



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW, SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

September 30, 2009

Gregory Smith, Chief Operating Officer  
and Chief Nuclear Officer  
National Enrichment Facility  
P.O. Box 1789  
Eunice, NM 88231

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2009-003 AND NOTICE OF VIOLATION

Dear Mr. Smith:

During the period from June 1, through August 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed inspections of construction and hot acceptance testing activities related to the construction of the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF). The purpose of the inspections was to evaluate quality assurance program implementation, construction activities, radiation protection, and environmental protection programs. The enclosed inspection report, which documents the inspection results, was discussed with you and other members of your staff on June 26, August 13, and September 21, 2009.

Based on the results of this inspection, 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. These violations are of concern because recently several issues have been identified in configuration management. The Agency is concerned with your implementation of this program. These violations are of concern because they involve continuing procedure implementation and configuration control issues. Robust procedure compliance and configuration control programs provide reasonable assurance to the NRC and the public that regulatory, license, and design requirements are adequately translated into the as-built facility.

You are required to respond to this letter and should follow the instructions specified in the enclosed notice when preparing your response. The guidance from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is available on the NRC's Web Site and may be helpful. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. In addition, to the violations discussed above, a violation was also identified and treated as a minor violation, consistent with Section IV of the Enforcement Policy. The minor violation is described in the subject inspection report.

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/reading-rm/adams.html>.

Should you have any questions concerning this letter, please contact me at (404) 562-0556.

Sincerely,

**/RA/**

Deborah A. Seymour, 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 70-3103/2009-003 w/attachment

cc w/encls: (See next page)

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/reading-rm/adams.html>.

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PUBLICLY AVAILABLE     
  NON-PUBLICLY AVAILABLE     
  SENSITIVE     
  NON-SENSITIVE  
 ADAMS:  Yes     
 ACCESSION NUMBER: ML092730612     
  SUNSI REVIEW COMPLETE

OFFICE	RII:DCP	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:DCI
SIGNATURE		Via Email	Via Email	Via Email	Via Email	Via Email
NAME	C.Taylor	R. Jackson	J. Calle	J. Blake	B. Burgess	B. Prince
DATE	9/ /09	9/8/2009	9/28/2009	9/8/2009	9/8/2009	9/8/2009
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII:DCI	RII:DCI				
SIGNATURE	Via Email	Via Email				
NAME	JMoorman	KO'Donohue				
DATE	9/28/2009	9/8/2009				
E-MAIL COPY?	YES NO	YES NO				

cc w/encls:

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555 13th Street, NW  
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Letter to Gregory Smith from Deborah A. Seymour dated September 30, 2009

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2009-003 AND NOTICE OF VIOLATION

DISTRIBUTION w/encls:

B. Smith, NMSS  
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PUBLIC

## NOTICE OF VIOLATION

Louisiana Energy Services, L.L.C.  
National Enrichment Facility

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

During a Nuclear Regulatory Commission (NRC) inspection conducted on June 22 though 26, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

- A. Special Nuclear Material License Number (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 Safety Analysis Report (SAR), Revision 20, dated March 2, 2009, and supplements thereto.

The SAR, Section 4.4, Commitment to Written Procedures states, "All operations at LES involving license materials are conducted through the use of procedures as required by 10 CFR 70.22(8) (sic) (CFR, 2003h). Radiation Protection procedures are prepared, reviewed and approved to carry out activities related to the radiation protection."

Radiation Protection Procedure, RP-3-2000-07, Personnel Contamination Events, Revision 2, Section 5.1 states, "Personnel contamination limits at the exit from a Radiological Controlled Area (RCA) for skin and any item or clothing worn by an individual that is not in protective clothing shall be 150 dpm/100 cm<sup>2</sup> alpha and 150 dpm/100 cm<sup>2</sup> beta-gamma."

Contrary to the above, from February 12, to June 25, 2009, personnel contamination limits at the exit from a RCA for the Centrifuge Test Facility (CTF), for skin and any item or clothing worn by an individual that is not in protective clothing, were not at 150 disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup>) alpha and 150 dpm/100 cm<sup>2</sup> beta-gamma. Specifically, the contamination monitoring instrumentation, SEA/HFC Hand and Foot Monitor, was not sensitive enough to detect the limits specified in the approved procedures because the analysis time for the monitor was too short

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

- B. Special Nuclear Material License No. 2010 requires, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), dated March 5, 2009, and supplements thereto

The QAPD, Section 3, Design Control, states in part, that "Design changes are governed by control measures commensurate with those applied to the original design... Configuration management is maintained in accordance with the applicable procedure and the applicable procedures controlling changes to the various types of design documents."

Contrary to the above, as of June 25, 2009, a design change to the CTF special ventilation system located in the Centrifuge Assembly Building (CAB) was not governed by control measures commensurate with those applied to the original design. Configuration management was not maintained in accordance with the applicable

procedure and the applicable procedures controlling changes to the various types of design documents. Specifically, Licensing Basis Document Change Request (LBD CR) 2009-0007, incorrectly identified that a change for carbonate filters located inside the CTF special ventilation system was not a configuration change. As a result, the change was not implemented in accordance with the licensee's procedure EG-3-2100-01, Configuration Change, Attachment 2, Part 1, and appropriate process hazard analyses were not performed.

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

- C. Special Nuclear Material License NO. 2010 requires, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with statements, representations, and conditions in the approved LES NEF Environmental Report (ER), Revision 13 dated March 5, 2009, and SAR, Revision 20, dated March 5, 2009, and supplements thereto.

