

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

March 26, 2010

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

# SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2010-005

Dear Mr. Smith:

This refers to the operational readiness review team inspection conducted by the U.S. Nuclear Regulatory Commission (NRC) from January 4-14, January 25-28, and February 8-11, 2010, at the Louisiana Energy Services, National Enrichment Facility (LES NEF) in Eunice, New Mexico. The purpose of the inspection was to determine whether activities associated with initial plant operation could be conducted safely and in accordance with NRC requirements and your license requirements. The inspection included a review of your proposed activities of plant support, radiological controls, and plant construction to ensure that your facility was ready to operate safely and in compliance with your license.

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

Based on the results of this inspection, no violations or deviations were identified. However, two inspector follow-up items were identified regarding completion of testing to demonstrate communication of Gaseous Effluent Ventilation System operational status and indicators in the control room and the installation of gantry crane rigging equipment.

In accordance with 10 CFR 2.390 of 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 <u>http://www.nrc.gov/reading-rm/adams.html</u>

G. Smith

2

Should you have any questions concerning this letter, please contact us.

Sincerely,

#### /RA/

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

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

Enclosure: NRC Inspection Report 70-3103/2010-005 w/attachment

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# U.S. NUCLEAR REGULATORY COMMISSION REGION II

Docket:	70-3103
License:	SNM-2010
Report:	70-3103/2010-005
Licensee:	Louisiana Energy Services, L.L.C.
Location:	Eunice, New Mexico
Inspection Dates:	January 4-14, 2010 January 25-28, 2010 February 8-11, 2010
Inspectors:	<ul> <li>D. Hartland, Team Leader, Division of Fuel Facility Inspection, (DFFI)</li> <li>O. Lopez, Fuel Facilities Inspector, DFFI</li> <li>R. Prince, Fuel Facilities Inspector, DFFI</li> <li>C. Cramer, Fuel Facilities Inspector, DFFI</li> <li>M. Checkle, Allegation Coordinator, Enforcement and Coordination Staff</li> <li>C. Jones, Senior Construction Inspector, Division of Construction Inspection (DCI)</li> <li>R. Jackson, Senior Construction Inspector, DCI</li> <li>C. Abbott, Construction Inspector, DCI</li> </ul>
Accompanying Personnel:	<ul> <li>M. Tschiltz, Deputy Director, Division of Fuel Cycle Safety and Safeguards (FCSS) Office of Nuclear Materials Safety and Safeguards (NMSS)</li> <li>B. Smith, Chief, Uranium Enrichment Branch, FCSS, NMSS</li> <li>J. Downs, Fire Protection Engineer, FCSS, NMSS</li> <li>G. Chapman, Health Physicist, FCSS, NMSS</li> <li>J. Henson, Chief, Fuel Facility Inspection Branch 2, DFFI</li> <li>C. Ogle, Director, DCI</li> <li>T. Gody, Deputy Director, Division of Construction Projects</li> <li>J. Kent, Construction Inspector-in-Training, DCI</li> </ul>
Approved:	Deborah A. Seymour, Chief Construction Projects Branch 1 Division of Construction Projects

Enclosure

# EXECUTIVE SUMMARY

# Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF) NRC Inspection Report 70-3103/2010-005

This report is a summary of the operational readiness review (ORR) team inspection of the licensee's proposed initial plant operation. The ORR inspection was conducted during the weeks of January 4-14, January 25-28, and February 8-12, 2010, with specialist inspectors from the Nuclear Regulatory Commission (NRC) Region II (RII) office and the Office of Nuclear Materials Safety and Safeguards (NMSS). The results of the ORR inspection are contained in the report details section of this report.

The inspection was conducted through a review of selected records, procedures, interviews with personnel, and direct observation of equipment testing and work activities in the following areas: plant support, radiological controls, and plant construction.

# **Management Organization and Controls**

The licensee adequately implemented organizational structure, procedure controls, problem identification and resolution, plant safety committees, and audits and assessments which provided reasonable assurance that the licensee could safely initiate plant operations (Section 2.a).

# Employee Concerns Program

The Employee Concerns Program (ECP) was implemented adequately to ensure an environment where employees felt free to raise nuclear safety concerns (Section 2.b).

#### Maintenance and Surveillance

The licensee's maintenance program was implemented in accordance with Section 11.2 of the Safety Analysis Report (SAR) and provided reasonable assurance that the licensee could safely conduct initial plant operations (Section 2.c).

#### **Permanent Plant Modifications**

The licensee had established a permanent plant modification program to support initial plant operations. In response to some inspector observations, the licensee amended some configuration change packages to provide additional documented bases that certain accident scenarios were not credible (Section 2.d).

# **Radiation Protection**

Those aspects of the radiation protection program necessary to support initial plant operations were established. Approved procedures addressing these program areas were adequate to ensure the radiological safety of employees and members of the public. Sufficient calibrated equipment necessary to establish and maintain adequate control of the radiological control areas and to perform radiological surveillance activities was available for use. Individuals were adequately trained to perform their assigned functions and appropriate measures established to

ensure that radiation protection surveillance activities were adequately performed to support initial plant operations (Section 3.a).

# **Radioactive Waste Management**

The licensee had an adequate program for storing and processing radioactive waste (Section 3.b).

# **Transportation**

The licensee had an adequate program to classify and ship radioactive waste. However, Inspector Follow-Up Item (IFI) 70-3103/2010-005-001, "Review to Verify that the Proper Rigging Equipment is Available and that Operators have been Properly Trained on the Use of the Equipment Prior to the Licensee Receiving Full Cylinders," was identified as requiring additional inspection follow-up (Section 3.c).

# Effluent Control and Environmental Protection

Environmental monitoring program activities were implemented in accordance with approved procedures. Personnel were knowledgeable of their responsibilities and performed activities in accordance with approved procedures. Environmental program equipment, procedures, and trained personnel were available to support initial plant operations.

Effluent monitoring program and equipment necessary to support initial plant operations, in general, was available and operable. With the exception of establishing control room communication functions, the gaseous effluent monitoring and filtration system was successfully tested in accordance with an approved system test plan. Steps associated with the testing of control room alarm features and the ability to display system operational status in the control room was not completed. IFI 70-3103/2010-005-002, "Review of Completed Testing to Demonstrate Communication of Gaseous Effluent Ventilation System (GEVS) System Operational Status and Indicators in the Control Room," was identified as requiring additional inspection follow-up (Section 3.d).

#### **Electrical Components and Systems**

The licensee adequately implemented requirements of the licensee's Quality Assurance Program Description (QAPD), Sections 3, 8, 9, and 16. The electrical items relied on for safety (IROFS) required for initial cascade operations were properly installed, adequately tested, and the approved as-built configurations were effectively controlled by the operations organization (Section 4.a).

#### **Design and Document Control**

The licensee adequately implemented the requirements of the QAPD, Section 3, Design and Document Control, for activities affecting IROFS 27e for the Separation Building Module (SBM) 1001 structure. LES effectively established and implemented design control procedures to track engineered change requests (ECRs). The reviewed implementation procedure and boundary definition document related to IROFS 27e for SBM 1001 structure were adequate. No items of safety significance were identified (Section 4.b).

