No.: 70-3103

License: SNM-2010

Report No.: 70-3103/2010-002

Licensee: Louisiana Energy Services, LLC (LES)

Location: National Enrichment Facility (NEF)  
Eunice, New Mexico

Inspection Dates: June 1 – August 31, 2010

Inspectors: B. Davis, Senior Construction Inspector, Construction Inspection  
Branch (CIB) 2, Division of Construction Inspection (DCI), Region II (RII)  
E. Heher, Construction Inspector, CIB2, DCI, RII  
J. Heisserer, Construction Inspector, CIB3, DCI, RII  
C. Julian, Program Manager, CIB1, DCI, RII  
J. Seat, Construction Inspector, CIB2, DCI, RII  
T. Steadham, Construction Inspector, CIB3, DCI, RII

Accompanying  
Personnel: C. Smith, Trainee, CIB2, DCI, RII  
J. Vasquez, Trainee, CIB2, DCI, RII

Approved: Anthony D. Masters, Chief (Acting)  
Construction Projects Branch 1  
Division of Construction Projects

## **EXECUTIVE SUMMARY**

Louisiana Energy Services, LLC, National Enrichment Facility (LES NEF)  
Nuclear Regulatory Commission (NRC) Inspection Report Number (No.) 70-3103/2010-002

During the three month period from June 1 through August 31, 2010, the U.S. NRC conducted routine inspections associated with the construction activities of the LES NEF. The purpose of the inspections was to evaluate quality assurance program implementation and safety-related construction activities to determine whether these activities were conducted safely and in accordance with NRC requirements and your license requirements. The enclosed inspection report documents the inspection results that were discussed with you and other members of your staff on July 22, 2010.

### **Quality Assurance: Control of Materials, Equipment, and Services (Pre-licensing and Construction) (Inspection Procedure (IP) 88108)**

The inspectors reviewed the structural steel commercial grade dedication (CGD) plans for the Quality Level 1-Graded (QL-1G) Cylinder Receipt and Dispatch Building (CRDB) butler building (including applicable procedures, CGD plans for miscellaneous structural materials, and various documents). The inspectors concluded that the acceptance methods selected by LES NEF were adequately selected for verification of critical characteristics. Additionally, the inspectors reviewed procurement, design, and installation documents for the Quality Level 1 (QL-1) structural steel beams for the CRDB bunkered area and concluded that the procurement and receipt of the beams was performed in accordance with the licensee's Quality Assurance program.

The inspectors verified that the licensee maintained adequate control of materials, equipment and services related to both the QL-1 and QL-1G structural steel components associated with the construction of the CRDB bunkered area and with the construction of Phases 2 and 4 of the Butler Building.

A licensee-identified non-cited violation (NCV) of LES NEF's Quality Assurance Program Description (QAPD), Section 4, Procurement Document Control, was identified regarding the licensee's failure to ensure that the proper grade of steel was used to fabricate structural steel beams (NCV 70-3103/2010-002-001). With the exception of this licensee-identified NCV, the licensee's commercial grade dedication plan for the structural steel components for the butler building was in compliance with requirements. (Section 2)

### **Quality Assurance: Problem Identification, Resolution, and Corrective Action (IP 88110)**

LES NEF personnel adequately documented the identification and classification of conditions adverse to quality in their corrective action program (CAP). In general, the CAP provided adequate follow-up and closure of conditions adverse to quality in accordance with requirements. However, a violation (VIO) of LES NEF's Quality Assurance Program Description (QAPD), Section 15, Nonconforming Items, with two examples, was identified involving failure to initiate NCRs for nonconforming items (VIO 70-3103/2010-002-002, Failure to Initiate NCRs for Potential Nonconforming Items). (Section 3)

**Geotechnical and Foundation Activities (IP 88131)**

Inspectors reviewed documents and observed soil inspection and testing associated with safety related construction of Item Relied on for Safety (IROFS) 27e for Separations Building Module (SBM)-1003 foundation construction activities. VIO 2010-002-003, Failure to Perform Subgrade Visual Inspection, was identified for failure to perform and document a Construction/Field Engineer and Quality Control visual inspection on SBM-1003 foundation subgrade material, as required by the approved work plan and procedures. (Section 4)

**Structural Concrete Activities (IP 88132)**

Inspectors observed and reviewed structural concrete activities and documentation associated with safety related construction of IROFS 27e for the SBM-1003 and SBM-1001 Extension. Documentation, installation, inspection, and testing were adequate. No items of safety significance were identified in this area. (Section 5)

**Mechanical Components (IP 88136)**

The inspector observed QL-1 activities and reviewed associated documents related to IROFS 41 for Cascades 5 and 6 to verify compliance with NRC regulations, the LES NEF QAPD and implementing procedures. One violation was identified (VIO 70-3103/2010-002-003, Failure to Ensure Records are Legible, Accurate and Complete). (Section 6)

**Attachment:**

Partial List of Persons Contacted  
Inspection Procedures Used  
List of Items Opened, Closed, and Discussed  
List of Acronyms Used  
Partial List of Documents Reviewed

## **REPORT DETAILS**

### **1. Summary of Facility Status**

Louisiana Energy Services, LLC, National Enrichment Facility (LES NEF) continued to perform on-going construction activities for the Separations Building Module (SBM)-1003, the SBM-1001 extension, and the Cylinder Receipt and Dispatch Building (CRDB), at LES NEF.