The SAR, Section 4.6, Ventilation Programs, states, "Air released from the Centrifuge Test Facility and the Centrifuge Post Mortem Facilities is filtered by the Centrifuge Test Facility and the Post Mortem Facilities Exhaust Filtration System prior to release. ... The systems contain particulates and carbon adsorption filters to remove radioactive materials from the gas stream prior to release from the plant."

The ER, Section 4.12.2.1.5, Mitigation Measures, states, "The gaseous effluent passes through pre-filters, HEPA filters, and activated carbon filters, all of which greatly reduce the radioactivity in the final discharged effluent to very low concentrations." The gaseous effluents for the ER are identified for the CTF and the Centrifuge Post Mortem Facilities (CPMF).

Contrary to the above, from February 12, 2009, to August 31, 2009, portions of the effluent released from the CTF and the CPMF was not filtered by the CTF and CPMF exhaust filtration system prior to release. Specifically, pre-filters, high efficiency particulate air (HEPA) filters, and activated carbon filters were not seated properly and the effluent stream was at least partially by-passing the filters, resulting in inadequate filtration of the CTF effluents

**This is a Severity Level (SL) 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 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 at Atlanta, Georgia this XX<sup>th</sup> day of September 2009

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION II**

Docket: 70-3103

License: SNM-2010

Report: 70-3103/2009-003

Licensee: Louisiana Energy Services, L.L.C.

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

Inspection Dates: June 22-26, 2009  
August 10-13, 2009

Inspectors C. Taylor, Senior (Sr.) Project Inspector, Construction Projects Branch 1  
(CPB1), Division of Construction Projects (DCP), Region II (RII)  
J. Calle, Sr. Construction Inspector, Construction Inspection Branch 3  
(CIB3), Division of Construction Inspection (DCI), RII  
B. Burgess, Sr. Construction Inspector, CIB3, DCI, RII  
J. Blake, Sr. Construction Inspector, CIB3, DCI, RII  
J. Kent, Construction Inspector, CIB3, DCI, RII  
N. Karlovich, Construction Inspector, CIB3, DCI, RII  
R. Jackson, Sr. Construction Inspector, Construction Inspection Branch 2  
(CIB2), DCI, RII  
J. Lizardi, Sr. Construction Inspector, CIB2, DCI, RII  
R. Prince, Fuel Facility Inspector, Fuel Facility Inspection Branch 1,  
Division of Fuel Facility Inspection, RII

Accompanying  
Personnel: D. Seymour, Branch Chief, CPB1, DCP, RII  
D. Arroyo, Office of Nuclear Materials Safety and Safeguards

Approved: Deborah A. Seymour, Chief  
Construction Projects Branch 1  
Division of Construction Projects

## EXECUTIVE SUMMARY

Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF)  
Nuclear Regulatory Commission (NRC) Inspection Report 70-3103/2009-003

This report covers a four-month period of announced inspections by regional inspectors. The inspections involved the observations and evaluations of selected aspects of the licensee's Quality Assurance (QA) program activities related to Quality Level (QL) -1 construction activities; radiation protection and environmental protection related to hot acceptance testing (HAT) activities and selected aspects of the licensee's management controls and organization program related to the operational readiness reviews (ORRs). During this inspection period the following inspections were performed: on June 23-27, inspections were performed in the areas of radiation protection and environmental protection for HAT activities; on August 10-14, inspections were performed in the areas related to QA program development and implementation, and design and document control; on August 11-14, inspections were performed in the areas of design and document control, concrete, steel and support activities, and management organization and controls as it related to the ORRs.

### **Management Organization & Controls (Inspection Procedure (IP) 88005)**

Although LES NEF made significant progress in developing and preparing for the ORRs, portions of the policies and procedures needed to support the ORRs were not complete and were not formally approved by senior management. The ORRs scheduled for late August and early October were subsequently rescheduled for mid-November 2009 (Section 2.0).

### **Radiation Protection (IP 88030)**

Personnel exiting the radiological control area (RCA) followed established contamination control monitoring procedures. Appropriate radiological control safety measures were prescribed on radiation work permits covering various centrifuge test facility (CTF) work activities. Airborne contamination monitoring equipment was available and operable to support CTF work activities. However, a violation involving personnel contamination limits was identified as violation (VIO) 70-3103/2009-003-001, Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (SEA/HFC Hand and Foot Monitor) (Section 3.0).

### **Effluent Control and Environmental Protection (IP 88045)**

Control room personnel were knowledgeable of their responsibilities relating to effluent monitoring and alarm response. Effluent monitors for the CAB/CTF facility were maintained and response checks performed in accordance with approved procedures. However, two VIOs were identified: VIO 70-3103/2009-003-002, Inadequate Configuration Change for the Filter Type Used in the CTF Special Ventilation Unit; and VIO 70-3103/2009-003-004, Inadequate Filter Installation Resulting in Inadequate Filtration of CTF Special Ventilation Unit Effluent(Section 4.0).

### **Quality Assurance: Program Development and Implementation (IP 88106)**

The inspectors identified Unresolved Item (URI) 70-3103/2009-003-005, Audits of Various Site Programs, related to the licensee's activities associated with the performance of required audits of various site programs (Section 5.0).

**Design and Document Control (IP 88107)**

The inspectors determined that URI 70-3103/2008-003-001, Failure to Control Engineering Change Requests for Quality Assurance QL-1 Construction Activities, will remain open (Section 6.0).