# **Geotechnical and Foundation Activities**

Geotechnical and foundation records affecting IROFS 27e for the SBM 1001 structure were properly documented and maintained according to licensee procedures. The testing results from placement of the backfill and compaction efforts were adequate per required specifications. The documented results of the laboratory tests on the barrowed backfill material were also reviewed and found to be adequate. No items of safety significance were identified (Section 4.c).

# **Structural Concrete Activities**

Structural concrete activities associated with IROFS 27e for the SBM 1001 structure were in accordance with the project procedures and specifications. Structural concrete records reviewed demonstrated appropriate implementation of American Concrete Institute and American Society for Testing and Materials standards and NRC regulatory requirements. No findings of significance were identified (Section 4.d).

# **Structural Steel and Support Activities**

The as-built condition for each inspected area of structural steel components related to IROFS 27e for the SBM 1001 structure was determined to be adequate. Quality assurance records associated with these activities were properly maintained in accordance with procedures. No items of safety significance were identified (Section 4.e).

Attachment:

- 1. Persons Contacted
- 2. Inspection Procedures
- 3. List of Items, Opened, Closed and Discussed
- 4. List of Acronyms Used
- 5. List of Documents Reviewed

# REPORT DETAILS

# 1. <u>Summary of Site Activities</u>

The Louisiana Energy Services, National Enrichment Facility (LES NEF) facility was under construction at the time of this inspection. Separations Building Module (SBM) 1001 and other applicable process areas were nearing completion with applicable utilities, services, controls, and instrumentation in the final stages of installation and testing.

#### 2. Facility Support

#### a. <u>Management Organization and Controls</u>

#### (1) <u>Scope and Observations (Inspection Procedure (IP) 88005)</u>

The inspectors reviewed the management organization and control program to determine the licensee's readiness for initial plant operation. The inspectors specifically reviewed the organization structure for initial operation, procedure controls, problem identification and resolution, plant safety committees, and audits and assessments.

The inspectors performed a records review to verify that the licensee organization's responsibilities and functions were in accordance with the Safety Analysis Report (SAR). The inspectors also reviewed a sample of job position descriptions and training records for various managers and verified that the training and experience requirements in the SAR were met.

The inspectors verified by discussion with the licensee staff and review of Procedure HR-3-3000-01, "LES Organizational Changes, Personnel Changes, and LES Organizational Chart Control," that the licensee had an adequate process to address organizational changes, structural changes, and/or changes in personnel responsibilities and functions.

The inspectors reviewed a sample of procedures related to initial operation and verified that they were reviewed and approved in accordance with Procedure AD-3-1000-01, "Requirements for Procedures," and the requirements in the SAR. The inspectors also verified that audits and assessments were performed in accordance with SAR requirements.

The inspectors attended a Safety Review Committee and verified that the meeting was conducted in accordance with SAR requirements and Procedure AD-3-1000-05, "Safety Review Committee." The inspectors observed that a quorum was present at the meeting and a substantive discussion was conducted regarding the issues.

The inspectors reviewed several condition reports (CRs) and attended a Corrective Action Review Board meeting and determined that the licensee was implementing a graded approach in ensuring that safety significant issues were properly addressed. The inspectors noted that the licensee screened and tracked the status of CRs that required resolution prior to initial plant operation. The inspectors also noted that adequate trending was performed to identify repetitive problems and to monitor status of overdue actions.

#### (2) <u>Conclusions</u>

The inspectors concluded that the licensee adequately implemented organizational structure, procedure controls, problem identification and resolution, plant safety committees, and audits and assessments which provided reasonable assurance that the licensee could safely initiate plant operations.

#### b. Employee Concerns Program (ECP)

#### (1) <u>Scope and Observations (IP 88110)</u>

The inspectors reviewed ECP procedures, databases, and files to ensure adequate documentation, review, and prioritization of nuclear safety concerns. ECP files were also reviewed to ensure that confidentiality was maintained and to verify that employees were provided feedback in a timely manner regarding the resolution of their concerns. Concern resolutions and closure were reviewed to determine the adequacy of corrective actions and use of the corrective action program, when appropriate.

The inspectors reviewed the ECP organizational structure and use of contracted investigators to verify that the ECP staff impartially reviewed concerns independent of the line organization. The inspectors reviewed ECP information, postings, exit interview procedures, and safety conscious work environment (SCWE) employee and management training material to verify that employees were made aware of how to report safety concerns when they were reluctant to report them to their line organization and the different methods available (in person, phone, mail, drop box, etc.). In response to the inspectors' observations, the licensee placed ECP posters and a concerns drop box were posted inside the fuel facility to enhance visibility of the ECP program.

The inspectors reviewed the results of the 2008 safety culture assessment results and recommendations to ensure a SCWE was maintained by the licensee. The inspectors also reviewed ECP internal and external audits and trends to verify the licensee was monitoring the ECP and that recommendations and lessons learned were provided to management. The inspectors noted recent enhancements to the ECP files, that were implemented in response to findings identified by internal audits, included file closure quality checks to ensure adequacy of file documentation and ECP procedure adherence.

However, the inspectors also noted that some concerns referred to contractor employee concern programs were not completely tracked to closure. The inspectors noted that the licensee revised contractor ECP site requirements for 2010 to monitor contractor employee concern programs by audits and programmatic procedures and to ensure that contractor employees that identified concerns were protected against retaliation. The inspectors noted that these requirements would ensure adequate oversight of concerns reviewed by contractor ECPs.

#### (2) <u>Conclusions</u>

The inspectors determined that the ECP was implemented adequately to ensure an environment where employees felt free to raise nuclear safety concerns.

#### c. <u>Maintenance and Surveillance</u>

#### (1) <u>Scope and Observations (IP 88025)</u>

The inspectors reviewed procedures used to implement the program requirements described in Section 11.2 of the SAR, including a work control process to perform corrective, preventive, and surveillance activities. The inspectors verified that the work control process established the necessary reviews to maintain configuration control (i.e. like-kind replacement), to ensure safe work practices, and to perform post-maintenance testing.

The inspectors reviewed the work package related to the installation of Items Relied on For Safety (IROFS) C21 and observed the implementation of IROFS 30a, 30b, and 30c. The inspectors noted that the package contained requirements for safe work practices permits, foreign material exclusion, and worksite hazard assessment. The inspectors also noted that the licensee had controls in place to ensure that work packages received an adequate safety review. Personnel implementing IROFS C21, 30a, 30b, and 30c demonstrated good conduct-of-operations techniques. No safety issues were identified.

The inspectors verified that the licensee established a periodic testing schedule to ensure the reliability and availability of electrical IROFS 1, 2, 4, and 5. The testing schedule included, in part, the surveillance procedure number, the group responsible for the activities, and equipment functional location. The inspectors also verified that the licensee had a program to ensure that non-safety maintenance activities did not adversely impact the safety operation of IROFS. No safety issues were identified.

However, during review of the routine surveillance procedures for electrical IROFS 1, 2, 4, and 5, the inspectors noted that the procedures required that the temperature sensing units be wiped down prior to performing as-found testing. The licensee was apparently performing the wipe-down to protect the calibration equipment. The inspectors commented that this practice appeared to be pre-conditioning. In response, the licensee issued a CR and documented their basis that the practice would not have an adverse effect on the as-found values. The inspectors determined that the documented justification was acceptable.

