



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

December 22, 2010

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

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2010-015 AND NOTICE OF VIOLATION

Dear Mr. Sexton:

The U.S. Nuclear Regulatory Commission (NRC) conducted an inspection associated with the construction activities of the Louisiana Energy Services, L. L. C., National Enrichment Facility (LES NEF). The inspection was conducted on October 4 - 7, 2010. The purpose of the inspection was to conduct a programmatic and performance-based review of the LES NEF quality assurance and quality control program as it pertained to specific construction activities. The review included the corrective actions and extent of condition evaluations performed by LES NEF in response to the NRC Notice of Violation issued in Inspection Report 070-3103/2010-013, which centered on the commercial grade dedication activities for Cascade 3. The enclosed inspection report, which documents the inspection results, was discussed with you and other members of your staff on October 7, October 19, and again on November 17, 2010.

Based on the results of this inspection, the NRC has determined that two 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. 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 or were identified by the licensee as a result of a prior NRC Notice of Violation.

Except as noted in the following paragraph, 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.

The NRC has concluded that information regarding the reason for Example 3 of Violation A of the enclosed Notice of Violation, the corrective actions taken and planned to be taken to correct the violation and prevent recurrence, and the date when full compliance will be achieved, is already adequately addressed on the docket in Inspection Report No. 70-3013/2010-015, therefore no response for Example 3 of Violation A is required.

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," a copy of this letter, its enclosure(s), and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC's public reading room, Agency-Wide Document Access and Management System on the internet at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this letter, please contact me at (404) 997-4555.

Sincerely,

/RA by Alain Artayet acting for/

Eric Michel, Acting Chief
Construction Inspection Branch 3
Division of Construction Inspections

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

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 70-3103/2010-015 w/attachments

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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Sincerely,

/RA by Alain Artayet acting for/

Eric Michel, Acting Chief
Construction Inspection Branch 3
Division of Construction Inspections

Docket No. 70-3103
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Enclosures:

1. Notice of Violation
2. NRC Inspection Report 70-3103/2010-015 w/attachments

cc w/encls: (See next page)

☐ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ☐ NON-SENSITIVE
ADAMS: ☒ Yes ACCESSION NUMBER: ML103560272 ☐ SUNSI REVIEW COMPLETE

OFFICE	RII:DCI	RII: DCI	RII:DCI	RII:DCI	RII:DCP	
SIGNATURE	JOC	Via email	Via email	DJS	C. Taylor for	
NAME	J. Calle	J. Heisserer	C. Jones	J. Seat	D. Seymour	
DATE	12/21/2010	12 / 17/ 10	12 /21 / 10	12/21/2010	12/21/2010	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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2010-015 FINAL DRAFT 12-22-10.DOCX

D. Sexton

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cc w/encl:

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Letter to David Sexton from Eric Michel, dated December 22, 2010

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2010-015 AND NOTICE OF
VIOLATION

DISTRIBUTION w/encl:

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PUBLIC

NOTICE OF VIOLATION

Louisiana Energy Services, L.L.C.
Eunice, N.M.

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

During a Nuclear Regulatory Commission (NRC) inspection conducted on October 4 - 7, 2010, violations of NRC requirements were identified.

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

Special Nuclear Material (SNM) License No. 2010 requires, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF) in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), dated April 9, 2004, and supplements thereto. The LES NEF QAPD commits to American Society of Mechanical Engineers (ASME) NQA-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.

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

Contrary to the above, prior to October 4, 2010, the licensee's QA organization failed to conduct the required selected reviews and oversight of the commercial grade dedication (CGD) of IROFS. The licensee's QA organization failed to ensure that the acceptability of several critical characteristics specified for pipeworks and upper steelworks associated with the CGD of cascade components designated as IROFS 41 were adequately verified, as evidenced by the following examples:

1. The material strengths of bolts and nuts in the pipeworks and upper steelworks listed as critical characteristic 7a for Cascade 3 were not adequately verified. This finding was identified by the licensee. However, this finding was directly related to their response to Notice of Violation (NOV) 070-3103/2010-013, dated September 20, 2010. Subsequent to the issuance of the letter by the licensee and prior to this inspection, the licensee identified that contrary to their formal response, not all of the required destructive testing of the bolt and nut material had been performed.
2. Material requirements of fixed clamps using the PMI (positive material testing) process listed as critical characteristic 1c for Cascade 3 were not adequately verified.
3. The required volumetric examination of complete joint penetration welds on turnbuckle components in the upper steelworks for Cascades 2 and 3, listed as part of critical characteristic 9, were not performed. This was identified by the licensee, but only as a result of conducting the extent of condition evaluation in response to NOV 070-3103/2010-013, dated September 20, 2010.

