November 26, 2010

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

SUBJECT: INSPECTION REPORT NO. 70-3103/2010-203

Dear Mr. Sexton,

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine announced criticality safety (NCS) inspection of your facility in Eunice, New Mexico, from October 25-29, 2010. The purpose of the inspection was to determine whether operations involving licensed material were conducted safely and in accordance with regulatory requirements. Inspection observations and findings were discussed with members of your staff and management throughout the inspection. An exit meeting was conducted at the conclusion of the inspection on October 29, 2010.

The inspection, which is described in the enclosure, focused on the most hazardous activities and plant conditions; the most important controls relied on for safety and their analytical basis; and the principal management measures for ensuring controls are available and reliable to perform their functions relied on for safety. The inspection consisted of analytical basis review, selective review of related procedures and records, examinations of relevant nuclear criticality safety (NCS)-related equipment, interviews with NCS engineers and plant personnel, and facility walkdowns to observe plant conditions and activities related to safety basis assumptions and related NCS controls.

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and the enclosure will be made publicly available in the public electronic reading room of the NRC's Agency-Wide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/ADAMS.html.

If you have any questions concerning this report, please contact Dennis Morey, of my staff, at (301) 492-3112.

Sincerely,

/RA/

Patricia A. Silva, Chief
Technical Support Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No.: 70-3103

Enclosure: Inspection Report No. 70-3103/2010-203

cc w/enclosure: (See Next Page)

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cc w/enclosure:

Gary Sanford, Quality and Regulatory
Affairs Director
National Enrichment Facility
P.O. Box 1789
Eunice, NM 88231

Perry Robinson, LES General Counsel
National Enrichment Facility
P.O. Box 1789
Eunice, NM 88231

Carlos Romero, Chief
Radiation Control Bureau
Field Operations Division
Environmental Department
Harold S. Runnels Building
1190 St. Francis Drive, Room S 2100
P.O. Box 26110
Santa Fe, NM 87502

Richard A. Ratliff, PE, LMP
Radiation Program Officer
Bureau of Radiation Control
Department of State Health Services
Division for Regulatory Services
1100 West 49th Street
Austin, TX 78756-3189

John Goldstein, Deputy Secretary
New Mexico Department of Environment
Office of the Secretary
1190 St. Francis Drive
Santa Fe, NM 87502-0157

Matt White, Mayor
City of Eunice
P.O. Box 147/1106 Ave J
Eunice, NM 88231

Gary Don Reagan, Mayor
City of Hobbs
200 E. Broadway
Hobbs, NM 88240

Alton Dunn, Mayor
City of Jal
P.O. Box Drawer 340
Jal, NM 88252

Gary Schubert, Chairman
Lea County Commissioners
100 North Main
Lovington, NM 88260

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Docket No.:	70-3103
License No.:	SNM-2010
Report No.:	70-3103/2010-203
Licensee:	Louisiana Energy Services L.L.C (LES)
Location:	Eunice, New Mexico
Inspection Dates:	October 25-29, 2010
Inspector:	Dennis Morey, Senior Criticality Safety Inspector
Approved:	Patricia A. Silva, Chief Technical Support Branch Division of Fuel Cycle Safety and Safeguards Office of Nuclear Material Safety and Safeguards

Enclosure

EXECUTIVE SUMMARY

Louisiana Energy Services, L.L.C, National Enrichment Facility
NRC Inspection Report 70-3103/2010-203

Introduction

Staff of the U.S. Nuclear Regulatory Commission (NRC) performed a routine, scheduled criticality safety inspection of the Louisiana Energy Services L.L.C (LES) facility in Eunice, New Mexico, from October 25-29, 2010. The inspection included an on-site review of the licensee's nuclear criticality safety (NCS) program; NCS analyses, administrative and operating procedures, NCS-related internal events, NCS audits and inspections, the criticality alarm system and plant operations. The inspection focused on risk-significant fissile material processing activities in mini halls 1A and 1B, the UF_6 handling area, the 30K warehouse, centrifuge assembly building (CAB) assembly areas A&B, the centrifuge test facility and the control room complex.

Results

- A potential weakness was identified regarding bounding upset calculations.
- A minor violation of NCS engineer qualification requirements was identified.
- No safety concerns were identified regarding NCS event reporting and problem resolution.
- No safety concerns were identified regarding the licensee's NCS audits and inspections.
- No safety concerns were noted regarding the licensee's criticality alarm system or supporting documentation.
- No safety concerns were identified regarding plant operations.

REPORT DETAILS

1.0 Plant Status

LES enriches uranium in its gas centrifuge facility near Eunice, NM. During the inspection, only the UF_6 handling area and cascade mini halls 1A and 1B were complete and available for operations. The two cascades were shut down just prior to the inspection for maintenance. A centrifuge test facility is operated at the site with licensed material and this facility was undergoing modification during the inspection. Also, large scale construction activities were underway at the site during the inspection.