The inspectors noted that the licensee's procedures addressed compensatory measures for maintenance activities on IROFS or items that may have affected the function of IROFS that did not have redundant functions available. The procedures provided guidance for documentation of failed IROFS and the management measures affected in accordance with 10 Code of Federal Regulations (CFR) 70.62 (a).

The inspectors reviewed procedures associated with the measuring and test equipment (M&TE) program and discussed the control of M&TE with cognizant personnel. The inspectors found that M&TE calibration records were current and that responsible personnel were knowledgeable of their responsibilities and the importance of maintaining proper control of M&TE.

(2) <u>Conclusions</u>

The licensee's maintenance program was implemented in accordance with Section 11.2 of the SAR and provided reasonable assurance that the licensee could safely conduct initial plant operations.

d. <u>Fire Protection</u>

#### Scope, Observations, and Conclusions (IP 88055)

The inspectors reviewed the licensee's fire protection program and implementation and determined that the licensee was not ready for an operational readiness review (ORR) in this area. The fire protection ORR inspection was rescheduled for a later date.

#### e. Plant Modifications

#### (1) Scope and Observations (IP 88070)

The inspectors reviewed the licensee's plant modifications process to determine their readiness to conduct initial plant operations. The inspectors reviewed selected configuration change (CC) packages to verify that plant modifications were reviewed and implemented in accordance with the licensee's change request and permanent plant modification (PPM) program. The inspectors reviewed the following modification packages:

CC-EG-2008-0374, "Removal of Berm Requirements from the Cylinder Storage Pad" CC-EG-2009-0060, "Addition of IROFS 36i to Mitigate Accident Scenario" CC-EG-2009-0256, "Addition of IROFS 36a and 36d to Accident Scenario" CC-EG-2009-0302, "Removal of IROFS 3 from Accident Sequences" CC-EG-2009-0383, "Removal of IROFS 6a, 6b, and 7 from Accident Sequences" CC-EG-2009-0004, "Removal of Reference to Cylinder Preparation Area" CC-RW-2009-0001, "Removal of Use of Laundry Equipment on Site" CC-EG-2009-0491, "Removal of IROFS 3 from Accident Sequences"

For CC-EG-2009-0383, the inspectors reviewed the change and determined that it met the criteria for being "not credible" as defined by the licensee's Integrated Safety Analysis (ISA) Summary. The licensee documented in the change that 48Y feed cylinders would not physically fit into the product stations and that the 30B product cylinders would not align with the pig tails in the feed stations.

However, the inspectors determined that the CC needed additional clarification to provide adequate justification that the scenario was not credible without relying on physical design features, which then would be considered IROFS. In response, the licensee revised the CC package to provide the additional clarity and detail. The licensee documented that the only way to hook up either cylinder to a station for which it

was not intended involved a number of unlikely human errors that would be contrary to the approved procedures and training. The inspectors reviewed the change to the CC package and had no further issues.

In CC-EG-2009-0302, the licensee eliminated some accident sequences because there would be no consequences to a local worker. The licensee determined that the applicable scenario was initiated without operator intervention, and that it was highly unlikely that an individual would otherwise be present in the local area. However, the inspectors noted that the licensee's implementing procedure needed to be enhanced to be consistent with the ISA Summary with regards to how a "local worker" was defined. In response, the licensee revised the implementing procedure to be consistent with the ISA Summary. The inspectors reviewed the procedure change and had no further issues.

In CC-EG-2009-0491, the licensee eliminated some accident sequences because they were determined to be no longer credible. The licensee determined that three independent failures would have to occur for the prerequisite condition (i.e., pump inadvertently running) to exist before the accident scenario was possible. The inspectors determined that the criteria for "not credible" was met based on the number of concurrent process deviations and unlikely human errors necessary before the accident sequence was even possible. However, the CC package did not document the mode of operation that applied to the accident scenario (i.e., cold trap "gas back" instead of normal.) In response, the licensee revised the CC package to document the applicable mode of operation. The inspectors reviewed the CC package change and had no further issues.

During a tour of the facility, inspectors observed that the licensee had constructed temporary barriers across sections of the partially finished process service corridor (PSC) in the SBM that had the potential to reduce the mixing/dilution volume for releases in the area and increase consequences to the area worker. The licensee had installed the barriers to maintain cleanliness during ongoing construction.

Since the licensee intended to initiate plant operation with the barriers in place, they performed an assessment that was documented in 2010-293-CR. The licensee determined that at least 60% of the PSC volume would be needed to maintain the "low" consequence level for area workers as previously derived for accident sequences involving releases in the PSC. The licensee determined that they would have to modify a temporary barrier to incorporate the stairwells prior to introducing licensed material into the process so that the required dilution volume would be achieved.

Upon further review, the inspectors noted that the licensee credited the entire volume of the PSC when evaluating the accident consequences as opposed to a single floor. The PSC contained three floor levels which could have presented additional barriers to the mixing/dilution of released material and ultimately resulted in increased consequences to the area worker. The inspectors discussed the issue with the licensee who, in response, provided additional justification for crediting the entire PSC volume for dilution.

The licensee determined that there were three widely separated open stairwells connecting the different levels, and a single ventilation system served the multiple levels of the PSC that also incorporated areas not considered in determining the mixing volume. In addition, it was noted that the licensee utilized a conservative mixing

efficiency in the consequence evaluation such that the adjusted dilution volume being considered was not significantly different from the actual volume of one floor level in the PSC. The inspectors determined that the additional justification provided an acceptable basis for crediting the entire PSC volume for dilution

#### (2) <u>Conclusions</u>

The licensee had established a permanent plant modification program to support initial plant operations. In response to some inspector observations, the licensee amended some configuration change packages to provide additional documented bases that certain accident scenarios were not credible.

#### 3. Radiological Controls

#### a. Radiation Protection

# (1) <u>Scope and Observations (IP 88030)</u>

The inspectors reviewed the radiation protection (RP) organization and qualifications of RP personnel. The organization was supported with four temporary contractors who had RP-related work experience. The licensee recently completed an RP program assessment in the fourth quarter of 2009. The assessment team was comprised of several consultants with extensive RP-related experience. Based on interviews with licensee personnel and review of documentation, the inspectors determined that the assessment was comprehensive and resulted in recommendations to improve the RP program that was implemented by the licensee.

The inspectors noted that the licensee had task-qualified operations personnel with prior work-related experience to perform RP surveillance functions. The licensee had also provided basic training to other individuals (i.e. operators) to perform limited RP functions. The inspectors reviewed Procedure TQ-3-0100-03, "On-the-Job Training and Task Performance Evaluation," and determined that the procedure adequately described the requirements to task-qualify individuals.

The inspectors reviewed task-specific qualification cards to evaluate the adequacy of the qualification program. Additionally, the inspectors interviewed three individuals who had completed the task qualification program. The inspectors determined that individuals were adequately trained to perform their assigned functions and that appropriate measures were established to ensure that RP surveillance activities were adequately performed to support initial plant operation.