### **2. Quality Assurance: Control of Materials, Equipment, and Services (Pre-licensing and Construction) (Inspection Procedure (IP) 88108)**

#### **a. Scope and Observations**

The purpose of this inspection was to assess the LES procurement and commercial grade dedication (CGD) activities associated with the structural steel components for the CRDB. This inspection focused on activities related to Items Relied for Safety (IROFS) functions 27a, 27b, and 27c for the CRDB bunkered area, and IROFS 27e for the CRDB superstructure butler building.

The inspectors reviewed procurement and installation documents, as well as implementing procedures, for three CRDB structural steel beams to determine if the procurement documents met the requirements of the LES NEF Quality Assurance Program Description, Section 3, Design Control, and Section 4, Procurement Document Control. Two of the beams were procured as commercial grade items intended to be dedicated by the licensee as Quality Level 1-Graded (QL-1G) and the third beam was procured as Quality Level 1 (QL-1). The inspectors also performed field walk downs of all three beams to determine if they were installed in accordance with applicable design specifications and work plans.

The inspectors reviewed the licensee's CGD plans, procedures, and various supporting documents for the CRDB structural steel and weld materials to determine if the plans identified critical characteristics with associated acceptance criteria. The inspectors reviewed design specifications and drawings to determine if the selected critical characteristics and acceptance criteria were consistent with the design requirements and of sufficient scope to ensure that the CRDB was capable of performing the intended IROFS function.

For the selected beams, the inspectors reviewed receipt and CGD inspection documents to determine if the inspections were properly performed in accordance with licensee procedures and the specific requirements contained in the applicable CGD plans. For parts received as QL-1 material from approved QL-1 suppliers, the inspectors reviewed the receipt inspection criteria and the inspection results to determine if the licensee was effectively ensuring the quality of the received components. The inspectors also interviewed two licensee-authorized Quality Control (QC) inspectors to determine how CRDB structural steel materials were received, inspected, and stored to determine if the materials were properly controlled and marked from the time of receipt until installation to ensure adequate traceability. The inspectors reviewed the qualification and training records of two QC inspectors to determine if they were appropriately qualified in accordance with licensee procedures to perform their assigned inspections. Additionally, the inspectors independently observed CRDB material lay-down areas and

a QL-1 fastener storage trailer to determine if the materials were being controlled in accordance with licensee procedures.

The inspectors also reviewed the licensee's supplier evaluations for three commercial-grade vendors and three QL-1 vendors who furnished materials or services related to CRDB construction: two materials testing laboratories, one structural steel support supplier, one building manufacturer, one architect/engineer, and one civil/structural erection contractor. The inspectors reviewed evaluations that were performed both prior to and after the award of the contract to determine if the evaluations were performed in accordance with licensee procedures.

To ensure that the licensee was effectively reviewing, tracking, and evaluating reports of non-conformances from the respective vendors, the inspectors reviewed selected reports from CRDB structural steel material sub-suppliers. Additionally, the inspectors interviewed personnel to gain an understanding of various construction-related issues to determine if those issues were included in the licensee's corrective action program. Where issues could have been related to a non-conformance, the inspectors reviewed the non-conformance reports (NCRs) to determine if the issue was addressed.

The inspectors reviewed the CRDB design and erection drawings to determine if the proper quality level was identified on the drawings, that the drawings were legible, and that the drawings were consistent with the applicable design specifications.

On July 19, 2010, the licensee identified an error in the CGD plan for structural steel, CGD-2009-011, Revision (Rev.) 0, and documented the issue as Condition Report (CR) 2010-2299. The structural steel specification for the CRDB butler building required, in part, that structural steel plates equal to or less than one inch thick, meet the requirements of American Society for Testing and Materials (ASTM) A529 or ASTM A572, Grade 55. During their review, the licensee identified that procurement documents incorrectly specified Grade 50 steel for structural steel plates one inch thick and less.

The licensee placed a hold on fabrication, performed an extent of condition evaluation, and identified three heats that did not meet the minimum requirements to be classified as Grade 55 steel. As of the close of this inspection, the licensee identified 168 locations where the incorrect steel was used but had not identified any locations where the calculated stresses would exceed the allowable stresses for the steel that was actually used. The inspectors reviewed the licensee's immediate and planned corrective actions to determine if the actions appeared effective to preclude recurrence.