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

- B. Section 4, Procurement Document Control, of the LES NEF QAPD and Basic Requirement 4, Procurement Document Control, of NQA-1-1994, state, in part, that measures shall be established to assure that applicable requirements which are necessary to assure adequate quality, are suitably included or referenced in the documents for procurement of material, equipment, and services. LES NEF procedure PR-3-2000-01, "LES Control of Procurement," Section 5.7.2, states that QL-1 suppliers must be included on the Approved Suppliers List (ASL) for the proper scope of work prior to approving and awarding a procurement contract.

Contrary to the above, prior to October 4, 2010, the licensee had awarded a procurement contract with a QL-1 supplier for a scope of work that was not included on the ASL. Purchase Order 303199 to Broadway Electric Service Corporation, authorized the supplier to define design requirements for commercial grade dedication (CGD) of IROFS 1, 2, 4, and 5 equipment items; whereas, the authorized scope of work specified on the ASL limited work activities to installation, fabrication, and procurement of electrical components. As a result of the procurement contract, the supplier proceeded to develop and implement a CGD plan which failed to specify a critical characteristic necessary to accomplish the safety function of IROFS 1, 2, 4, and 5.

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

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 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.

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.

Your response may reference or include previous 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.

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 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 at Atlanta, Georgia this 22nd day of December 2010.

NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-3103

License No.: SNM-2010

Report No.: 70-3103/2010-015

Licensee: Louisiana Energy Services, L.L.C. (LES)

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

Inspection Dates: October 4 - 7, 2010

Inspectors: J. Calle, Senior Construction Inspector, Construction Inspection Branch 3
(CIB3), Division of Construction Inspection (DCI), Region II (RII)
C. Jones, Senior Construction Inspector, CIB1, DCI, RII
J. Heisserer, Construction Inspector, CIB3, DCI, RII
J. Seat, Construction Inspector, CIB2, DCI, RII

Accompanying
Personnel: Robert Mathis, Construction Inspector, CIB1, DCI, RII (Trainee)
James H. Moorman III, Deputy Director, Division of Construction Projects
(DCP), RII

Approved: Eric Michel, Acting Chief, CIB3, DCI, RII

EXECUTIVE SUMMARY

Louisiana Energy Services, L.L.C., National Enrichment Facility Nuclear Regulatory Commission Inspection Report No. 70-3103/2010-015

The U.S. Nuclear Regulatory Commission (NRC) conducted a follow-up team inspection associated with the construction activities of the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF) on October 4 – 7, 2010. On October 7, 2010, a formal exit meeting was held with the licensee to discuss the inspection findings. A formal re-exit was held via teleconference with the licensee on October 19, 2010 and again on November 17, 2010. The purpose of the inspection was to evaluate quality assurance program implementation and Quality Level 1 safety-related construction activities and determine whether these activities were conducted safely and in accordance with NRC requirements and the license requirements.

Emphasis was placed on the corrective actions and extent of condition evaluations performed by LES NEF in response to the NRC Notice of Violation (NOV) issued in Inspection Report 070-3103/2010-013, regarding Cascade 3, and the associated root cause analysis. In addition, the extent of condition evaluations performed with regards to Cascades 1 and 2 were also reviewed. As applicable, the inspectors verified the adequacy of corrective actions described in the NOV responses submitted by LES NEF. Focus was placed on NOV's associated with the procurement, installation and testing of Cascades 1, 2 and 3.