**Structural Concrete Activities (IP 88132)**

On going QL-1 construction work and oversight activities related to structural concrete work were performed in accordance with the project procedures and specifications. The structural concrete records reviewed demonstrated appropriate implementation of the QA program. No findings of significance were identified (Section 7.0).

**Structural Steel and Support Activities (IP 88133)**

The inspectors performed walk downs in the Cylinder Receipt and Dispatch Building (CRDB) steel structure and held discussions with licensee staff related to means and methods of construction. During this inspection, no structural steel construction activities were performed, however, the CRDB steel structure's as-built condition was observed. The inspectors also discussed the quality level upgrading process for already purchased and installed structural steel in the CRDB steel structure with LES' staff. No findings of significance were identified (Section 8.0).

**Attachment:**

Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed

List of Acronyms Used

List of Documents Reviewed

## REPORT DETAILS

### 1.0 Summary of Site Activities

The licensee continued to perform ongoing hot acceptance testing activities, concrete, structural steel, and welding activities at Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF.)

### 2.0 Management Organization and Controls (Inspection Procedure (IP) 88005)

#### a. Scope and Observations and Conclusions

Although LES NEF made significant progress in developing and preparing for the Operational Readiness Reviews (ORRs), portions of the policies and procedures needed to support the ORRs were not complete and were not formally approved by senior management. The ORRs scheduled for late August and early October were subsequently rescheduled for mid-November 2009.

### 3.0 Radiation Protection (IP 88030)

#### a. Scope and Observations

From June 22-25, 2009, inspectors conducted an on-site inspection at LES NEF to determine if radiation protection program activities implemented to support Centrifuge Test Facility (CTF) activities were performed in accordance with approved procedures. The inspectors observed radiological control measures established for the CTF, reviewed associated radiation work permits, and reviewed operational status and functional checks of radiation monitoring equipment.

The inspector reviewed the operational status and availability of radiological monitoring equipment in the CTF. The inspectors noted that a local continuous air monitor (CAM) was located in the immediate work area to provide early indication in the event that airborne radioactivity concentrations exceeded designated levels. Additionally, the licensee had provided a general area fixed-head, portable air sampling station, used to monitor airborne concentration levels in the general work area of the CTF.

Appropriate radiological control safety measures were prescribed on radiation work permits covering various CTF work activities. The inspectors noted that individuals entering the CTF wore the prescribed protective clothing. The inspectors observed responsible personnel as they performed the daily functional response check for the contamination survey meter used by personnel exiting the CTF radiological control area (RCA). They also observed personnel exiting the RCA follow the established contamination control monitoring procedures requirements.

The inspectors observed that contamination monitoring equipment was available at the exit point of the CTF RCA. Contamination monitoring equipment included a hand and foot monitor (HFM) and hand-held survey meters. On June 25, 2009, inspectors identified that the licensee's contamination monitoring instrumentation, a hand and foot monitor, failed to demonstrate sensitivity requirements identified in site radiological procedures and licensing basis documents.

The Safety Analysis Report (SAR), Section 4.4, Commitment to Written Procedures states, "All operations at LES involving license materials are conducted through the use of procedures as required by 10 CFR 70.22(8) (sic) (CFR, 2003h). Radiation Protection procedures are prepared, reviewed and approved to carry out activities related to the radiation protection."

Radiation Protection Procedure, RP-3-2000-07, Personnel Contamination Events, Revision 2, Section 5.1 states, "Personnel contamination limits at the exit from a Radiological Controlled Area (RCA) for skin and any item or clothing worn by an individual that is not in protective clothing shall be 150 dpm/100 cm<sup>2</sup> alpha and 150 dpm/100 cm<sup>2</sup> beta-gamma." The inspectors determined, from February 12, to June 25, 2009, that personnel contamination limits at the exit from a RCA for the Centrifuge Test Facility (CTF), were not measured at 150 disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup> ) alpha and 150 dpm/100 cm<sup>2</sup> beta-gamma), the required sensitivity. Specifically, the contamination monitoring instrumentation, SEA/HFC Hand and Foot Monitor, was not sensitive enough to detect the limits specified in the approved procedures because the analysis time for the monitor was too short

The failure by the licensee to promptly identify and correct this condition was considered a violation (VIO) of RP-3-2000-07, Personnel Contamination Events, Revision 2. This was identified by the Nuclear Regulatory Commission (NRC) as VIO 70-3103/2009-003-001, Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (SEA/HFC HFM). The licensee issued Condition Report (CR) 2009-1895 to address the issue.

The inspectors noted that the licensee immediately removed the HFM from service and required individuals to use the hand-held survey meters for contamination monitoring, pending resolution of the issue. The inspectors determined, based upon a review of selected radiological survey records from February to June 2009, and discussions with radiation safety personnel and process operators, that no contamination or radiological concerns had been experienced since the start-up of hot acceptance testing (HAT) activities. Upon subsequent evaluation, the licensee adjusted the HFM alarm set points to a value higher than the initial setting. The licensee successfully confirmed that all detectors on the HFM alarmed at approximately 1000 dpm/100 cm<sup>2</sup>. The revised alarm setting is in agreement with accepted industry values.

The inspectors also reviewed the qualifications of the Radiation Protection Manager and found that the individual met the requirements of American National Standards Institute (ANSI) 3.1-1993, Selection, Qualification, and Training of Personnel for Nuclear Power Plants. Specifically, the incumbent had an Associate of Science degree and had completed the semester hour requirements specified in ANSI 13.1, Section 4.1.1.1 (3)(c) that specifies the alternative educational requirements for individuals who do not possess a Bachelor of Science degree. Based on discussions with the Health Safety and Environmental Manager and the Radiation Protection Manager, the inspector determined that the individual was knowledgeable of his responsibilities and his ability to bring safety-related issues to the attention of upper management. No issues of safety significance were identified.