The failure to assure adequate quality of the applicable procurement documents was contrary to LES NEF's Quality Assurance Program Description (QAPD), Section 4, Procurement Document Control, which states, in part, that measures shall be established to assure that design basis which are necessary to assure adequate quality are suitably included in the documents for procurement of materials. Therefore, this non-repetitive, licensee-identified issue is characterized as a non-cited violation (NCV) consistent with Section VI.A.8 of the Enforcement Policy (NCV 70-3103/2010-002-001).

b. Conclusions

The licensee maintained adequate control of materials, equipment, and services related to both the QL-1 and QL-1G structural steel components associated with the

construction of the CRDB bunkered area and with the construction of Phases 2 and 4 of the butler building. The licensee's immediate and planned corrective actions in response to the issue described in CR 2010-2299 were appropriately focused on preventing any further use of nonconforming structural steel and evaluating the material already installed. With the exception of one licensee-identified NCV (NCV 70-3103/2010-002-004) of 10 CFR 50, Appendix B, Criterion IV, the licensee's CGD plan of the structural steel components for the CRDB butler building was acceptable.

**3. Quality Assurance: Problem Identification, Resolution, and Corrective Action (Construction, Pre-Operation, and Operation) (IP 88110)**

**a. Scope and Observations**

**(1) Procedures**

The inspectors reviewed the licensee's procedures that describe the Corrective Action Program (CAP) to determine if the procedures were in accordance with Section 16 of the licensee's QAPD and the commitment to meet Basic Requirement 16 of American Society of Mechanical Engineers (ASME) NQA-1-1994 Part 1. The inspectors verified that the procedures contained a process for reporting, follow-up and closure of issues and condition adverse to quality. The inspectors reviewed Procedure CA-3-1000-01, "Performance Improvement Program," Rev. 11 and EG-3-2100-09, Identification, Disposition, and Resolution of Nonconforming Items, Rev. 3, which described the CAP and the processes for documenting and reporting conditions adverse to quality. No findings of significance were identified.

**(2) Identification and Classification of Conditions Adverse to Quality**

The inspectors conducted reviews of several CRs to verify the adequate implementation of procedural requirements for assuring prompt identification and reporting of conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances. The inspectors also conducted reviews to verify that conditions adverse to quality were appropriately classified according to their significance and that corrective actions were taken accordingly.

The inspectors observed QC inspections to confirm that conditions adverse to quality were promptly identified. Specifically, the inspectors observed a QC inspection of Hilti Expansion Anchor bolts installation at locations No. 5 and No. 1 in the SBM-1001 extension. The inspectors also observed a QC inspection of the Skidmore Wilhelm bolt test for Lots No. 50210605, 50210589 and 50210583. The inspectors visited Warehouse # 30K to verify adequate storage and identification of QL-1 materials and that nonconforming materials were identified and segregated. The inspectors also interviewed QC inspection personnel to verify that conditions adverse to quality were identified and reported.

During the inspection period, the inspectors attended the daily Corrective Action Program Screening Committee (CAPSC) meeting. The committee's purpose was to assess each new CR and assign the significance level, responsible Functional Area Manager, evaluation method, and evaluation report due date for the CR. The inspectors evaluated the quality of the incoming CRs and the effectiveness of the committee in dispositioning the CRs. The inspectors observed that the committee dispositioned the Engineering Change Requests (ECRs) in accordance with procedural requirements.

The inspectors noted that resulting actions recommended by the committee were conservative and in accordance with the established procedure. No significant issues were identified.

(3) Documentation and Reporting of Conditions Adverse to Quality

The inspectors conducted reviews of selected CRs to determine if the licensee's Quality Assurance (QA) requirements were being implemented, including concurrence from the QA organization on proposed corrective actions. The inspectors reviewed a sample of apparent cause evaluations (ACEs) to verify appropriate corrective actions. The inspectors also verified that personnel qualified as apparent cause evaluators performed the evaluations.

The inspectors determined that the licensee generally documented, reported, evaluated, and corrected conditions adverse to quality in an adequate manner. However, the inspectors identified two examples where the licensee failed to adequately evaluate potential nonconforming items. This was identified by the NRC as violation (VIO) 70-3103/2010-002-002, Failure to Initiate a NCR for Potential Nonconforming Items.

Section 15, Nonconforming Items, of the LES NEF QAPD states that, "Employees of LES and LES contractors have a procedural obligation to identify and document nonconformances." Procedure EG-3-2100-09: Identification, Disposition, and Resolution of Nonconforming Items, Rev. 3, Section 5.1.1b states: "When a nonconformance is identified, then initiate a Nonconformance Report (NCR) per this procedure."