Quality Assurance: Program Development and Implementation (Inspection Procedure (IP) 88106)

A review of preparation, implementation, verification, and oversight activities associated with commercial grade dedication (CGD) of Items Relied on for Safety (IROFS) was conducted, including a review of the root cause analysis performed for Cascades 1, 2, and 3 in response to the NRC NOV issued in Inspection Report 070-3103/2010-013. Based on the review, no findings of significance were identified. (Section 2)

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

A review of the licensee's implementation of the corrective action program (CAP) for facility construction and other areas associated with support of construction activities was conducted. LES NEF personnel 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. Based on the review, no findings of significance were identified. (Section 3)

Geotechnical and Foundation Activities (IP 88131)

Inspectors reviewed documents and observed soil inspection and testing associated with the safety related construction of IROFS 27e for the Separations Building Module (SBM)-1003 foundation. Based on the review, no findings of significance were identified in this area. (Section 4)

Structural Concrete Activities (IP 88132)

Inspectors reviewed documentation and observed structural concrete construction activities associated with safety related construction of IROFS 27e for the SBM-1003 foundation. Based on the review, no findings of significance were identified in this area. (Section 5)

Structural Steel and Support Activities (IP 88133)

Inspectors reviewed documentation and observed material storage activities associated with safety related structural steel construction of IROFS 27e for the Cylinder Receipt and Dispatch Building (CRDB) Butler Building. Based on the review, no findings of significance were identified in this area. (Section 6)

Mechanical Components (IP 88136)

The NRC inspectors conducted an inspection to assess the fabrication and installation of the centrifuge, process piping, and upper steelworks for Cascade 3. The NRC inspectors reviewed the applicable CGD packages and supporting documentation (including drawings and work packages) to determine whether the critical characteristics specified were adequately verified.

One Severity Level (SL) IV violation (VIO) of Section 2, Quality Assurance Program, of the LES NEF Quality Assurance Program Description (QAPD) was identified for failure to conduct the required selected reviews and oversight of the acceptability of critical characteristics specified for pipeworks and upper steelworks CGD of cascade components designated as IROFS 41. This was identified as VIO 70-3103/2010-015-001. (Section 7)

Electrical Components and Systems (IP 88138)

NRC inspectors conducted a review of activities associated with supplier selection, procurement, and receipt inspection of electrical and instrumentation and control (I&C) IROFS equipment designated for service on Assay Line 2. One Severity Level IV violation of Section 4, Procurement Document Control, of the LES NEF QAPD was identified for a violation of requirements for control of procurement. This was identified as VIO 70-3103/2010-015-002. (Section 8)

Attachments:

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

REPORT DETAILS

1. Summary of Facility Status

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

2. Quality Assurance: Program Development and Implementation (Inspection Procedure (IP) 88106)

a. Scope and Observations

The inspectors evaluated the root cause analysis that was performed for Cascades 1, 2, and 3 in response to the Nuclear Regulatory Commission (NRC) Notice of Violation issued in Inspection Report (IR) 070-3103/2010-013. The analysis report document was reviewed and licensee personnel associated with the commercial grade dedication (CGD) program were interviewed to assess whether an adequate basis was established for the root and contributing causes, whether the extent of condition was determined, and whether corrective actions addressed the identified causes. Those interviewed were involved in various aspects of the CGD activities including engineering, quality control, quality assurance, and craft personnel. The inspectors discussed the CGD process including organizational responsibilities, training, and identified expectations, as well as known and perceived areas of weakness and where improvements could be made. The inspectors evaluated the implementation of the licensee's Quality Assurance Program as it pertained to cascade components and discussed Mechanical Components inspection in Section 7.

b. Conclusions

The root cause analysis provided to evaluate the conditions identified in the NRC Notice of Violation (NOV), provided an adequate review of the condition and an appropriate corrective action plan. Licensee personnel interviewed provided information consistent with the discussions presented in the root cause analysis. No findings of significance were identified.

3. Quality Assurance: Problem Identification, Resolution, and Corrective Action (IP 88110)

a. Scope and Observations

The inspectors conducted a review of various LES NEF documents and activities related to the CGD of Cascade 3 components for conformance to NRC regulations, the LES NEF Quality Assurance Program Description (QAPD), and applicable industry standards. The inspectors evaluated programmatic implementation of the licensee's problem identification, resolution, and corrective action process to determine compliance with the site Corrective Action Program (CAP).

b. Conclusions

The site CAP provided adequate follow- up and closure of conditions adverse to quality

in accordance with requirements. No findings of significance were identified.

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 Item Relied on for Safety (IROFS) 27e for the SBM-1003 foundation. Inspectors reviewed documentation and observed soil inspection and testing associated with Quality Level (QL)-1 Graded (G) foundation construction activities.