The inspectors interviewed responsible personnel and found that the licensee has initiated a program to qualify various personnel in specific job tasks. The inspector noted that the licensee has developed various task-specific training modules to train and

qualify individuals in the performance of radiological monitoring activities. The training program involves a review of applicable procedures and on-the-job training. Licensee personnel stated that the program will be expanded as the facility approaches commercial operations. No issues of safety significance were identified.

b. Conclusions

Personnel exiting the RCA followed established contamination control monitoring procedures. Appropriate radiological control safety measures were prescribed on Radiation Work Permits covering various CTF work activities. Airborne contamination monitoring equipment was available and operable to support CTF work activities. However, a violation involving personnel contamination limits was identified as VIO 70-3103/2009-003-001, Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (SEA/HFC HFM)

4.0 Effluent Control and Environmental Protection (IP 88045)

a. Scope and Observations

From June 22-25, 2009, inspectors conducted an on-site inspection at LES to evaluate the effluent control and environmental protection programs with regards to those activities implemented to support CTF operations. The inspectors reviewed the operability of effluent stack discharge monitoring equipment, discussed the performance and reliability of the equipment with responsible personnel, and observed field activities.

The inspectors observed the operation of the CAB alpha and hydrogen fluoride (HF) gaseous effluent monitors and reviewed functional operational check data sheets. The inspectors noted that these monitors provide readout locally and in the control room. Based on discussions with the CAB operators, the inspectors confirmed that individuals were knowledgeable of the stack readings and the actions to take in the event of an alarm.

Since the start-up of the HAT activities, the licensee has generated and implemented several configuration changes associated with the CAB special ventilation unit. The special ventilation unit consists of a filter housing that contains various filter media, sampling lines for monitoring of HF and alpha contamination concentrations in the stack effluent, and associated duct work. The inspectors noted that CAB special filter unit was a quality level (QL)-3 component and was not an item relied on for safety (IROFS).

Inspectors initially reviewed Configuration Change (CC) 2008-0198 during the initial HAT readiness reviews and concluded that the elimination of in-place filter testing requirements for the special ventilation unit was acceptable. The licensee demonstrated that the postulated worst-case accident consequences of unfiltered gaseous effluents from the CAB would not result in any significant offsite safety consequences. The licensee's analyses assumed that the total amount of radioactive material allowed in the CAB (50 kilograms of uranium hexafluoride (UF<sub>6</sub>)) was released to the environment. Based upon their evaluation, the licensee elected to eliminate testing requirements of the filter media. The licensee did not credit the filters for reduction in postulated offsite release consequences and could demonstrate compliance with offsite dose limits to members of the public. The NRC reviewed and verified the licensee's dose calculations (see Safety Evaluation Report TAC-L32401, accessible through the NRC's public

electronic reading room, Agency-Wide Document Access and Management System (ADAMS) on the internet at <http://www.nrc.gov/reading-rm/adams.html> at accession number ML 081140788).

The inspectors also discussed the resolution of the interdisciplinary reviewer's comments to ensure that the comments were considered and resolved. The inspectors verified that the comments were reviewed and resolved prior to the CC being closed. However, the inspectors' initial review of the package concluded that the evaluation package needed additional detail and clarity to justify the removal of in-place testing and efficiencies for filters. The licensee initiated CR 2009-0337 to revise the evaluation.

The inspectors determined that another change to the CTF special ventilation unit occurred at the end of 2008. This changed the filter media from the original licensing design of potassium carbonate to potassium permanganate. The carbonate filters would have removed hazardous gases such as HF from the CAB effluent stream. However, the potassium permanganate filter specification sheet did not identify that the filters would remove HF. This filter change was implemented under Licensing Basis Document Change Request (LBDCR) 2009-0007.

The Quality Assurance Program Description (QAPD), Section 3, Design Control, states in part, that..."Design changes are governed by control measures commensurate with those applied to the original design...Configuration management is maintained in accordance with the applicable procedure and the applicable procedures controlling changes to the various types of design documents."

As of June 25, 2009, the licensee's design change to the Centrifuge Test Facility special ventilation system located in the CAB was not governed by control measures commensurate with those applied to the original design. Configuration management was not maintained in accordance with the applicable procedure and the applicable procedures controlling changes to the various types of design documents. Specifically, LBDCR 2009-0007 incorrectly identified that a change for carbonate filters located inside the CTF special ventilation unit was not a proposed configuration change. As a result, this change was not maintained in accordance with the licensee's procedure EG-3-2100-01, Configuration Change, Attachment 2, Part 1. Attachment 2 requires that proposed changes that impact the health and safety environmental program (i.e. environmental protection) are configuration changes.

This issue was identified as a violation of the licensee's QAPD, Section 3., Design Control, and identified by the NRC as VIO 70-3103/2009-003-002, Inadequate Configuration Change for the Filter Type Used in the CTF Special Ventilation Unit. The licensee initiated CR-2009-1931 in response to this NRC violation.

The inspectors reviewed effluent reports for the continuous alpha and HF monitor downstream of the CAB filtration unit. The NRC's review of the records showed that effluent releases for the time frame the potassium permanganate filters were in place were well below the regulatory limits for the public and onsite workers. On August 31, 2009, inspectors determined that the licensee successfully changed the filters in the CTF special ventilation unit from potassium permanganate to potassium carbonate, as specified in the original licensing design.