Contrary to the above, on July 22, 2010, the NRC inspectors identified that the licensee failed to adequately initiate a NCR for potential nonconforming items on two occasions as evidenced by the following two examples:

(a) Failure to Evaluate a Potential Nonconforming Item described in Apparent Cause Evaluation for CR-2010-1478

On July 21, 2010, the inspectors reviewed an ACE for CR-2010-1478 and determined that the licensee failed to initiate a NCR for a potential nonconforming item. The CR and ACE were in response to NRC Violation 2010-001-005 for removing formwork on a load bearing wall prior to the concrete achieving the required compressive strength. To determine the extent of condition, the ACE reviewed concrete compressive strength test data for a number of walls and identified two test samples that were below 1,000 pound per square inch (psi). Specification 114489-S-S-03312, Section 3.1.4b, requires concrete to achieve a compressive strength of 1,000 psi for load bearing walls prior to removal of formwork. The inspectors interviewed QA personnel and determined that one of the test samples was for a load bearing wall (wall 10015.8 line D.3 second lift) and was required to meet a compressive strength of 1,000 psi as stated in Specification 114489-S-S-03312, Section 3.1.4b. Although the ACE identified that the concrete test sample did not meet specifications, corrective actions were not taken nor was a nonconformance report generated to evaluate the associated wall. The licensee initiated CR-2010-2336 to document the issue and to determine what type of evaluation was needed.

(b) Failure to Evaluate a Potential Nonconforming Item described in Apparent Cause Evaluation for CR-2009-2036

On July 20, 2010, the inspectors reviewed ACE for CR-2009-2036, Consolidated Power Supply Notification of Material Nonconformance, issued on July 2, 2009. The CR was written to address a letter written by Consolidated Power Supplies (CPS), which supplied QL-1 reinforcing steel to LES at that time. The CPS letter notified LES of 44 releases of rebar that contained units with potentially nonconforming minimum bend diameters. The licensee determined that an ACE was necessary to address possible conditions adverse to quality. The ACE documented two releases with nonconforming rebar minimum bend diameters and adequate disposition was completed. However, the ACE did not evaluate all of the remaining potentially nonconforming reinforcing steel releases listed in CPS letter dated July 1, 2009. When requested by the inspectors, the licensee could not provide documentation to show an evaluation was performed. The corrective actions for the ACE were completed on March 2, 2010, without initiating an NCR for all of the potentially nonconforming items. The licensee initiated CR-2010-2351 to document this issue.

c. Conclusions

The licensee adequately documented the identification and classification of conditions adverse to quality in the site CAP. The CAP provided adequate follow-up and closure of conditions adverse to quality in accordance with requirements. However, two examples of a violation of the LES NEF QAPD, Section 15, Nonconforming Items, were identified involving failure to initiate an NCR for potential nonconforming items (VIO 70-3103/2010-002-002, Failure to Initiate an NCR for Potential Nonconforming Items).

**4. Geotechnical and Foundation Activities (IP 88131)**

a. Scope and Observations

Inspectors conducted an on-site inspection to determine if geotechnical and foundation activities were performed in accordance with NRC regulations and the requirements of the LES NEF QAPD. The inspection focused on geotechnical activities associated with safety related construction of IROFS 27e for the SBM-1003 foundation. Inspectors observed soil inspection and testing associated with QL-1 foundation construction activities. They also reviewed documentation related to those activities.

Inspectors observed visual and proof roll inspections of SBM-1003 foundation subgrade material. Inspection methods and equipment used were in accordance with LES Procedure EG-3-6000-05, Soil Inspection and Testing; and NTS Specification 114489-S-S-02300, Clearing, Grading, and Earthwork Material. Inspectors also observed geotechnical testing activities and reviewed records at the independent testing laboratory operated by Quality Inspection Services Incorporated (QISI). Testing activities were performed in accordance with appropriate procedures and ASTM specifications. Measuring and testing equipment calibration and laboratory accreditation were current.

Inspectors reviewed Work Plan (WP) 1003-CIVIL-822-002, Site Excavation and Backfill – Building 1003, and identified a failure to conduct activities affecting quality in accordance with approved procedures. LES Procedure EG-3-6000-05, Soil Inspection and Testing, Rev. 0 states, in part, that subgrade requiring placement of backfill shall be



visually inspected by the construction engineer to identify soil or deleterious material requiring removal by over-excavation and backfilling. Work instruction step No. 10 of LES WP 1003-CIVIL-822-002, Site Excavation and Backfill – Building 1003, is a visual inspection hold point. Step 10.6 requires that partial visual inspection sign-offs be documented on Subgrade/Proof roll Release Sketches in attachment Number (No.) 7 of the WP.