2.0 Nuclear Criticality Safety Program

a. Scope of Inspection

The inspector reviewed criticality analyses for risk-significant operations at the LES facility. The inspector interviewed licensee criticality engineers, operators, and managers regarding operations, equipment and controls. The inspector reviewed selected portions of the following documents:

- NSR [nuclear safety release]-2010-002, "Product Pumping and Tails Trams and Spare Trams," Rev 4, dated August 9, 2010
- NSR-2010-005, "Cascade 1 Centrifuge," Rev 2, dated September 30, 2010
- NSR-2010-015, "Product Vent Pump and Trap Set," Rev 1, dated September 11, 2010
- ETC [Enrichment Technology Corporation] 4100854, "Criticality Safety Analysis of the Contingency Pump System," Rev 4, dated April 13, 2010
- ETC 4104887, "Criticality Safety of an Assay Pump to a Single Tails Cylinder," Rev 1, dated September 29, 2010
- ETC 4104876 "Criticality Safety Analysis of the Control of Moderator inside 30B Product Cylinder," Rev 2, dated April 8, 2010
- ETC 4066248, "Criticality Safety of Arrays of 30B Cylinders at 6% Enrichment," Rev 2, dated June 11, 2010
- NCSA [nuclear criticality safety analysis]-007, "NCSA of GEVS [gaseous effluent ventilation system] units in SBM [separations building module]," Rev 3, dated November 5, 2009
- NCSA-013, "NCSA of 55-gallon Waste Drums," Rev 0, dated January 4, 2010
- NCSE [nuclear criticality safety evaluation]-007, "CAB NCSE," Rev 1, dated October 9, 2008
- NCSE-012, "NCSE of the SBM 1001 Elevator Pit," Rev 0, dated November 28, 2009
- NCSA-015, "NCSA of IROFS [items relied on for safety] C22 Periodicity," Rev 0, dated June 8, 2010
- ETC 4097466, "Criticality Calculation for Crashed TC-12 Machines in Flood – Partially Filled Bores," Rev 1, dated October 7, 1999

b. Observations and Findings

The inspector reviewed NCS analysis for risk-significant operations. The inspector raised a question regarding whether analysis of unsafe geometry or interacting systems was bounding. Details of this issue are classified and will be discussed in separate correspondence. The licensee's determination that analysis of unsafe geometry or interacting systems is bounding is **Unresolved Item (URI) 70-3103/2010-203-01**.

c. Conclusions

A potential weakness was identified regarding bounding upset calculations.

3.0 Administrative and Operating Procedures

a. Scope of Inspection

The inspector reviewed NCS program implementing procedures and discussed NCS program implementation with NCS staff and management. The inspector reviewed selected portions of the following documents:

- CR [condition report]-3-1000-01, "Implementation of NCS Evaluations and Analyses," Rev 4, dated March 5, 2010
- CR-3-1000-03, "NCS Weekly Walkthroughs and Periodic Assessments," Rev 6, dated February 26, 2010
- CR-3-1000-4, "Response to NCS Anomalous Condition or Criticality Accident, " Rev 3, dated February 4, 2010
- EG-3-3200-1, "NCS Evaluations," Rev 3, dated October 1, 2010
- EG-3-3200-2, "NCS Analysis," Rev 3, dated July 27, 2010
- TQ-3-0500-01, "Engineering and Support Personnel Training Program," Rev 2, dated October 30, 2009
- E-NCS-QG-RI, "Qualification Guideline: NCS Engineer," Rev 1.1, dated June 30, 2008
- QA-3-2000-01, "Quality Assurance Audit," Rev 5, dated October 1, 2010

b. Observations and Findings

The inspector reviewed the licensee's NCS program specifically focusing on NCS analysis development and review, NCS Engineer training and qualification, and conduct of NCS audits. The inspector noted that many NCS analyses had been performed by ETC engineers in England. The inspector questioned whether the ETC engineers in England had been qualified as LES NCS engineers. The licensee noted that ETC engineers had not completed the LES qualification program and initiated corrective actions to complete qualification of ETC engineers. The inspector did not identify any safety concerns regarding the content of the analyses performed by the ETC engineers. Although the failure to qualify ETC engineers should be corrected, it constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section 2 of the Enforcement Policy. Qualification of ETC engineers in accordance with licensee procedures will be tracked as **Inspection Follow-up Item (IFI) 70-3103/2010-203-02**.

c. Conclusions

A minor violation of NCS engineer qualification requirements was identified. No immediate safety concerns were identified regarding the licensee's NCS program implementation.

4.0 Nuclear Criticality Safety Event Review and Follow-up (88015)

a. Scope of Inspection

The inspector reviewed the licensee's response to internally-reported events. The inspector reviewed the licensee's staff regarding assignment of corrective actions. The inspector reviewed selected portions of the following documents:

- CR-2010-1059, "SBD [safe by design] Drip Pans Attributes not verified," dated March 25, 2010
- CR-2010-3362, "GEVS SBD components not verified at receipt inspection," dated October 12, 2010
- CR-2010-1812, "Unapproved Removal of NCS Controls for CTF [centrifuge test facility] Procedure," dated June 1, 2010
- CR-2010-2060, "NCS Review of GEVS Duct Low Point Improper Installation," dated June 23, 2010

b. Observations and Findings

The inspector reviewed selected licensee condition reports filed since plant start-up was authorized. The inspector's review focused on several NCS-related problems. The inspector determined that licensee internal events were identified and reported in accordance with written procedures and that corrective actions were assigned to designated staff. The inspector noted that the licensee's CR system was used to track corrective actions.

c. Conclusions

No safety concerns were identified regarding NCS event reporting and problem resolution.