A configuration change requires evaluating the need to perform a process hazards analysis. As a result of this violation, fire and chemical hazards analyses for the potassium permanganate filters were not evaluated prior to their installation into the ventilation system. Subsequent to the June 22-25 inspection, the licensee performed fire and chemical hazard analyses and determined that the change in the filter media did not create a credible fire or chemical hazard.

The use of potassium permanganate filters in a potentially radiological effluent stream created the potential for hazardous material in the form of mixed-waste. Based on discussions with the licensee, the inspectors found that the licensee had previously issued CR 2009-0095 to address this matter. The inspectors determined that the filters were stored in three shipping certified B25 boxes. The licensee indicated that the three boxes were sealed with tamper indicating devices and stored in the CTF awaiting non-destructive analysis. Two of the boxes contain the potassium permanganate filters and the high efficiency particulate air filter (HEPA) filter banks. The third box contained the pre-filters.

The licensee has indicated that should the filters be radiological contaminated, the material will be stored for disposal with the pre-filters as low level radioactive waste and the potassium permanganate cartridges as mixed waste in accordance with Resource Conservation and Recovery Act requirements. Licensee personnel stated that final disposal of the filter media would be based upon analyses results and final waste characterization of the filter media. This issue was identified as Inspector Follow-up Item, (IFI) 70-3103/2009-003-003, Review of Final Disposition of Potential Mixed Waste CTF Filters, to review the final disposition of this matter.

The inspectors determined, from discussions with the licensee and a review of CR 2009-2304, that during the week of July 18, 2009, the licensee's maintenance department unsuccessfully attempted to change the CAB CTF potassium permanganate filters back to potassium carbonate filters, as specified in the original licensing basis design. Upon entering the CAB CTF special filtration unit, the workers identified that the potassium permanganate filter installation allowed portions of the effluent to bypass the filters, potentially allowing HF and uranium particulate to be released to the environment without filtration.

The SAR, Section 4.6, Ventilation Programs, states, "Air released from the Centrifuge Test Facility and the Centrifuge Post Mortem Facilities is filtered by the Centrifuge Test Facility and the Post Mortem Facilities Exhaust Filtration System prior to release. The system operates slightly below atmospheric pressure to remove potentially hazardous vapors and particulate from confined areas of the plant. The systems contain particulates and carbon adsorption filters to remove radioactive materials from the gas stream prior to release from the plant." Environmental Report, Section 4.12.2.1.5, Mitigation Measures states, "The gaseous effluent passes through prefilters, HEPA filters, and activated carbon filters, all of which greatly reduce the radioactivity in the final discharged effluent to very low concentrations."

The inspectors concluded that, from February 17 through August 31, 2009, the licensee's special filtration unit filters had been installed incorrectly, allowing portions of the effluent to bypass the filters, potentially allowing HF and uranium particulate to be released to the environment, without the filtration required by the ER and the SAR. The inspectors identified this as a violation of the licensee's environmental report and SAR.

The issue was identified as VIO 70-3103/2009-003-004, Inadequate Filter Installation Resulting in Inadequate Filtration of CTF Special Ventilation Unit Effluent

The inspectors reviewed selected effluent reports for February through August 2009, and determined that effluent releases for uranium constituents were well below regulatory limits. On August 31, 2009, the licensee successfully changed the filter media for the CTF from potassium permanganate to potassium carbonate.

The licensee established a contract to use the services of an approved analytical radiochemical services company for HAT activities in the CTF. This laboratory would be used to analyze any liquid or gaseous effluent releases during HAT activities. To date, the licensee has not generated any contaminated liquid effluent during HAT activities. As a contingency, the licensee has installed two 300 gallon liquid hold-up tanks. The capacity of these tanks was sufficient to contain liquid waste volumes that could potentially be generated during HAT activities. The major projected source of liquid waste was associated with equipment decontamination activities.

The inspectors determined that in December 2008, the licensee began routing domestic water to the City of Eunice, New Mexico, sewage treatment system. Various documents reference that domestic water will be treated on site and that the domestic water system is not connected to any offsite municipal treatment system. The inspectors determined that the licensee had established and implemented an analysis and monitoring program for domestic waste water effluent pathways routed to Eunice. From a review of sewage records from February through September 2009, the inspectors determined that sewer releases were below radiological background levels. However, impacted licensing basis documents (LBDs) were not revised prior to implementation. Failure to revise impacted LBDs prior to routing domestic water to an offsite municipal treatment system was identified as a minor violation in accordance with Section IV of the NRC Enforcement Policy. This failure constituted a violation of minor safety significance and is not subject to formal enforcement action because the change involved domestic water effluent not radiological effluent.

b. Conclusion

Control room personnel were knowledgeable of their responsibilities relating to effluent monitoring and alarm response. Effluent monitors for the CAB facility were maintained and response checks performed in accordance with approved procedures. However, two violations were identified: VIO 70-3103/2009-003-002, Inadequate Configuration Change for the Filter Type Used in the CTF Special Ventilation Unit; and VIO 70-3103/2009-003-004, Inadequate Filter Installation Resulting in Inadequate Filtration of CTF Special Ventilation Unit Effluent (Section 4.0).