The inspectors noted that radiological monitoring equipment was ready for initial plant operation in the SBM. During plant tours and inspection activities, the inspectors noted that several portable continuous air monitors were calibrated and placed in service to obtain baseline data. A personnel contamination monitor located at the primary exit point from the planned radiological control area (RCA) was calibrated and operable.

The inspectors noted radiological posting materials and associated supplies necessary to establish initial RCA boundaries and demarcate various radiological zones were available and ready for use. Based on discussions with licensee personnel, the

inspectors noted that adequate arrangements were made with regard to the designated radiological control boundary area in the SBM and the location and posting of RCA entrances.

The licensee had established a temporary facility that contained various laboratory counting equipment and radiation survey instruments. This facility was also utilized to perform respirator fit testing. Based on interviews with licensee personnel and field observations, the inspectors determined that the facility was adequately maintained to support radiation protection activities required for initial plant operations.

Equipment needed to analyze air samples and to count smears was calibrated and available for use. The inspectors verified current calibration dates of portable survey equipment in use. The inspectors noted that the licensee utilized the services of an approved instrument calibration firm. The inspectors reviewed instrument calibration records for accuracy and completeness. No issues were identified.

Based on discussions with licensee personnel and a review of documentation, the inspectors found that arrangements were established to implement the bioassay and personnel radiation monitoring programs. The licensee planned to utilize the services of an offsite analytical laboratory for urine analysis. The inspectors determined that appropriate programmatic requirements were established to adequately control the collection and monitoring of bioassay data.

# (2) <u>Conclusions</u>

Those aspects of the RP program necessary to support initial plant operations were established. Approved procedures addressing these program areas were adequate to ensure the radiological safety of employees and members of the public. Sufficient calibrated equipment necessary to establish and maintain adequate control of the RCA and to perform radiological surveillance activities was available for use. Individuals had been adequately trained to perform their assigned functions and appropriate measures established to ensure that RP surveillance activities were adequately performed to support initial plan operations.

#### b. Waste Management

#### (1) <u>Scope and Observations (IP 88035)</u>

The inspectors reviewed the licensee's procedures for processing radioactive waste including implementation of IROFS 14a, 14b, 30a, 30b, and 30c that involved controls for movement and storage of waste. Overall, the waste management organization had procedures to ensure that radioactive waste was disposed of properly and the procedures delineated the responsibility for processing the radioactive waste.

However, the inspectors noted that, although the licensee had established spacing controls at the storage location for radioactive waste with an unknown mass of uranium-235, the implementing procedure did not include the required spacing requirements. The licensee defined 60 centimeters as the spacing required between waste containers to ensure there was no neutron interaction between them. This issue was brought to the attention of the licensee, and this spacing requirement was added to the procedure.

The licensee had established a ventilated storage area for radioactive waste storage located inside the uranium hexafluoride ( $UF_6$ ) handling area. This was a temporary storage location while the Cylinder Receipt and Dispatch Building (CRDB) was under construction. The inspectors noted that the temporary structure provided for an adequate storage area for waste.

The licensee also stored radioactive waste in a sea-land container located outside the controlled access area. This container was properly locked and was required to be inspected weekly to ensure that no additional materials were added or removed from the container. The radioactive waste storage area was properly labeled and required signature on a radiation work request prior to access. The inspectors reviewed the licensee's most current audit of the radioactive waste management program and determined that it was adequate.

(2) <u>Conclusions</u>

The inspectors determined that the licensee had an adequate program for storing and processing radioactive waste.

- c. <u>Transportation</u>
- (1) Scope and Observations (IP 86740)

The inspectors reviewed the process for shipping and receiving of  $UF_6$  cylinders with licensee personnel. There was a temporary process in place for shipping and receiving the cylinders until the CRDB was completed. The licensee had installed a 20-ton gantry crane for placing and removing cylinders from transport vehicles.

During the inspection, the inspectors observed that the licensee had not yet acquired rigging to remove cylinders from the vehicles and training for the gantry operators had not occurred. The licensee was in the process of procuring the necessary rigging equipment. This was identified as Inspection Follow-up Item (IFI) 70-3103/2010-005-001, "Review to Verify that the Proper Rigging Equipment is Available and that Operators have been Properly Trained on the Use of the Equipment Prior to the Licensee Receiving Full Cylinders."

The inspectors reviewed the training packages for the transportation operators. No issues were identified. The inspectors also reviewed implementation of IROFS 36c, which required that  $UF_6$  cylinders be transported by vehicles on-site that were either electrically powered or contained less than seventy-four gallons of diesel fuel. The inspectors determined that the licensee had the appropriate controls in place to ensure this IROFS was available and reliable.

The inspectors reviewed the Certificates of Compliance for each cylinder that the licensee planned to have on site. The inspectors also reviewed the most current audit of the transportation program. No significant issues were identified. The inspectors determined that licensee had an adequate program to classify and ship radioactive waste.

#### (2) <u>Conclusions</u>

The inspectors determined that the licensee had an adequate program to classify and ship radioactive waste. However, IFI 70-3103/2010-005-001, "Review to Verify that the Proper Rigging Equipment is Available and that Operators have been Properly Trained on the Use of the Equipment Prior to the Licensee Receiving Full Cylinders," was identified.

#### d. Effluent Control and Environmental Protection

#### (1) <u>Scope and Observations (IP 88045)</u>

The inspectors reviewed Gaseous Effluent Ventilation System (GEVS) Test Plan CAT-09-020, "SBM GEVS Integrated System Test," and found that the test plan was adequate to demonstrate system operability. Appropriate acceptance criteria were provided in the test plan and measures to verify the operability and function of key GEVS components were adequately described.

The inspectors performed field walk-downs with licensee personnel to evaluate field installation configuration of the GEVS. No issues of safety significance were identified. The licensee had successfully tested various alarms, valve actuations, system flow rates, and various other GEVS parameters. However, the inspectors noted that the system test results at the time of the inspection were limited to local control features and functions but did not include control room alarms. This was identified as IFI 70-3103/2010-005-002, "Review of Completed Testing to Demonstrate Communication of GEVS System Operational Status and Indicators in the Control Room."

The licensee had a series of filters in place between the cold traps and the GEVS to prevent the release of  $UF_6$  and hydrogen fluoride (HF) gas to the GEVS. The first two filters in this series contained activated carbon. The inspectors questioned the use of activated carbon, as it could potentially react exothermically with  $UF_6$ . The licensee provided the inspectors with documentation showing that this reaction had been evaluated and did not pose a threat to the workers or public.

The inspectors reviewed calibration records for several GEVS filter differential pressure gauges. The inspectors determined that two alpha stack air monitors and an HF monitor were installed to monitor gaseous effluents emitted via the SBM stack. No issues were identified. Licensee personnel described the calibration and preventive maintenance program for GEVS monitoring instrumentation. The inspectors noted that appropriate testing and calibration frequencies were established.

The inspectors reviewed Procedure OP-3-0660, "Gaseous Effluent Ventilation System," and determined that adequate GEVS alarm features and alarm response steps were specified. Testing of these alarm features was included in the GEVS test plan and would be performed upon completion of establishing GEVS operational parameters and alarm indicator communications with the control room.