Inspectors reviewed Work Plan (WP) 1003-CIVIL-811-007, Excavation and Backfill for SBM-1003 South Side. Inspectors observed visual inspections and nuclear density gauge testing of SBM-1003 foundation subgrade material associated with the WP listed above. Inspection and testing activities were performed in accordance with LES Procedure EG-3-6000-05, Soil Inspection and Testing; and NTS Specification LES-S-S-02300, Clearing, Grading, and Earthwork Material. Measuring and testing equipment calibration was current.

b. Conclusions

Inspectors reviewed documents and observed soil inspection and testing associated with the safety related construction of IROFS 27e for the SBM-1003 foundation. No findings of significance were identified.

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. Inspectors reviewed documentation and observed concrete reinforcing steel installation, concrete placement, and concrete batch plant operations associated with QL-1G structural concrete construction activities.

Inspectors reviewed WP 1003-CIVIL-822-015, Concrete Footing Placement #15 & #15A for SBM-1003 and WP 1003-CIVIL-822-016, Concrete Footing Placement #16 for SBM-1003. Inspectors observed reinforcing steel placement associated with the WPs listed above. Inspectors reviewed documents and observed concrete mudmat placement associated with WP 1003-CIVIL-811-007, Excavation and Backfill for SBM-1003 South Side. Inspectors held discussions with Quality Control (QC) personnel and observed in-process QC inspections. Inspectors also observed concrete batch plant activities associated with safety related concrete production.

b. Conclusions

Inspectors reviewed documentation and observed structural concrete construction

activities associated with safety related construction of IROFS 27e for the SBM-1003 foundation. Work instructions were adequate and QC signatures were appropriate for the work accomplished. Installation and inspection of reinforcing steel and concrete were adequate. Concrete constituents were properly stored and labeled. Concrete mixing and transportation equipment had current National Ready Mix Concrete Association (NRMCA) certifications. Weighing and metering equipment calibration was current. Concrete Batch Plant activities were performed in accordance with specification LES-S-03310, Mixing and Delivering of Concrete. No findings of significance were identified.

6. Structural Steel and Support Activities (IP 88133)

a. Scope and Observations

Inspectors conducted an on-site inspection to determine if structural steel activities were performed in accordance with NRC regulations and the requirements of the LES NEF QAPD. The inspection focused on the structural steel activities associated with safety related construction of IROFS 27e for the CRDB Butler Building. Inspectors reviewed documentation and observed material storage activities associated with QL-1G structural steel construction.

Inspectors reviewed WP 1100-CIVIL-823-109, Structural Steel Erection for CRDB “Butler Building” Phase 1 and WP 1100-CIVIL-823-097, Structural Steel Erection for CRDB Phase 4. Drawings were current. QC personnel qualifications were in accordance with procedure QA-3-3000-02-F-1, QC Inspector Training and Qualification. High strength bolt testing was in accordance with procedure EG-3-6000-04, Erection of Structural and Miscellaneous Steel. Measuring and test equipment used for bolt testing was properly stored and calibrated.

Inspectors also reviewed procurement and receipt inspection documentation for structural steel members and high strength bolts associated with the WPs listed above. Procurement documents contained appropriate material specifications and performance requirements. Receipt inspection documentation was complete and associated material test reports indicated acceptable material properties and performance.

Inspectors observed structural steel lay down areas and structural steel fastener storage areas. QL-1G structural steel members were properly segregated and supported on cribbing. Identification and status markings were present on the structural steel members sampled. Structural steel fasteners were adequately stored, segregated, marked, protected, and controlled.

b. Conclusions

Inspectors reviewed documentation and observed material storage activities associated with safety related structural steel construction of IROFS 27e for the CRDB Butler Building. Documentation, procurement, receipt, and storage activities were adequate. No findings of significance were identified.

7. Mechanical Components (IP 88136)

a. Scope and Observations

The NRC inspectors conducted inspection activities to assess the fabrication and

installation of the centrifuge, process piping, and upper steelworks for Cascade 3. The NRC inspectors reviewed the applicable CGD package and supporting documentation (including drawings and work packages) to determine whether the critical characteristics specified were adequately verified. The inspectors focused on reviewing the various dedication activities conducted by LES NEF in response to the findings identified by the NRC regarding the CGD of Cascade 3, as documented in IR 070-3103/2010-013. The licensee implemented organizational changes and reevaluated critical characteristic verification documentation. The inspectors sampled the documentation generated to verify the acceptability of the critical characteristic verification.