**5.0 Quality Assurance: Program Development and Implementation (IP 88106)**

a. Scope and Observations

From August 10 to August 13, 2009, the inspectors evaluated the Quality Assurance (QA) program at LES NEF, including the changes implemented by LES after terminating Washington Group International (WGI) as the primary constructor and Nuclear Technology Solutions (NTS) as the primary design engineering organization. The inspectors reviewed procedures, held discussions with QA representatives concerning

the organizational structure and roles and responsibilities of QA personnel, and observed QA activities in the field.

The inspectors identified a concern related to the licensee's activities associated with the performance of required audits of various site programs. Section 18 of the LES NEF QAPD states, in part, that: "internal or external audits shall be scheduled at a frequency commensurate with the states and importance of the work. Internal or external audits shall be scheduled to begin as early in the life of the work as practical and shall be scheduled to continue at intervals consistent with the schedule for accomplishing the work. As a minimum, internal audits of LES QA Level 1 and QA Graded Level 1 activities shall be performed a least once per year or at least once during the life of the activity, which ever is shorter."

LES Implementing procedure, QA-3-2000-01, Quality Assurance Audit, Revision 2, dated May 15, 2009, states, in Section 5.1.2, that "at a minimum, QAP shall schedule audits for: a. During design and construction, and preoperational phase: 1. One QA audit every 12 months for the following activities, to the extent there is relevant ongoing work, or at least once during the life of (the) activity, whichever is shorter: Configuration Management, Design bases control, Startup Test Program, Training and qualification of personnel, Procedures, Corrective Action Program/Incident Investigation, Records Management, and QA Organization."

As of August 13, 2009, the licensee was unable to provide evidence that annual internal audits had been conducted in the areas of Startup Test Program and Records Management. The inspectors determined that this issue, if left uncorrected represented a failure to establish an adequate process, program, procedure, or quality oversight function. At the time of the inspection, the inspectors were unable to determine the significance of this issue.

The inspectors were unable to determine if, as a consequence, important work activities were not reviewed at a frequency commensurate with their importance to safety. Additional review is needed. Therefore, this issue will remain unresolved pending NRC review. The inspectors identified this issue as Unresolved Issue (URI) 70-3103/2009-003-005, Audits of Various Site Programs.

b. Conclusion

The inspectors identified URI 70-3103/2009-003-005, Audits of Various Site Programs, related to the licensee's activities associated with the performance of required audits of various site programs.

**6.0. Design and Document Control (Inspection Procedure (IP) 88107)**

a. Scope and Observations

The inspectors reviewed portions of the LES NEF design control program to determine if the program effectively controls procedures used to implement the design at LES, including design input controls, processes, verifications, change controls, interface controls, and identified deviations from specified standards. This inspection also reviewed the quality controls that are used to procure QL-1 parts, components and systems. The inspectors reviewed licensee actions associated with URI 70-3103/2008-

003-001, Failure to Control Engineering Change Requests for Quality Assurance QL-1 Construction Activities; and URI 70-3103/2009-002-002, Commercial Grade Dedication of Items and Services Associated with IROFS 41.

The inspectors identified an additional concern related to the URI 70-3103/2008-003-001 with regards to design control. The inspectors determined that the licensee failed to implement design control measures commensurate with those applied to the original design in evaluating discrepancies between several engineering change requests and the parent design documents associated with Separations Building Module (SBM) 1001. In addition, the measures that were taken did not include verification that the design analyses for the structure, system or component were still valid. At the time of inspection, the inspectors were unable to determine the significance of the issue. Review of additional documentation obtained following the inspection was needed. Therefore, the two URI's listed above will remain unresolved pending further NRC review of the significance of the design control issues identified

b. Conclusion

The inspectors determined that URI 2008-003-001, Failure to Control Engineering Change Requests for QL-1 Construction Activities; and URI 70-3103/2009-002-002, Commercial Grade Dedication of Items and Services Associated with IROFS 41, will remain open.

**7.0 Structural Concrete Activities (IP 88132)**

a. Scope and Observations

The inspectors reviewed and observed licensee activities associated with structural concrete to verify implementation. The inspectors evaluated, by direct observation, work activities, testing, and inspection performance related to the QL-1 structural concrete construction were accomplished in accordance with design specifications, drawings, procedures, and regulatory requirements. The inspectors reviewed licensee activities associated with reinforcing steel installation, pre-placement preparations, materials sampling and testing, and concrete placement procedures and determined that the activities were performed in accordance with the project procedures and specifications.

The inspectors reviewed specifications, work packages, drawings, procedures, CRs, and engineering change requests. NTS Project Specification 114489-D-D-03312, Placing Concrete and Reinforcing Steel, Revision 6, was reviewed. The implementation of procedures and specifications were directly observed by the inspectors during Cylinder Receipt and Dispatch Building (CRDB) Bunker building QL-1 concrete wall pours Red No. 8 and Green No. 9. The inspectors observed construction contractor personnel and the LES quality control inspectors (QCI) perform their formwork and rebar installation inspections to verify the corresponding section was ready for concrete placement. The inspectors directly observed Quality Inspection Services Inc. (QISI) personnel conduct pre-placement concrete slump, temperature, and air entrainment testing at the placement site. The inspectors determined that those activities observed by the inspector were performed in accordance with the project procedures and specifications.

b. Follow-up of Previously Identified Items

(1) URI 70-3103/2008-003-04, QISI Testing Lab Accreditation Issue

URI 70-3103/2008-03-04, "QISI Testing Lab Issue," is closed based on the issuance and closure of VIO 70-3103/2009-01-01, Four Examples of Failure to Correct Conditions Adverse to Quality Related to QL-1 Construction Activities. The inspectors also reviewed CRs 2009-356 and 2009-883 initiated by LES to address the QISI testing laboratory accreditation issue. LES staff conducted a thorough code analysis to verify the requirements related to accreditation. QISI testing lab is now accredited and an extent of condition was adequately completed. No additional issues were identified.

c. Conclusion

On-going QL-1 construction work and oversight activities related to structural concrete work were performed in accordance with the project procedures and specifications. The structural concrete records reviewed demonstrated appropriate implementation of the QA program. No findings of significance were identified.