The inspectors noted that the licensee had not established procedural guidance to ensure that special nuclear material (SNM) would not accumulate in the duct system for the heating, ventilation, and air conditioning (HVAC) systems in the SBM. The inspectors discussed the observation with the licensee, who revised the applicable

procedure to establish requirements for performing periodic nondestructive analysis scans on the HVAC filters. The licensee also revised the procedure to require the HVAC system to be shut down following an accidental release of SNM in the area to prevent the accumulation of material in the system. The inspectors reviewed the procedural changes and had no further issues.

The inspectors reviewed changes made to various effluent monitoring forms since the last inspection. The licensee initiated changes to forms associated with the monitoring and recording of HF and gross alpha effluent release data. The changes included enhancements that facilitated the recording of data and added acceptance criteria to various forms. The inspectors determined that these changes resulted in forms that were easier to read and provided a format that more clearly identified when data exceeded levels requiring further review or analysis.

The inspectors reviewed procedures relating to the conduct and administration of the effluent and environmental control programs. The inspectors interviewed personnel regarding processes utilized by the licensee to evaluate, review, track, and trend data associated with these programs. The inspectors determined that appropriate action levels were established to provide early indication of adverse trends after plant operations commence. The inspectors reviewed and discussed with licensee personnel the most recent semi-annual effluent report issued in August 2009. The report appropriately addressed baseline naturally occurring radiological parameters measured by the preoperational programs.

The licensee utilized the analytical services of an approved offsite contractor firm for the processing and analysis of environmental samples. The firm was a recognized company that supplied analytical services to the nuclear industry. The inspectors reviewed contractual requirements to confirm that services provided by the contractor met analysis requirements specified in licensee documents. Appropriate parameters specifying the type of analyses to be performed and required detection sensitivity were provided in the purchase requisition. No safety issues were identified.

The inspectors observed the performance of personnel during the change out of environmental air samples at various monitoring stations. Personnel were knowledgeable of their responsibilities, and activities were performed in accordance with approved procedures. The inspectors noted that monitoring stations were adequately maintained and that equipment was operable and within current calibration. Due to heavy dust loading, the licensee verified flow rates with an air flow calibrator during filter change out. The inspectors determined that this was a conservative action and represented a good practice based on environmental conditions in the surrounding locale.

The inspectors toured the site perimeter fence to observe thermoluminescent dosimeter (TLD) environmental monitoring stations. The inspector noted that placement of the TLD monitoring stations provided adequate coverage to assess any radiological impact from direct radiation resulting from plant operation.

# (2) <u>Conclusions</u>

Environmental monitoring program activities were implemented in accordance with approved procedures. Personnel were knowledgeable of their responsibilities and performed activities in accordance with approved procedures. Environmental program equipment, procedures, and trained personnel were available to support initial plant operations.

Effluent monitoring program and equipment necessary to support initial plant operations, in general, was available and operable. With the exception of establishing control room communication functions, the gaseous effluent monitoring and filtration system was successfully tested in accordance with an approved system test plan. Steps associated with the testing of control room alarm features and the ability to display system operational status in the control room were not completed. This was identified as IFI 70-3103/2010-005-002, "Review of Completed Testing to Demonstrate Communication of GEVS System Operational Status and Indicators in the Control Room."

# 4. <u>Construction</u>

# a. <u>Electrical Components and Systems</u>

# (1) <u>Scope and Observations (IP 88138)</u>

The inspectors assessed the completed installations of electrical IROFS 1, 2, 4, and 5 components required for initial cascade operations and observed/evaluated preoperational and acceptance testing of the IROFS systems. The inspectors determined that initial cascade operations required the following UF<sub>6</sub> handling stations and associated IROFS to be operational:

- Feed Stations 1, 2, and 3 (IROFS 4 and 5)
- Tails Stations 1, 2, and 3 (IROFS 1 and 2)
- Product Stations 2, 3, and 4 (IROFS 1 and 2)
- Product Purification Station 1 (IROFS 1 and 2)

The inspectors examined the acceptance requirements packages (Form SU-3-1000-01-F-1) that were developed for each of the UF<sub>6</sub> handling stations designated to support initial cascade operations. The packages defined the IROFS boundaries and specified detailed requirements for operational readiness tasks such as developing operating and maintenance procedures, completing construction acceptance and preoperational functional testing, and closing "reservations" (i.e. outstanding pre-operational action items). Observations of plant activities and visual inspections conducted by the inspectors determined the electrical IROFS components required for initial cascade operations were adequately controlled by the operations organization in accordance with the licensee's Quality Assurance Program Description (QAPD), Sections, 3, 8, 9, and 16.

The inspectors performed visual inspections of completed installations of IROFS 1, 2, 4, and 5. The inspectors evaluated the material condition of the installed components, including the internals of selected panel boxes, to verify that electrical components were adequately protected consistent with the environment of the building areas. The inspectors also verified adequacy of IROFS installation workmanship, circuit routing, and

component labeling. In addition, the inspectors observed preoperational functional testing of the IROFS 1 and 2 systems at Tails Station 4 to assess the ongoing conduct of testing activities. The inspectors verified that testing was conducted in accordance with written instructions contained in a work plan. The work plan provided step-by-step guidance, acceptance criteria, and specific verifications of logic outputs. During conduct of testing, a malfunction of the IROFS circuitry occurred. The inspectors determined that the testing was appropriately suspended and the anomaly was properly documented in the corrective action system for evaluation and disposition.

The inspectors held discussions with the field technicians, maintenance supervisor, and the responsible systems engineer. The inspectors also reviewed related engineering changes and an associated electrical configuration change to verify that reviews properly assessed impact to safety and necessary changes to license basis documents. Related condition reports were reviewed to assess the control of conditions that had the potential to impact the operational readiness of electrical IROFS 1, 2, 4, and 5.

# (2) <u>Conclusions</u>

The licensee adequately implemented the requirements of the licensee's Quality Assurance Program Description (QAPD), Sections, 3, 8, 9, and 16. The electrical IROFS required for initial cascade operations were properly installed, adequately tested, and the approved as-built configurations were effectively controlled by the operations organization

# b. Design and Document Review

# (1) <u>Scope and Observations (IP 88107)</u>

The inspection was conducted to verify the adequacy of design and document control measures affecting IROFS 27e for the SBM 1001 structure. This evaluation also included procedures to control design, and analyses, as well as the licensee's ability to track engineered change requests (ECRs). The intent of the inspection was to determine that quality assurance records furnished evidence of the quality of items and/or activities affecting IROFS 27e for the SBM 1001 structure. Inspectors reviewed project documents and implementing procedures specifying engineering and design process activities.

The inspectors reviewed licensee's documents, NEF-BD-27e "Design Features of SBM and CRDB Structures," Revision (Rev.) 0, (Boundary Document), and EG-3-5200-01 "IROFS27e Structural Inspection Surveillance," Rev. 0, (Implementation Procedure). The inspectors reviewed the two documents for adequacy and consistency. The Implementation Procedure outlined the procedures used to satisfy the surveillance requirements of ISA Summary IROFS 27e and Operating Requirement Manual (ORM) 3700-1. The Boundary Document defined the design features and requirements of IROFS 27e related to both the SBM and CRDB superstructure (not including the bunkered area). The inspectors also reviewed proper tracking of ECRs. Referenced drawings were also reviewed to verify all relevant ECRs were properly posted and incorporated.