The inspectors performed an independent verification of a sample of three critical characteristics for Cascade 3, including fixed clamp clearance, sliding clamp clearance, and glide plate alignment, to verify that the acceptance criteria defined in the CGD plan were consistent with the conditions found in the field. For the sample selected, there were no findings of significance.

As part of their response to the NRC findings identified in IR 070-3103/2010-013, LES NEF conducted extent of condition evaluations with regards to critical characteristic verifications performed for Cascades 1, 2 and 3. The NRC inspectors discussed the results of the extent of condition evaluations with LES NEF and reviewed the various documents generated to date.

Findings Identified

Critical characteristic 7a of the pipeworks and upper steelworks section of the Cascade 3 CGD package required the verification of the bolt and nut material for adequate strength utilizing the Method 1 verification process. Destructive testing of specific samples for the bolts and nuts installed on Cascade 3 was required. The NRC identified in IR 070-3103/2010-013 that not all of the required destructive tests were performed. The licensee investigated the finding and formally responded to the NRC in a letter dated September 20, 2010 that corrective measures were implemented and that all of required tests were performed. Subsequent to the issuance of the letter by the licensee and prior to this inspection, the licensee identified that contrary to their formal response, not all of the required destructive testing of the bolt and nut material had been performed.

Critical characteristic 1c of the pipeworks and upper steelworks section of the Cascade 3 CGD package required the verification of the fixed clamp material properties, including chemical concentration and hardness values, using the PMI (positive material testing) process. During the review of the verification data submitted by the licensee, the inspectors determined that the material properties listed did not comply with the acceptance criteria established for the critical characteristics as documented in the CGD plan.

Critical characteristic 9 of the upper steelworks section of the Cascades 2 and 3 CGD packages required that structural welding must comply with the requirements of the American National Standards Institute (ANSI) N690 – Specification for Safety-Related Steel Structures for Nuclear Facilities and the American Welding Society (AWS) D1.1 – Structural Steel Welding Code. One of the applicable code requirements was that complete joint penetration welds on turnbuckle components must undergo volumetric testing and all results must meet AWS D1.1 requirements. LES NEF, during the conduct of the extent of condition evaluation in response to NOV 070-3103/2010-013, identified that the required volumetric examination of the complete joint penetration welds on

turnbuckle components in the upper steelworks for Cascades 2 and 3, listed as part of critical characteristic 9, were not performed. The licensee issued CR-2010-3198 to address the issue. As part of the effort to correct these conditions, LES NEF removed a sample of turnbuckles for volumetric examination (radiography). The radiography that was subsequently performed resulted in failures. The radiography identified indications of lack of fusion in the weld, and LES NEF elected to replace the original turnbuckles with a new design of turnbuckle without the complete joint penetration welds. For the turnbuckle assemblies that were originally installed in Cascades 1 and 2 during operation, the inspectors reviewed the operability evaluation completed by LES NEF to verify that there was no adverse safety impact as a result of the weld defect and that the performance requirements of 10 CFR 70.61 were met.

The following violations were identified:

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 QL-1 processes and programs. In particular, the LES NEF QA organization reviews and concurs with the selection of the IROFS and the application of QA requirements to the IROFS, any items which are determined to be essential to the functions of the IROFS, and items required to satisfy regulatory requirements for which QL-1 requirements are applied.

Contrary to the above, prior to October 4, 2010, the licensee's QA organization failed to conduct the required selected reviews and oversight of the CGD of IROFS. The licensee's QA organization failed to ensure that the acceptability of several critical characteristics specified for pipeworks and upper steelworks associated with the CGD of cascade components designated as IROFS 41 were adequately verified, as evidenced by the following examples:

1. The material strengths of bolts and nuts in the pipeworks and upper steelworks listed as critical characteristic 7a for Cascade 3 were not adequately verified. This finding was identified by the licensee. However, this finding was directly related to their response to NOV 070-3103/2010-013, dated September 20, 2010, which stated that this critical characteristic had been adequately verified.
2. Material requirements of fixed clamps using the PMI (positive material testing) process listed as critical characteristic 1c for Cascade 3 were not adequately verified.
3. The required volumetric examination of complete joint penetration welds on turnbuckle components in the upper steelworks for Cascades 2 and 3, listed as part of critical characteristic 9 were not performed. This was identified by the licensee, but only as a result of conducting the extent of condition evaluation in response to NOV 070-3103/2010-013, dated August 20, 2010.