**8.0 Structural Steel and Support Activities (IP 88133)**

a. Scope and Observations

The inspectors performed walk downs in the CRDB steel structure and held discussions with licensee staff related to means and methods of construction. During this inspection, no structural steel construction activities were performed, however, the CRDB steel structure's as-built condition was observed. The inspectors also discussed the quality level upgrading process for already purchased and installed structural steel in the CRDB steel structure with LES staff. No findings of significance were identified.

b. Conclusion

The inspectors performed walk downs in the CRDB steel structure and held discussions with licensee staff related to means and methods of construction. During this inspection, no structural steel construction activities were performed, however, the CRDB steel structure's as-built condition was observed. The inspectors also discussed the quality level upgrading process for already purchased and installed structural steel in the CRDB steel structure with LES staff. No findings of significance were identified.

**9.0 Exit Meeting**

The inspection results were presented at the conclusion of the inspections on June 26 and August 13, 2009. The lead inspectors described the areas inspected and discussed the inspection results in detail with licensee staff, which included Mr. Gregory Smith, Chief Operating Officer and Chief Nuclear Officer. A second telephone exit was conducted on September 21, 2009, to inform the licensee of changes to the findings discussed during the exit meeting on June 26, 2009. Although proprietary documents and processes were reviewed during this inspection, the proprietary nature of these documents or processes was not included in this report.

## SUPPLEMENTAL INFORMATION

### 1. List of Persons Contacted

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

G. Smith, Chief Operating Officer and Chief Nuclear Officer  
S. Cowne, Quality and Regulatory Affairs Manager  
W. Dotson, Licensing Manager  
P. McCasland, Licensing Engineer  
G. Sergent, Quality Assurance (QA) Director  
P. Kiser, Engineering Support  
S. Miltenberger, Field Support Director  
R. Fish, LES/Expansion Personnel  
T. Braudt, Licensing Engineer  
M. Boden, Technical Support  
T. Bain, Cylinder Receipt and Dispatch Building (CRBD) Area Manager  
E. Schulte, CRBD Construction Area Manager  
T. Hendrix, CRDB Construction Engineer  
J. Gipson, Quality Control (QC) Inspector  
D. Nettleton, QC Inspector  
T. Overton, Civil Field Engineer Supervisor  
T. Gardner, Geotechnical Engineer  
R. Cornett, QC Inspector  
K. Cleveringa, QC Inspector  
C. Glover, QC Inspector  
T. Jackson, QC Foreman  
J. Marchi, QA Supervisor  
P. Berry, Engineering Manager  
B. Siemers, QC M&TE custodian  
C. Sist, QC Inspector,  
O. Torres, QC Supervisor  
R. Whitford, QA Specialist  
R. Whitley, Radiation Protection Manager  
G. Crawford, Chemist  
P. Thurman, Acting Radiation Protection Manager

#### Other Personnel:

G. Schwab, Baker Construction Engineer

### 2. Inspection Procedures Used

IP 88005	Management Organization and Controls
IP 88030	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 88106	Program Development and Implementation
IP 88107	Quality Assurance: Design and Documentation Control (Pre-Licensing and Construction)
IP 88132	Structural Concrete Activities
IP 88133	Structural Steel and Support Activities

3. List of Items Opened, Closed, and Discussed

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
70-3103/2009-003-001	Open	VIO: Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (SEA/HFC Hand and Foot Monitor) (Section 3.0)
70-3103/2009-003-002	Open	VIO: Inadequate Configuration Change for the Filter Type Used in the Centrifuge Test Facility (CTF) Special Ventilation Unit (Section 4.0)
70-3103/2009-003-003	Open	IFI: Review of Final Disposition of Potential Mixed Waste CTF Filters (Section 4.0)
70-3103/2009-003-004	Open	VIO: Inadequate Filter Installation Resulting in Inadequate Filtration of CTF Special Ventilation Unit Effluent (Section 4.0).
70-3103/2009-003-005	Open	URI: Audits of Various Site Programs (Section 5.0)
70-3103/2008-003-001	Discussed/ Open	URI: Failure to Control Engineering Change Requests for QL-1 Construction Activities (Section 5.0)
70-3103/2009-002-002	Discussed/ Open	URI: 70-3103/2009-002-002, Commercial Grade Dedication of Items and Services Associated with IROFS 41 (Section 5.0)
70-3103/2008-003-004	Closed	URI: QISI Testing Lab Accreditation Issue (Section 7.0)

4. List of Acronyms Used

ADAMS	Agency-Wide Document Access and Management System
ANSI	American Nuclear Standard Institute
CAB	Centrifuge Assembly Building
CAM	Continuous Air Monitor
CC	Configuration Change
CFR	Code of Federal Regulations
CR	Condition Report
CRDB	Cylinder Receipt and Dispatch Building
CTF	Centrifuge Test Facility
dpm/100cm <sup>2</sup>	Disintegrations per Minute per 100 Square Centimeters