# (2) <u>Conclusions</u>

The licensee adequately implemented the requirements of the QAPD, Section 3, Design and Document Control, for activities affecting IROFS 27e for the Separation Building Module (SBM) 1001 structure. LES effectively established and implemented design control procedures to track ECRs, and the reviewed Implementation Procedure and Boundary Definition Document related to IROFS 27e for the SBM 1001 structure were found to be adequate. No items of safety significance were identified.

# c. <u>Geotechnical and Foundation Activities</u>

# (1) <u>Scope and Observations (IP 88131)</u>

The inspection focused on the licensee's implementation of Quality Level (QL)-1 geotechnical and foundation activities associated with IROFS 27e for the SBM 1001 structure. The inspectors determine by document review of geotechnical records whether activities were accomplished in accordance with the design specifications, drawings, procedures, and regulatory requirements.

The inspectors reviewed the barrowed structural backfill material information included in the work plan and geotechnical laboratory tests related to the acceptance and receipt of barrowed fill. These tests included modified proctor, Atterberg limits, gradation, moisture content, and specific gravity. The results of these tests were compared to licensee specifications to verify adequacy of material used.

The inspectors also reviewed completed QL-1 Work Plan WP -1001-1-24-CI-003, which contained site geotechnical backfill results for SBM 1001 Cascade Halls 1 and 2. They also provided the in-place dry density and moisture test locations and results. Nuclear Technology Solutions (NTS) Specification No. 114489-S-S-02300-9, "Clearing, Grading, and Earthwork Material, Construction, and Testing," which detailed geotechnical and foundation requirements, was reviewed for adequacy. The criterion provided by the specification was compared to results of moisture and density tests to verify the adequacy of backfill installation.

# (2) <u>Conclusions</u>

Geotechnical and foundation records affecting IROFS 27e for the SBM 1001 structure were properly documented and maintained in accordance with the licensee procedures. The testing results from placement of the backfill and compaction efforts were adequate per the required specifications. The documented results of the laboratory tests on the barrowed backfill material were also reviewed and found adequate. No items of safety significance were identified.

# d. <u>Structural Concrete Activities</u>

# (1) <u>Scope and Observations (IP 88132)</u>

The inspection focused on the licensee's construction specifications, drawings, and work procedures established for adequate control and documentation of QL-1 structural concrete construction activities associated with IROFS 27e for the SBM 1001 structure.

The inspectors determined by evaluation of quality assurance records whether activities were accomplished in accordance with the design specifications, drawings, procedures, and regulatory requirements.

During the inspection, the inspectors reviewed the completed QL-1 structural concrete work plans associated with IROFS 27e for the SBM 1001 structure. Specifically, Work Plans LES-1001-C-CON-006-03, LES-1001-C-CON-006-05, and LES-1001-C-CON-001-02 were selected based on concrete pours for review. Concrete placement documentation for QL-1 testing and batching activities was reviewed. Temperature, air, and slump test results were evaluated and compared to design specifications.

The inspectors also reviewed the SBM 1001 structure roof verification survey. The roof was required to have a 1/8" per foot slope to prevent localized ponding. The inspectors performed calculations to verify the required slope was achieved. The inspectors reviewed concrete placement drawings related to QL-1 structural concrete activities associated with IROFS 27e for the SBM 1001 structure. The inspectors also verified proper tracking of ECRs affecting concrete activities associated with IROFS 27e for the SBM 1001 structure. No items of safety significance were identified in this area.

(2) <u>Conclusions</u>

Structural concrete activities associated with IROFS 27e for the SBM 1001 structure were found to be in accordance with the project procedures and specifications. Structural concrete records reviewed demonstrated appropriate implementation of American Concrete Institute, American Society for Testing and Materials Standards, and NRC regulatory requirements. No findings of significance were identified.

#### e. <u>Structural Steel and Support Activities</u>

#### (1) <u>Scope and Observations (IP 88133)</u>

This portion of the inspection focused on the structural steel and support activities associated with IROFS 27e for the SBM 1001 structure. The intent of the inspection was to determine by direct observation and independent evaluation whether work, testing, and inspection performance related to QL-1 structural steel activities were accomplished in accordance with American Institute of Steel Construction design specifications, drawings, procedures, and regulatory requirements.

The inspectors reviewed project specifications and erection procedures associated with structural steel activities. Quality assurance documentation and drawings were reviewed by the inspectors to verify whether activities performed onsite were in accordance with industry standards, specifications, and procedures. Procedure EG-3-6000-04, "Erection of Structural and Miscellaneous Steel," was reviewed by the inspectors for adequacy. NTS Specification No. 114489-S-S-05131-1, "Erection of Structural and Miscellaneous Steel," and Specification No. 114489-S-S-05130-4, "Fabrication of Structural and Miscellaneous Steel," were also reviewed for adequacy.

During the inspection, the inspectors held discussions with civil engineering staff regarding the steel erecting activities, procedures, and specifications. The installation and inspection of bolts was the major focal point of the discussion. Procedure EG-3-

6000-04 and NTS specifications established quality control (QC) inspection requirements to be implemented in the field during erection. Each requirement was reviewed and found to be adequate.

The inspectors also reviewed nonconformance reports (NCRs) to confirm adequate evaluation of issues identified in the field. NCR 28683-154 and 28683-248 were reviewed and directly inspected in the field by the inspectors and found to be adequate. The inspectors reviewed structural steel bolting connection documentation and drawings related to IROFS 27e for the SBM 1001 structure. The inspectors verified that ECRs were attached to drawings as required to verify adequate tracking.

The inspectors directly inspected bolted connections, truss splices, and purlin-to-truss connection to ensure as-built conditions were per erection and design drawings. The bottom cord splice for the 1001-Truss, labeled T-1 in the UF<sub>6</sub> area, was inspected to verify the as-built condition. The truss was located along Column Line H in the UF<sub>6</sub> roof framing system. The same splice for 1001-Truss, labled T-2 along Column Line 22, was also inspected and found to be adaquate.

#### (2) <u>Conclusions</u>

The as-built condition of each inspected area of structural steel components related to IROFS 27e for the SBM 1001 structure was determined to be adequate. Quality assurance records associated with these activities were properly maintained in accordance with procedures. No items of safety significance were identified.

#### 5. Follow-up of Previously Identified Issues

a. <u>(Closed) Violation (VIO) 70-3103/2009-003-001:</u> Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (Hand and Foot Monitor) in the Centrifuge Test Facility (CTF).

Portable survey equipment was available and operable, properly maintained, and within current calibration frequency. The licensee informed the inspectors that the use of handheld survey meters for performing personnel contamination surveys in the CTF would continue. This issue is closed.

b. <u>(Closed) VIO 70-3103/2009-003-002:</u> Inadequate Configuration Change for the Filter Type Used in the CTF Special Ventilation Unit.

(Closed) VIO 70-3103/2009-003-004: Inadequate Filter Installation Resulting in Inadequate Filtration of the CTF Special Ventilation Unit.

Corrective actions included procedure changes, replacement of the incorrectly installed filters, and management communications emphasizing the proper review and issuance of configuration change packages. Based on the review of documents and discussions with licensee personnel, the inspectors determined that the corrective actions were adequately implemented. These issues are closed.

c. <u>(Closed) IFI 70-3103/2009-003-003:</u> Review of Final Disposition of Potential Mixed Waste CTF Filters.