Significance

The CGD packages for Cascades 2 and 3 were submitted for NRC review by LES NEF on the basis that all required verification activities were performed and documented and that Cascades 2 and 3 were fully certified as QL-1. The inadequate verification of the critical characteristics identified by the NRC rendered the CGD of Cascades 2 and 3 incomplete and the QL-1 qualification indeterminate. The inspectors determined that this violation meets Agency's guidance for more-than-minor significance because the

condition, if left uncorrected, represents a condition adverse to quality that renders the quality of the activity unacceptable or indeterminate.

b. Conclusions

The inspectors determined that several critical characteristics listed in CGD Plan D-2010-012, Rev. 0, were adequately specified. However, a violation of the LES NEF QAPD, Section 2, was identified for failure to conduct the required selected reviews and oversight of the acceptability of several critical characteristics specified for pipeworks and upper steelworks CGD of Cascades 2 and 3 components designated as IROFS 41. This was identified as VIO 70-3103/2010-015-001, Failure to Verify Acceptability of Critical Characteristics.

8. Electrical Components and Systems (IP 88138)

a. Scope and Observations

The inspectors verified whether procurement, receipt, and handling of purchased instrumentation and control (I&C) and electrical IROFS implemented applicable regulatory requirements and license commitments. The items inspected included control panels, power panels, and components associated with thermocouple and resistance temperature detector (RTD) sensors which provide an automatic trip of fuel handling station heaters and fans on detection of high station internal air temperature.

In addition, inspectors conducted direct observations of plant areas where the IROFS equipment was to be installed.

The inspectors interviewed responsible personnel from Quality Assurance, Project Engineering, Procurement, and Quality Control to evaluate the conduct of activities affecting the quality of electrical and I&C equipment designated as IROFS 1, 2, 4, and 5 for Assay Line 2. In addition, the inspectors examined records of supplier audits and surveillances, procurement documents, vendor testing, equipment qualification, and receipt inspection that were created to demonstrate acceptability of the IROFS equipment. The inspectors also conducted walkdown inspections of the areas in the Uranium Hexafluoride (UF₆) Fuel Handling Building where the Assay Line 1 IROFS equipment has been placed in service and where the Assay Line 2 IROFS equipment will be installed.

Findings Identified

One violation of regulatory requirements was identified. Specifically, a QL-1 supplier (Broadway Electric Services Corporation) was contracted to conduct design control activities that were not authorized by the LES Approved Suppliers List (ASL).

The initial supplier acceptance audit of Broadway Electric Services Corporation (BESCO) categorized design control as not applicable to the audit scope and did not make a determination as to whether the supplier was capable of conducting design control activities. Consistent with this result, the licensee updated the ASL on September 14, 2009 to authorize BESCO to perform a scope of services that was limited to installation, fabrication, and procurement of electrical components. On October 7, 2010, the inspectors determined that although the Approved Suppliers List did not include design control activities in the approved scope of services, Purchase Order 303199 had

been awarded to BESCO to prepare and implement commercial grade dedication (CGD) of items comprising the panels and equipment for IROFS 1, 2, 4, and 5. The translation of design basis requirements into specifications for CGD is a design control function.

Furthermore, the inspectors identified that BESCO proceeded to prepare and implement a CGD of components contained in the power panels and control panels for IROFS 1, 2, 4, and 5. The CGD results were approved by the supplier and LES NEF and the panels were delivered to the LES NEF site. The inspectors determined that the critical characteristics specified for 480 V electrical circuit interrupters (i.e. electrical contractors) in the power panels were incomplete. Specifically, the critical characteristics did not include a requirement for the electrical contractors to interrupt power while under load. The capability of the electrical contractors to interrupt power is critical to accomplishing the safety function as described in the Integrated Safety Analysis Summary (ISAS), Section 3.8, Items Relied on for Safety (IROFS), Table 3.8.1. The ISAS table states that the safety function of IROFS 1, 2, 4, and 5 is to provide automatic trips to the associated heaters and fans, as applicable, on high station internal air temperature to ensure cylinder integrity.