Contrary to the above, on July 20, 2010, inspectors identified that LES performed step 11, Subgrade Proof Roll Inspection, on SBM-1003, column-line K, elevation 3404 feet subgrade, prior to performing or documenting the visual inspection in attachment No. 7, as required by step 10. This NRC-identified failure to perform quality affecting activities in accordance with approved procedures is identified as VIO 2010-002-003: Failure to Perform Subgrade Visual Inspection. LES initiated CR 2010-2319 to capture and address this issue.

b. Conclusion

Inspectors reviewed documents and observed soil inspection and testing associated with safety related construction of IROFS 27e for SBM-1003 foundation construction activities. VIO 2010-002-003, Failure to Perform Subgrade Visual Inspection, was identified for failure to perform and document a construction/field engineer and QC visual inspection on SBM-1003 foundation subgrade material, as required by the approved work plan and procedures.

5. **Structural Concrete Activities (IP 88132)**

a. Scope and Observations

Inspectors conducted an on-site inspection to determine if structural concrete activities were performed in accordance with NRC regulations and the requirements of the LES NEF QAPD. The inspection focused on the structural concrete activities associated with safety related construction of IROFS 27e for the SBM-1003 and SBM-1001 Extension. Inspectors reviewed documentation and observed concrete reinforcing steel installation and materials testing facility operations associated with QL-1 structural concrete construction activities.

Inspectors reviewed WP 1003-CIVIL-822-001, Concrete Footing Placement No. 1 for SBM 1003; WP 1001X-CIVIL-828-007, Concrete Slab on Grade Placement No. 7 for SBM Extension; and WP 1001X-CIVIL-828-004, Roof Placement No. 4. Drawings were current and legible. Work instructions were adequate and QC signatures were appropriate for the work accomplished. Material receipt inspection documentation was adequate.

Inspectors observed construction activities associated with the WPs listed above. Inspectors observed installation of reinforcing steel for the SBM-1003 concrete footing, SBM-1001 Extension slab on grade, and SBM-1001 Extension roof. Inspectors held discussions with QC personnel and observed in-process QC inspections. Installation and inspection of reinforcing steel were adequate. Inspectors observed surveying activities associated with structural concrete construction and verified that surveying equipment was properly calibrated.

Inspectors also observed structural concrete testing activities and reviewed records at the independent testing laboratory operated by QISI. Testing activities associated with structural concrete were performed in accordance with appropriate procedures and ASTM specifications. Concrete test samples were properly marked and stored. Measuring and testing equipment calibration and laboratory accreditation were current.

b. Conclusions

Inspectors reviewed and observed structural concrete documentation and activities associated with safety related construction of IROFS 27e for the SBM-1003 and SBM-1001 Extension. Documentation, installation, inspection, and testing were adequate. No items of safety significance were identified in this area.

6. **Mechanical Components (IP 88136)**

a. Scope and Observations

The inspectors observed QL-1 activities and reviewed associated documents related to IROFS 41 for Cascades 5 and 6 to verify compliance with NRC regulations, the LES NEF QAPD, and implementing procedures. Specifically, the inspector reviewed the work plan for Non-Destructive Evaluation (NDE) on upper steelworks for Cascade 5 and work plans associated with pre-cast concrete floor mounting element (flomel) anchor bolt repair and inspection for Cascades 5 and 6.

The inspectors reviewed work plan (WP) 1001-CIVIL-852-005. This work plan described inspections conducted in 2009 that identified unsatisfactory (undersized) flomel anchor bolts. The work plan included instructions for repair and re-inspection for those anchor bolt locations that were unsatisfactory. The repairs and re-inspections for those locations took place in May 2010. When the inspector reviewed a sample of the locations documented as unsatisfactory in July 2009 to verify that they were repaired and verified as satisfactory in the May 2010 inspections, significant discrepancies between the data sets were identified, and the inspector was unable to conclude that the locations had been repaired and re-inspected.

When the QISI QC inspector was asked about the discrepancies between the data sets, he indicated that the July 2009 data included in the authenticated quality record was in error. Subsequently, he produced a spreadsheet from an uncontrolled thumb drive and stated that it was the data that should have been in the quality record. The QC inspector initiated CR 2010-2311 to amend the quality record in accordance with records management procedure. As of the inspection exit meeting, it was unknown if the erroneous data in the work plan could have led to the incorrect flomel anchor bolt locations being repaired. Four individuals, including a field engineer, the building area manager, the QA manager, and a quality records validator, authenticated and approved WP 1001-CIVIL-852-005 which contained inaccurate technical data.

Special Nuclear Material (SNM) License No. 2010 states, in part, that the licensee shall conduct authorized activities at LES NEF in accordance with statements, representations, and conditions in the approved QAPD, dated April 9, 2004, and supplements thereto.

Section 17, Quality Assurance Records, of the QAPD states, in part, that documents that are designated to become records shall be legible, accurate and completed appropriate

to the work accomplished. Additionally, the QAPD states, in part, that individuals creating records shall ensure the records are legible, accurate and complete.