5.0 Nuclear Criticality Safety Audits and Inspections

a. Scope of Inspection

The inspector reviewed the licensee's internal audit procedures and records of previously completed audits and inspections. The inspector reviewed selected portions of the following documents:

- QA Audit 2010-A-05-014, "2nd Qtr 2010, Quarterly Audit of NCS," dated May 21, 2010
- QA Audit 2010-A-08-030, "3rd Qtr 2010, Quarterly Audit of NCS," dated August 17, 2010

b. Observations and Findings

The inspector reviewed recent licensee audits of the NCS program. The inspector also accompanied NCS staff on a routine weekly inspection of the CTF. The inspector noted that licensee audits and inspections were scheduled and conducted in accordance with written procedures, appropriate issues were identified, and identified issues were tracked through the licensee's CR system.

c. Conclusions

No safety concerns were identified regarding the licensee's NCS audits and inspections.

6.0 Criticality Alarm System

a. Scope of Inspection

The inspector reviewed placement of criticality alarm detectors. The inspector reviewed selected portions of the following document:

- CALC-S-00109, "Evaluation of CAAS [criticality accident alarm system] placement in the SBM," Rev 0, dated January 8, 2010

b. Observations and Findings

The inspector reviewed criticality alarm detector placement during document reviews and walkdowns. The inspector reviewed source placement for the criticality alarm analysis and noted that the basis for rejecting one possible source location was not clearly based on the location being bounded by other sources. The licensee initiated corrective action to clarify the basis for the source selection and placement in the analysis. The inspector noted that the licensee had recently located all required vendor documentation of the criticality alarm system equipment and was incorporating the vendor documentation into its record system.

c. Conclusions

No safety concerns were noted regarding the licensee's criticality alarm system or supporting documentation.

7.0 Plant Operations

a. Scope of Inspection

The inspector performed plant walkdowns to review activities in progress and to determine whether risk-significant fissile material operations were being conducted safely and in accordance with regulatory requirements. The inspectors interviewed operators, NCS engineers, and process engineers both before and during walkdowns.

b. Observations and Findings

The inspector performed walkdowns in cascade mini halls 1A and 1B, the UF_6 handling area, the 30K warehouse, CAB assembly areas A&B, the CTF and the control room complex. The inspector reviewed IROFS 14a transport carts in the 30K warehouse. The inspector also accompanied operators during implementation of IROFS C22 cascade enrichment control on the shutdown system to demonstrate how the control is implemented. The inspector observed operators implement the enrichment control procedure in the facility and perform final enrichment calculations.

c. Conclusions

No safety concerns were identified regarding plant operations.

8.0 Exit Meeting

The inspector communicated observations and findings to the licensee's management and staff throughout the week of the inspection and presented the final results to the licensee's management during an exit meeting held on October 29, 2010. The licensee's management acknowledged the results of the inspection and understood the findings presented.

SUPPLEMENTARY INFORMATION

1.0 Items Opened, Closed, and Discussed

Items Opened

URI 70-3103/2010-203-01	Tracks licensee determination that bounding upset calculations for unsafe geometry or interacting systems are bounding.
IFI 70-3103/2010-203-02	Tracks qualification of ETC engineers in accordance with licensee procedures.

2.0 Event Reports Reviewed

None

3.0 Inspection Procedures Used

IP 88015	Nuclear Criticality Safety Program
IP 88016	Nuclear Criticality Safety Evaluations and Analyses
IP 88017	Criticality Alarm Systems

4.0 Key Points of Contact

LES

R. Albright	Manager HS&E
S. Cowne	Operations Director
M. Kingham	Training
J. Laughlin	Director, Technical Services
R. Lehman	Criticality Safety
P. McCasland	Licensing
P. Robinson	Compliance
G. Sanford	Compliance
D. Sexton	Operations
S. Su	Criticality Safety
S. Troyer	Criticality Safety Officer

NRC

D. Morey	Senior Criticality Safety Inspector, NMSS
J. Heisserer	Construction Inspection, Region II

All attended the exit meeting on October 29, 2010.

Attachment

5.0 List of Acronyms and Abbreviations

CAB	centrifuge assembly building
CR	condition report
CTF	centrifuge test facility
ETC	Enrichment Technology Corporation
GEVS	gaseous effluent ventilation system
IFI	inspection follow-up item
IROFS	items relied on for safety
LES	Louisiana Energy Services
NCS	nuclear criticality safety
NCSA	nuclear criticality safety analysis
NCSE	nuclear criticality safety evaluation
NSR	nuclear safety release
QA	quality assurance
SBD	safe by design
SBM	separations building module
URI	unresolved item