This material had the potential to be classified as a mixed-waste. Based on a review of effluent release data and radiological survey records for the CTF, the inspectors determined that no radioactive material was released since the commencement of CTF activities. Additionally, the licensee assayed the used filters prior to disposal to confirm that no radioactive material was present on the filters. The inspectors concluded, based on a review of analysis results and a review of supporting documentation, that the filters did not constitute a mixed waste. This IFI is closed.

# 6. Exit Meeting

The ORR inspection scope and results were summarized on January 15 and 19, and February 11, 2010, with those persons indicated in the Attachment. Although proprietary documents and processes were occasionally reviewed during this inspection, the proprietary nature of these documents or processes was not included in this report. No dissenting comments were received from the licensee.

# **ATTACHMENT**

# 1. PARTIAL LIST OF PERSONS CONTACTED

#### Licensee Personnel:

- M. Benjamin, Employee Concerns Program Manager
- M. Boden, Director, Process and Support Systems
- S. Cowne, Deputy Director, Operations
- G. Crawford, Chemistry Services Manager
- D. Dotson, Licensing Manager
- G. Higgs, Maintenance Manager
- M. Keller, Logistics Services Manager
- T. Knowles, Training manager
- D. Lakin, Performance Assessment and Feedback Manager
- G. Laughlin, Director, Commissioning and Acceptance
- C. Markert, Operations Manager
- P. McCasland, Licensing Engineer
- W. Padgett, Licensing Engineer
- D. Poirier, Vice President, Construction
- J. Reed, Vice President, Operations
- B. Robinson, Vice President, Engineering
- G. Sanford, Quality and Regulatory Affairs
- G. Sergent, Quality Assurance Manager
- G. Smith, LES Chief Operating Officer and Chief Nuclear Officer
- A. Sorrell, Plant Support Director
- P. Thurman, Environmental Compliance Officer and Radiation Protection Manager
- N. Wetherell, Technical Services Director

#### 2. Inspection Procedures Used

- IP 86740 Inspection of Transportation Activities
- IP 88005 Management Organization and Controls
- IP 88025 Maintenance and Surveillance of Safety Controls
- IP 88030 Radiation Protection
- IP 88035 Radioactive Waste Management
- IP 88045 Effluent Control and Environmental Protection
- IP 88070 Permanent Plant Modifications
- IP 88107 Design and Document Control
- IP 88110 Employee Concerns Program
- IP 88131 Geotechnical/Foundation Activities
- IP 88132 Structural Concrete Activities
- IP 88133 Structural Steel and Support Activities
- IP 88138 Electrical Components and Systems

2

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

Item Number	<u>Status</u>	Description
IFI 70-3103/2010-005-001	Open	Review to Verify that the Proper Rigging Equipment is Available and that Operator have been Properly Trained on the Use of the Equipment Prior to the Licensee Receiving Full Cylinders (Section 3.c)
IFI 70-3103/2010-005-002	Open	Review of Completed Testing to Demonstrate Communication of GEVS System Operational Status and Indicators in the Control Room (Section 3.d)
VIO 70-3103/2009-003-001	Closed	Failure to Demonstrate Required Sensitivity for Personnel Contamination Monitoring Equipment (Hand and Foot Monitor) (Section 5)
VIO 70-3103/2009-003-002	Closed	Inadequate Configuration Change for the Filter Type Used in the CTF Special Ventilation Unit (Section 5)
VIO 70-3103/2009-003-004	Closed	Inadequate Filter Installation Resulting in Inadequate Filtration of the CTF Special Ventilation Unit (Section 5)
IFI 70-3103/2009-003-003	Closed	Review of Final Disposition of Potential Mixed Waste CTF Filters (Section 5)

# 4. List of Acronyms Used

ADAMS CC CFR CR CRDB CTF DCI DFFI ECP ECR FCSS GEVS HF HVAC	Agency-Wide Document Access and Management System Configuration Change Code of Federal Regulations Condition Report Cylinder Receipt and Dispatch Building Centrifuge Test Facility Division of Construction Inspection Division of Fuel Facility Inspection Employee Concerns Program Engineering Change Request Fuel Cycle Safety and Safeguards Gaseous Effluent Ventilation System Hydrofluoric (acid) Heating Ventilation & Air Conditioning
HVAC IFI IP	Heating Ventilation & Air Conditioning Inspector Follow-up Item

IROFS	Item Relied on for Safety
ISA	Integrated Safety Analysis
LES	Louisiana Energy Services, L.L.C.
M&TE	Measuring and Test Equipment
NCR	Nonconformance Report
NEF	National Enrichment Facility
NMSS	Nuclear Materials Safety and Safeguard
NRC	Nuclear Regulatory Commission
NTS	Nuclear Technology Solutions
ORR	Operational Readiness Review
ORM	Operational Requirement Manual
PPM	Permanent Plant Modification
PSC	Process Service Corridor
QAPD	Quality Assurance Program Description
QC	Quality Control
QL	Quality Level
RCA	Radiological Control Area
Rev.	Revision
RII	Region II
RP	Radiation Protection
SAR	Safety Analysis Report
SBM	Separation Building Module
SCWE	Safety Conscious Work Environment
SNM	Special Nuclear Material
TLD	Thermoluminescent Dosimeter
$UF_6$	Uranium Hexafluoride
VIO	Violation

# 5. Documents Reviewed

#### LES NEF Procedures

AD-3-1000-01, Requirements for Procedures, Rev. 4 AD-3-1000-05, Safety Review Committee, Rev. 1 CA-3-1000-01, Performance Improvement Program and Non-conformance Reports, Rev. 7 CH-3-4000-02, MacGiver HF-2 Monitor, Rev. 5 CH-3-4000-01, Alpha Monitor (ABPM 201S) Operation, Rev. 4 EC-3-1000-01, Employee Concerns Program, Rev. 4 EC-1-1000-01, Safety Conscious Work Environment, Rev. 2 EG-3-2100-01, Configuration Change, Rev. 9 EG-3-5200-01, IROFS27e Structural Inspection Surveillance, Rev. 0 EG-3-6000-01, Construction Work Plans, Rev. 4 EG-3-6000-04, Erection of Structural and Miscellaneous Steel, Rev. 2 EN-3-1000-02, Radiological Effluent and Environmental Monitoring, Rev. 4 EN-3-1000-04, Environmental Laboratory Program, Rev. 1 EN-3-1000-06, Meteorological Monitoring Program, Rev. 1 HR-3-1000-01, Employee/Contractor In-Processing & Out-Processing, Rev. 4 HR-3-3000-01, LES Organizational Changes, Personnel Changes, and LES Organizational Chart Control, Rev. 0