Contrary to the above, work plan 1001-CIVIL-852-005, Cascade 5 Flomel Anchor Bolt Repair, which was designated as a QA record, was not accurate in that erroneous inspection data was included in the record, and the individuals responsible for creating and approving the record did not ensure that the record was accurate. This failure was identified as VIO 70-3103/2010-002-004

The inspector observed repair work and re-inspections of flomel anchor bolt locations in Cascade 6 to verify that the activities were conducted in accordance with the applicable specifications and procedures. The inspector also reviewed the qualifications of a sample of QC inspectors and NDE examiners who performed the work described in the work plans to confirm that each individual's training and qualification records were up to date and met the applicable code requirements, as well as the requirements of the QAPD and implementing procedures.

The inspector reviewed a sample of NCRs associated with Cascades 5 and 6 to verify that the nonconformances were evaluated and dispositioned in accordance with procedures.

b. Conclusions

The inspectors evaluated a sample of QL-1 activities associated with Cascades 5 and 6 of IROFS 41. The inspector identified VIO 70-3103/2010-002-004, Failure to Ensure Records are Accurate.

7. Exit Meeting

The team presented the inspection results at the conclusion of the inspection on July 22, 2010. The lead inspector described the areas inspected and discussed the inspection results in detail with licensee staff, which included Mr. Jerome Reed, Project Vice President. Although proprietary documents and processes may have been reviewed during this inspection, the proprietary nature of these documents or processes was not included in this report.

## **SUPPLEMENTAL INFORMATION**

### **1. Partial List of Personnel Contacted**

#### Louisiana Energy Services, LLC, National Enrichment Facility (LES NEF):

D. Sexton, Vice President (VP) of Operations  
J. Reed, VP of Projects  
P. Robinson, VP of Compliance and General Counsel  
S. Cowne, Director of Operations  
R. Page, Director of Engineering  
W. Padgett, Licensing Manager  
G. Sergent, Quality Assurance (QA) Manager  
D. Lakin, Performance Assessment and Feedback Manager  
P. McCasland, Licensing Specialist  
T. Taylor, Licensing Engineer  
J. Rollins, Licensing  
J. Marchi, QA Supervisor  
O. Torres, QA/Quality Control (QC)  
E. Schulte, Cylinder Receipt and Dispatch Building (CRDB) Engineering Lead  
L. Lorati, SBM 1001 Extension Engineering Lead  
Z. Smith, SBM 1001 Extension Area Manager  
K. Miller, SBM 1003 Engineering Lead  
P. Berry, Projects  
Z. McElroy, Construction  
M. Casada, Construction  
R. Bare, Program and Performance Manager  
M. Callahan, QC Inspector  
T. Capps, QC Inspector  
G. Catalano, QC Lead Inspector  
B. Gibson, QC Inspector  
B. McKenzie, Criticality and Safety Engineer  
W. Ramstedt, Performance Assessment Coordinator  
G. Rowe, QA Auditor and Corrective Action Program (CAP) Coordinator  
R. Whitford, Quality Assurance Engineer  
M. Boden, LES Director of Process and Support Systems  
G. Foster, QC  
K. Garner, QC  
E. Ontiveros, Field Engineer  
M. Rhoads, QC  
J. Smouse, QC

#### Baker:

W. Warren, QA

#### Quality Inspection Services Incorporated:

Joe Sprinkle, Project Manager

## 2. Inspection Procedures Used

- IP 88108 Quality Assurance: Control of Materials, Equipment, and Services (Pre-Licensing and Construction)
- IP 88110 Quality Assurance: Problem Identification, Resolution, and Corrective Action (Construction, Pre-Operation, and Operation)
- IP 88131 Geotechnical and Foundation Activities
- IP 88132 Structural Concrete Activities
- IP 88136 Mechanical Components

## 3. List of Items Opened, Closed and Discussed

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
70-3103/2010-002-01	Opened/Closed	Non-Cited Violation (NCV): Failure to Procure Correct Grade of Steel for Structural Steel Members (Section 2)
70-3103/2010-002-02	Opened	Violation (VIO): Failure to Evaluate Potential Nonconforming Conditions (Section 3)
70-3103/2010-002-03	Opened	VIO: Failure to Perform Subgrade Visual Inspection (Section 4)
70-3103/2010-002-04	Opened	VIO: Failure to Ensure Records are Legible, Accurate, and Complete (Section 6)

## 4. List of Acronyms Used

- ADAMS Agency-Wide Document Access and Management System
- ACE Apparent Cause Evaluation
- ACI American Concrete Institute
- ASME American Society of Mechanical Engineers
- ASTM American Society for Testing and Materials
- CAP Corrective Action Program
- CAPSC Corrective Action Program Screening Committee
- CFR Code of Federal Regulations
- CGD Commercial Grade Dedication
- CPS Consolidated Power Supplies
- CR Condition Report
- CRDB Cylinder Receipt and Dispatch Building
- ECR Engineering Change Request
- IP Inspection Procedure