The following violations were identified:

Section 4, Procurement Document Control, of the LES NEF QAPD and Basic Requirement 4, Procurement Document Control, of NQA-1-1994 requires, in part, that measures shall be established to assure that applicable requirements which are necessary to assure adequate quality, are suitably included or referenced in the documents for procurement of material, equipment, and services. The requirement was implemented in part by procedure PR-3-2000-01, LES Control of Procurement, Section 5.7.2, which stated that QL-1 suppliers must be included on the ASL for the proper scope of work prior to approving and awarding a procurement contract.

Contrary to the above, prior to October 4, 2010, the licensee had awarded a procurement contract with a QL-1 supplier for a scope of work that was not included on the ASL. Purchase Order 303199 to Broadway Electric Service Corporation, authorized the supplier to define design requirements for CGD of IROFS 1, 2, 4, and 5 equipment items; whereas, the authorized scope of work specified on the ASL limited work activities to installation, fabrication, and procurement of electrical components. As a result of the procurement contract, the supplier proceeded to develop and implement a CGD plan which failed to specify a critical characteristic necessary to accomplish the safety function of IROFS 1, 2, 4, and 5.

Significance

The inspectors determined this violation meets Agency guidance for more-than-minor significance because the condition, if left uncorrected, represents a condition adverse to quality that renders the quality of the activity unacceptable or indeterminate, and represents a failure to establish, implement or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate.

b. Conclusions

NRC inspectors conducted a review of activities associated with supplier selection, procurement, and receipt inspection of electrical and I&C IROFS equipment designated

for service on Assay Line 2. The inspection of controls for procurement, receipt, and handling of purchased electrical and I&C IROFS equipment identified a violation of requirements for control of procurement documents. A violation of Section 4, Procurement Document Control, of the LES NEF QAPD and Basic Requirement 4, Procurement Document Control, of NQA-1-1994 was identified for a violation of requirements for control of procurement. This was identified as VIO 70-3103/2010-015-002

9. Inspection Follow-Up Items

Inspectors reviewed CGD plans associated with Inspector Follow-Up Item (IFI) 070-3103/2010-001-04, CRDB Footer CGD Package Review. The CGD plans were undergoing revision and the amount of completed activities associated with these plans was not sufficient to disposition the IFI. IFI 070-3103/2010-001-04 remains open.

10. Exit Meeting / Interviews

Issues identified during the inspection were summarized daily during the inspection period of October 4 through 7, 2010, by the inspection team leader. A formal exit meeting was held on October 7, 2010 with the licensee's management team. A re-exit conference call was held on October 19, 2010 and again on November 17, 2010. The inspectors described the areas inspected and discussed the inspection results in detail with the licensee staff. Although proprietary documents were reviewed during this inspection, the proprietary nature of these documents was not included in this report.

SUPPLEMENTAL INFORMATION

1. List of Personnel Contacted

Louisiana Energy Services, L. L.C., National Enrichment Facility (LES NEF):

E. Andes, Quality Assurance
P. Berry, Configuration Management- Engineering
J. Berstler, Project Management
C. Chartier, Engineering
D. Cephas, Materials
S. Cowne, Operations Director
J. Davoren, Configuration Management
E. Dawdy, Materials
B. Hanson, Operations
A. Krisza, Engineering
J. Laughlin, Tech Services Director
P. McCasland, Licensing
A. McGee, Engineering
J. Marchi, QA
C. Markert, Operations
K. Miller, Engineering
C. Munns, Engineering
P. Newey, Procurement
B. Norton, Configuration Management
W. Padgett, Licensing
C. Questa, QC
J. Reed, Vice President – Projects
B. Robinson, Chief of Staff
G. Sanford, Compliance
J. Smouse, QC
B. Sucier, QA
T. Taylor, Licensing
O. Torres, QA

2. Inspection Procedures Used

88106 Quality Assurance: Program Development and Implementation
88110 Quality Assurance: Problem Identification, Resolution and Corrective Action
88131 Construction: Geotechnical/Foundation
88132 Construction: Structural Concrete
88133 Construction: Structural Steel and Support
88136 Construction: Mechanical Components
88138 Construction: Electrical Components and Systems

3. List of Items Opened, Closed and Discussed

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
2010-015-001	Opened	Violation (VIO): Failure to Verify the Acceptability of Critical Characteristics (Section 7)
2010-015-02	Opened	Violation (VIO): Failure to assure that applicable requirements are included in procurement document (Section 8)
2010-001-04	Discussed	Inspection Follow-up Item (IFI): CRDB Footer CGD Package Review