ECR	Engineering Change Request
HEPA	High Efficiency Particulate Air
FHA	Fire Hazard Analysis
HAT	Hot Acceptance Testing
HFM	Hand and Foot Monitor
HF	Hydrogen Fluoride
IFI	Inspector Follow-up Item
IP	Inspection Procedure
IROFS	Item Relied on for Safety
Kg	Kilogram
LBD	Licensing Basis Documents
LBDCR	Licensing Basis Documents Change Request
LES	Louisiana Energie Services
LLC	Limited Liability Company
NEF	National Enrichment Facility
NRC	Nuclear Regulatory Commission
NTS	Nuclear Technology Solutions, LLP
No.	Number
ORR	Operational Readiness Reviews
QA	Quality Assurance
QAPD	Quality Assurance Program Description
QCI	Quality Control Inspection
QISI	Quality Inspection Services Inc.
QL	Quality Level
RCA	Radiological Controlled Area
RII	Region 2
SAR	Safety Analysis Report
SBM	Separation Building Module
SL	Severity Level
UF <sub>6</sub>	Uranium Hexafluoride
URI	Unresolved Item
VIO	Violation
WGI	Washington Group International

5. LES Documents Reviewed

EG-3-3100-03, Quality Assurance Requirements Determination, Revision 1  
 EG-3-3100-04, Quality Assurance Level Assignments, Revision 3  
 LES NEF Safety Analysis Report, Appendix A, Quality Assurance Program Description, Revision 19d  
 EG-3-2100-01, Configuration Change, Revision 6  
 LS-3-1000-06, Maintenance of License Basis Documents  
 RP-3-2007-07, Personnel Contamination Events , Revision 1  
 LBDCR 2009-0007, dated January 19, 2009  
 Sanitary Wastewater Sampling Results (January 2009-September 2009)  
 Configuration Change 2008-0198, Revision 0, dated January 8, 2009  
 Configuration Change 2008-0287, dated August 2008  
 Apparent Cause Evaluation, dated August 12, 2009



6. Specifications:

NTS Project Specification 114489-S-S-03312, Placing Concrete and Reinforcing Steel, Revision 6

NTS Project Specification 114489-S-S-03313, Rebar Fabrication, Revision 4

7. Drawings:

PHS-1100-1, Building 1100 Wall Pour Phase Plan, Revision 5

114489-1100-C-CON-008-07-0, Concrete Cylinder Receipt & Dispatch Building Bunker Wall Section, Sheet 7

114489-1100-C-CON-003-04-0, Concrete Cylinder Receipt & Dispatch Building Bunker 2<sup>nd</sup> Floor/Mezzanine Sections, Sheet 1

114489-1100-C-CON-003-03-0, Concrete Cylinder Receipt & Dispatch Building Bunker Pilaster Schedule & Details 1<sup>st</sup> Floor to 2<sup>nd</sup> Floor, Sheet 2

114489-1100-C-CON-003-02-0, Concrete Cylinder Receipt & Dispatch Building Bunker Pilaster Schedule & Details 1<sup>st</sup> Floor to 2<sup>nd</sup> Floor, Sheet 1

114489-1100-C-CON-003-01-0, Concrete Cylinder Receipt & Dispatch Building Bunker 2<sup>nd</sup> Floor Plan – EL 3432'-9" Bunker Mezzanine Plan

114489-1100-C-CON-002-05-1, Concrete Cylinder Receipt & Dispatch Building Bunker Slab on Grade Sections & Details

114489-1100-C-CON-002-04-2, Concrete Cylinder Receipt & Dispatch Building Bunker Pilaster Schedule & Details Foundation to Top of 1<sup>st</sup> Floor, Sheet 2

114489-1100-C-CON-002-03-1, Concrete Cylinder Receipt & Dispatch Building Bunker Pilaster Schedule & Details Foundation to Top of 1<sup>st</sup> Floor, Sheet 1

114489-1100-C-CON-002-01-2, Concrete Cylinder Receipt & Dispatch Building Bunker First Floor Plan

114489-1100-C-CON-001-03-3, Concrete Cylinder Receipt & Dispatch Building Bunker Foundation Sections

114489-1100-C-CON-001-02-4, Concrete Cylinder Receipt & Dispatch Building Bunker Foundation Reinforcement Plan

114489-1100-C-CON-001-01-4, Concrete Cylinder Receipt & Dispatch Building Bunker Foundation Plan

114489-1100-C-CVL-019-01-4, Building Location Plan

114489-1100-C-CON-003-02-3, Typical Sections & Details SH-2 Elevated Slabs

114489-1100-C-CON-003-01-5, Typical Sections & Details SH-1

114489-1100-C-CON-002-01-6, General Notes

8. Work Plans and Packages:

Workplan# 1100-civil-824-004, Wall Concrete placement for CRDB Bunkered Building Green

9. Condition Reports (CRs):

2008-0037-CR

2008-1477-CR

2009-0337-CR

2009-0095-CR

2009-2304-CR

2009-2343-CR

2009-2571-CR  
2009-356-CR  
2009-883-CR  
2008-2484-CR

10. Engineering Change Requests (ECRs):

ECR-4218  
ECR-3805  
ECR-3805A  
ECR-3236  
ECR-3236A  
ECR-3318A  
ECR-3032  
ECR-3032A  
ECR-3032B  
ECR-3031  
ECR-3186

11. QISI Document:

Evaluation Report Construction Materials Testing laboratory Report Number: 11461,  
May 05, 2009