IROFS	Item Relied on for Safety
LES	Louisiana Energy Services, LLC
NCR	Nonconformance Report
NCV	Non-cited Violation
NDE	Nondestructive Examination
NEF	National Enrichment Facility
No.	Number
NQA-1	Quality Assurance Program Requirements for Nuclear Facilities
NRC	U.S. Nuclear Regulatory Commission
PI&R	Problem Identification and Resolution
QA	Quality Assurance
QAPD	Quality Assurance Program Description
QC	Quality Control
QISI	Quality Inspection Services, Inc.
QL	Quality Level
QL-1	Quality Level-1
QL-1G	Quality Level-1 Graded
RII	Region 2
Rev.	Revision
SBM	Separations Building Module
SL	Severity Level
SNM	Special Nuclear Material
VIO	Violation
WP	Work Plan

## 5. **Partial List of Documents Reviewed**

### LES Licensing Documents

Safety Analysis Report Appendix A, Quality Assurance Program Description Rev. 26

### LES Procedures

EG-3-6000-01, Construction Work Plans, Rev. 6

EG-3-6000-01, Construction Work Plans, Rev. 8

EG-3-6000-03, Concrete and Grout Placement, Rev. 3

EG-3-6000-05, Soil Inspection and Testing, Rev. 0

AD-3-1000-02, Procedure Use and Adherence, Rev. 4

CA-3-1000-01, Performance Improvement Program, Rev. 11

CA-3-1000-02, Apparent Cause Evaluation Guidelines, Rev. 3

EG-3-2100-09, Identification, Disposition, and Resolution of Nonconforming Items, Rev. 3

### Specifications/Calculations

LES-S-S-00002, Rev. 2, CRDB Civil-Structural Functional Specification

LES-S-S-05130, Rev. 2, Fabrication of Structural and Miscellaneous Steel

LES-1100-C-STL-102-01-0, Rev. 0, Steel CRDB Shell – Phase IV Shakeout Plan

LES-1100-C-STL-202-01-0, Rev. 0, Steel CRDB Shell – Phase II Shakeout Plan

29883-13-001, Rev. 2, Building 1100 Structural Calculation

LES-S-S-02300, Specification for Clearing, Grading, and Earthwork Material, Construction, and Testing, Rev. 0

LES-S-S-03312, Placing Concrete and Reinforcing Steel, Rev. 0

### Commercial Grade Dedication Documentation

D-2009-011, Rev. 0, Structural Beams and Connectors Dedication Plan

D-2010-007, Rev. 0, Welding Electrode Dedication Plan  
 D-2010-008, Rev. 1, Welding Electrode Dedication Plan  
 D-2010-009, Rev. 0, Welding Electrode Dedication Plan  
 D-2010-015, Rev. 0, Welding Electrode Dedication Plan  
 D-2010-018, Rev. 0, CRDB Butler Steel Building Dedication Plan

#### Purchase Orders

LES-SC-2899, Receipt Inspection Plan Report for Girders G-22 and G-23, Dated 03/15/2010  
 LES-SC-1051, Procurement and Construction of Civil-Structure Scope for CRDB, Dated 05/16/2008  
 LES-GSA-3512, Procurement of Materials Testing & Analysis, Dated 02/19/2010  
 Subcontract No. 28683-SC-9053, Rev. 0, Structural & Miscellaneous Steel Fabrication – CRDB

#### LES Engineering Change Request (ECR)

ECR-5197, CRDB Superstructure Critical Characteristics

#### LES Drawings

1100-NOTES, Rev. 0, Bldg 1100 Erection Drawing, Notes  
 1100-S1-ERECTION, Rev. 0, Bldg 1100, Erection Drawing, Section 1  
 114489-0000-C-STL-002-01-1, Rev. 1, Steel General Notes  
 LES-1100-C-STL-002-01-0, Rev. 0, CRDB Partial Bunker 2nd Floor Framing Plan El. 3432'9"

#### LES Work Packages

1100-CIVIL-823-057  
 1100-CIVIL-823-097  
 1100-CIVIL-823-101  
 1100-CIVIL-823-012  
 1001X-CIVIL-827-004  
 1001X-CIVIL-828-007  
 1003-CIVIL-811-002  
 1003-CIVIL-822-001  
 1001-CIVIL-852-005  
 1001-CIVIL-852-007  
 1001-MECH-453-030

#### Nonconformance Reports

NCR 2010-749, Base Metal Repair Needed for Piece Mark 0HT8075 (1 of 1)

#### Condition Reports

CR 2008-2492, Missing Information from Weld History Cards  
 CR 2009-2036, Consolidated Power Supply Notification of Material Nonconformance  
 CR 2009-2878, SOG Testing, CRDB, columns "S" & "T.5" - 27.8 to 28.8  
 CR 2010-0038, Structural Steel Beams with no visible ID (NCR-2010-0038)  
 CR 2010-0148, 5-Line Wall Dowels for Section 6 Elevated Slab Do Not Meet Specified Clear Cover  
 CR 2010-0326, SEC 6 R.8 Line Wall East Face Slab Dowels Not Meet Specified Clear Cover  
 CR 2010-0329, Negative trend in NCRs