4. List of Acronyms Used

ADAMS	Agencywide Documents Access and Management System
ANSI	American National Standards Institute
ASL	Approved Suppliers List
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
BESCO	Broadway Electric Service Corporation
CGD	Commercial Grade Dedication
CR	Condition Report
CRDB	Cylinder Receipt and Dispatch Building
I&C	Instrumentation and Controls
IFI	Inspection Follow-up Item
IP	Inspection Procedure
IR	NRC Inspection Report
IROFS	Items Relied on For Safety
ISAS	Integrated Safety Analysis Summary
LES NEF	Louisiana Energy Services Nuclear Enrichment Facility
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
PMI	Positive Material Identification
QA	Quality Assurance
QAPD	Quality Assurance Program Description
QC	Quality Control
QL-1	Quality Level 1
Rev	Revision
RII	Region 2
SBM	Separations Building Module
SNM	Source and/or Special Nuclear Materials
UF ₆	Uranium Hexafluoride
VIO	Violation

5. List of Documents Reviewed

Procedures/Programs

EG-3-21000-05, Commercial Grade Dedication Process, Rev. 6
 CA-3-1000-01, Performance Improvement Program, Rev. 11
 PR-3-2000-01, LES Control of Procurement, Rev. 4
 PR-3-3000-01, Supplier Deviation Disposition Request, Rev. 0
 EG-3-6000-03, Concrete and Grout Placement, Rev. 3
 EG-3-6000-04, Erection of Structural and Miscellaneous Steel, Rev. 6
 EG-3-6000-05, Soil Inspection and Testing, Rev. 0
 QA-3-3000-02-f-1, QC Inspector Training and Qualification, Rev. 2

Specifications

114489-S-Q-01401-3, Specification for Quality Assurance Program Requirements for
 QA Level 1, Rev. 3
 Form PR-4-2000-02-F-6, Receipt Inspection Plan for Requisition 4005746, Rev. 0
 Form PR-4-2000-02-F-6, Receipt Inspection Plan for Requisition 4005746, Rev. 4
 LES-S-S-02300, Specification for Clearing, Grading, and Earthwork Material,
 Construction, and Testing, Rev. 2
 LES-S-S-03310, Mixing and Delivering of Concrete, Rev. 0
 LES-S-S-03312, Placing Concrete and Reinforcing Steel, Rev. 1
 LES-S-S-05131, Erection of Structural and Miscellaneous Steel, Rev. 1

Audits

Supplier Audit Report for Broadway Electric Service Corporation issued by Baker
 Concrete Construction, dated September 23, 2009
 Surveillance Report 2010-S-07-440, Factory Acceptance Testing of IROFS 1, 2, 4, and 5
 Control and Power Panels, dated August 20, 2010

Work Plans

1001-MECH-453-008
 1001-MECH-453-011
 1001-MECH-453-020
 1001-MECH-453-021
 1001-MECH-453-028
 1001-MECH-453-058
 1001-MECH-457-002
 1001-CIVIL-823-018
 1003-CIVIL-811-007
 1003-CIVIL-822-015
 1003-CIVIL-822-016
 1100-CIVIL-823-097
 1100-CIVIL-823-109

Condition Reports (CR)

2010-2299
2010-3085
2010-3172
2010-3181
2010-3186
2010-3195
2010-3197
2010-3200
2010-3201
2010-3203
2010-3206

Other Documents

EG-3-2100-05-F-2 CGD Plan, Dedication No.: D-2010-012, Rev. 0
EG-3-2100-05-F-3 CGDP Verification Results for CGD Plan D-2010-012 for Cascade 3
2010-2530-0-3-0-8RCE2010-2530CR, Root Cause Evaluation – Commercial Grade
Dedication of Cascade 3
Purchase Order 303199, Including Change Order 1, issued to Broadway Electric Service
Corporation in Oak Ridge, TN
Form QA-3-2000-08-F-1, ASL Evaluation/Database Entry for Broadway Electric Service
Corporation, dated November 14, 2009
Approved Suppliers List LES Evaluation Report for Broadway Electric Service
Corporation, dated May 07, 2010
BESCO Factory Acceptance Test Report TP-211-001, IROFS Panel Factory Acceptance
Testing, Rev. 1
BESCO Commercial Grade Dedication Plan CGD-211-01, Rev. 0
Safety Analysis Report Appendix A, Quality Assurance Program Description Rev. 26