CR 2010-0607, SEC 4 North Wall Looking North Elevated Slab Dowels Do Not Meet Specified Clear Cover  
 CR 2010-0661, SEC 4 East/South/West Walls Elevated Slab Dowels Do Not Meet Specified Clear Cover  
 CR 2010-0943, SEC 2 Slab Dowels Out of Tolerance  
 CR 2010-0970, Potential Adverse Trend for Burn Through of SAW Welding  
 CR 2010-1005, On Line Mass Spec (System 429) is in the Mass Spec Room without a QC Hold Tag but has not had a SBD Receipt Inspection  
 CR 2010-1100, Upon leaving the site a random security search found alcohol in an individual's luggage  
 CR 2010-1176, Problems with delivered rebar for the 1001 SBM Extension project  
 CR 2010-1195, Patch Repair at Red Wall  
 CR 2010-1476, Inadequate Completion of Work Logs  
 CR 2010-1478, Formwork Removed Prior to Hold Point Being Signed  
 CR 2010-1483, Incorrect Acceptance Criteria in CGD Plan D-2010-008  
 CR 2010-2253, Loosening of structural bolts after final QC signoff  
 CR 2010-2296, Test Reports for CRDB  
 CR 2010-2299, Material Specification Errors in Commercial Grade Dedication Packages  
 CR 2010-2319, Lack of documented visual inspection for subgrade on SBM 1003  
 CR 2010-2320, AWS D1.1 Code Edition Discrepancy Between Licensing and Design Basis  
 CR 2010-2328, Incorrect Material Grade for CRDB Butler Building  
 CR 2010-2330, CRDB Phase 2 Erection – Missing Bolted Connection Worksheet  
 CR 2010-2331, Loose Piece Mark tab on Column 0HT8094 (5 of 7)  
 CR 2010-2332, Illegible Drawing, EPD-1100-S1-ERECTION  
 CR 2010-2333, EG-3-6000-03 Procedure enhancements need to facilitate implementation  
 CR 2010-2353, Discrepancy Identified in AWS Code Year for Girder G22  
 CR 2010-2430, Incorrect Acceptance Criteria in CGD Plan D-2010-009  
 CR 2010-2447, Error in CGD Plan D-2010-015  
 CR 2010-2448, CGD Plans D-2010-007, 008, and 009 Did Not Properly Complete the Seismic Checklist

#### Miscellaneous

Evaluation No. 2009-E-01-003, Approved Supplier List Evaluation, Dated 12/30/2008  
 Evaluation No. 2009-E-07-083, Approved Supplier List Evaluation, Dated 07/02/2009  
 Evaluation No. 2010-E-06-094, Approved Supplier List Evaluation, Dated 06/23/2010  
 Evaluation No. 2010-E-07-099, Approved Supplier List Evaluation, Dated 07/19/2010  
 Surveillance Report No. 2010-S-03-070, QL1 Vendor Surveillance Report, Dated 05/20/2010  
 Audit No. 2009-AUD-EXT-01-003, QL1 Vendor Audit Report, Dated 02/06/2009  
 Apparent Cause Evaluation for CR-2009-2036  
 Audit No. 2010-A-03-007 URENCO USA Performance Assessment and Feedback, 4/21/2010  
 Audit No. 2009-A-04-021 Performance Improvement Audit, 6/30/2009  
 Audit No. 2010-A-06-041 LES Audit of Parsons, 7/09/2010  
 Common Cause Evaluation for CR 2008-3011  
 Detailed Apparent Cause Evaluation for CR 2010-1478  
 Detailed Apparent Cause Evaluation for CR 2008-2492  
 Surveillance 2010-S-02-041, Rev. 1, 2/10/2010 Corrective Action Effectiveness



LES Project QL1 Completion Checklist for Part No. 0HT8094 (5 of 7), Dated 06/16/2010

Selected Certified Material Test Reports for CRDB Beams 0HT-8056 and 0HT-8094

Receipt Inspection for PO LES-SC-1051, Dated 05/01/2010

Selected QA Personnel Training Records

CA133-41347-160, Certificate of Calibration for Go/No go flomel gauge NEF-749

CA133-42271-160, Certificate of Calibration for Go/No go flomel gauge NEF-750

Personnel Certification Record (PT and MT Level II) for employee 9401160

AWS CWI Certificate 09021661 for QC Inspector J.S.

LES Certificate of Qualification for QC Inspector J.S.

Quality Inspection Services Inc. Certificates of Training (PMI, UT Digital Thickness Level II and Hardness testing) for QC Inspector M.R.

EG-3-6000-04-F2, Fastener pretension/Torque Verification for Work Plan No. 1001-CIVIL-B25-012