- LO-3-1000-01, Artifact Standard Calibration, Rev. 1
- LO-3-2000-04, Container Handling During Initial Plant Startup
- LO-3-3000-01, Transport Planning, Rev. 1
- LO-3-4000-03, External Cylinder Inspection
- LO-3-2000-02, On-site Handling of UF<sub>6</sub> Cylinders
- LO-3-2000-07, Container Handling Forklift Inspection, Rev. 1
- LO-3-2000-06, Container Handling Yard Tractor Inspection, Rev. 1
- LO-3-2000-09, Crane Inspection
- LS-3-1000-04, 10 CFR 70.72 (c) Evaluations for Proposed Changes, Rev. 4
- LS-3-1000-06, Maintenance of License Basis Documents, Rev. 5
- MA-2-1000-01, Conduct of Maintenance
- MA-2-1000-02, Preventive Maintenance Program
- MA-2-1000-03, Surveillance Program
- MA-3-1000-02, Calibration and Control of Measuring and Test Equipment
- MA-3-1000-07, PM Initial Task Development
- MA-3-1000-08, Surveillance Implementation and Change Process
- MA-3-3400-01, IROFS1 Station Heater and Fan High Temperature Trip RTD Surveillance, Rev. 1
- MA-3-3400-02, IROFS2 Station Heater and Fan High Temperature Trip TC Surveillance, Rev. 2
- MA-3-3400-04, IROFS4 Station Heaters High Temperature Trip RTD Surveillance, Rev. 2
- MA-3-3400-05, IROFS5 Station Heaters High Temperature Trip TC Surveillance, Rev. 1
- MA-3-2441-01, Initial Filling of Nal Traps, Rev. 0
- MA-6-0400-01, Initial Filling of Chemical Traps, Rev. 0
- OP-3-1000-06, Component Labeling, Rev. 4
- OP-3-0660-01, Gaseous Effluent Ventilation System, Rev. 0
- RP-1-1000-01, Radiation Protection Policy, Rev. 0
- RP-1-1000-02, ALARA Policy, Rev. 0
- RP-2-1000-01, Radiation Protection Program, Rev. 3
- RP-2-1000-02, ALARA Program, Rev. 1
- RP-2-4000-01, Respiratory Protection Program, Rev. 1
- RP-3-2000-01, Radiation Work Permits, Rev. 3
- RP-3-2000-02, Radiological Postings and Access Controls, Rev. 3
- RP-3-2000-04, Radiation and Contamination Surveys, Rev. 3
- RP-3-2000-06, Airborne Radioactivity Monitoring, Rev. 3
- RP-3-3000-08, Bioassay, Rev. 0
- RW-3-1000-01, Waste Management, Rev. 1
- SA-3-1000-01, Plant Safety, Rev. 0
- SU-3-1000-01, Release for Operation, Rev. 5
- TQ-3-0600-01, Radiation Protection Training, Rev. 4
- TQ-3-0100-03, On-The-Job Training and Task Performance Evaluation, Rev. 3
- TQ-3-0310-01, Logistics Training, Rev. 1
- WC-2-1000-01, Work Control Program, Rev. 1
- WC-3-1000-01, Notification Initiation and Processing
- WC-3-1000-02, Work Package Development, Issuance, and Closure
- WC-4-1000-02, Conduct of Pre-Job and Post-Job Briefs
- WC-4-1000-03, Job Hazard Analysis

LES Condition Reports

2009-3294-CR, Open Items for IROFS 1, 2, 4, and 5

2009-3456-CR, IROFS2 Problem

2009-3604-CR, Product Station1B2 IROFS1 RTD Temperature Trip Relay Does Not Meet Manufacturer's Specification

2009-3654-CR, Construction Personnel Entering LCC and IROFS Control Box

2009-3706-CR, Procedure Violation for Artifact Standard Certification

2009-3769-CR, Tracking CR for Drawing Updates

2009-4171-CR, Additional IROFS Walk downs for Operability

2010-117-CR, Gantry Crane Cylinder Rigging Not Available

2010-118-CR, WOHWA Scale Calibration Not Complete

- 2010-131-CR, Cleaning of Temperature Probes Prior to Collection of As-Found Data
- 2010-307-CR, Improper IROFS Labeling on Product Stations

2010-308-CR, Labeling and Weight Value Markings on Artifact Cylinders

2010-335-CR, 4MT3B RTD Surveillance Stop Work

# Drawings

9022511E, LES National Enrichment Facility Wiring Diagram for IROFS1, IROFS2, IROFS4, & IROFS5 (Typical), Rev. 006

9050294E, LES National Enrichment Facility Schematic Diagram for IROFS1 and IROFS2 (Typical), Rev. 006

LES-1001-C-CON-001-01-0, Concrete Separation Building Module UF6 Area and Cascade Halls 1 & 2 Foundation Plan and Section Sheet 1, Rev. 0

LES-1001-C-CON-006-03-0, Concrete Separation Building Module UF6 Area and Cascade Halls 1 & 2 Sections and Details Sheet 3, Rev. 0

LES-1001-C-CON-006-05-0, Concrete Separation Building Module UF6 Area and Cascade Halls 1 & 2 Sections and Details Sheet 5, Rev. 0

LES-1001-C-CON-001-02-0, Concrete Separation Building Module UF6 Area and Cascade Halls 1 & 2 Footing Details Sheet 2, Rev. 0

LES-1001-C-STL-004-05-1, Supplemental Steel Framing Layout for Cable Tray Supports at Process Service Corridor, Rev. 1

LES-1001-C-STL-005-02-0, Steel Separation Building Module UF<sub>6</sub> Area and Cascade Halls 1 & 2 Roof Plan Bottom Chord Framing Sheet 2, Rev. 0

LES-1001-C-STL-005-03-0, Steel Separation Building Module UF<sub>6</sub> Area and Cascade Halls 1 & 2 Roof Plan Bottom Chord Framing Sheet 3, Rev. 0

# **Miscellaneous**

NTS 114489-S-S-02300-9, Clearing, Grading, and Earthwork Material, Construction, and Testing, Rev. 9

NTS 114489-S-S-05131-1, Erection of Structural and Miscellaneous Steel, Rev. 1 NTS 114489-S-S-05130-4, Fabrication of Structural and Miscellaneous Steel, Rev. 4 NCR WGI (28683)-248, <sup>3</sup>/<sub>4</sub>" Anchor Bolt in the PSC Building bent 30 degrees out of plumb

NCR WGI (28683)-154, Type 4 FTG in the PSC 1" anchor bolt damaged and bent

ECR – 5179, dated October 23, 2009, Incorrect Functional Locations on AREVA Documents

ECR – 5375, dated November 16, 2009, IROFS Drawings Need to be Revised before FCOL

Environmental Protection Audit, LES Audit 2009-A-06-039, June 10-19, 2009 LES Audit 2009-A-06-040, Chemistry, Environmental Compliance, and Waste Processing Audit, July 20-24, 2009

LES Audit 2009-A-05-036, Radiation Protection Program Audit, June 10-24, 2009 Safety Performance Solutions (SPS) Safety Culture Assessment, October 2008 General Employee Training (GET) on SCWE, Rev. 3

OPS-FUN-HP-ST, NEF Fundamentals, Health Physics, Rev. 1

NEF-SDD-1001-662, System Description for Safe By Design Gas Effluent Ventilation System

LES-DCD-M-00001-0, Design Criteria for the Pumped Extract GEVS, Rev. 0

CC-EG-2007-0189, Changes to IROFS Temperature Sensor, Rev. 0

CC-EG-2009-0293, Pump Extract GEVS Installation into SBM-1001

CC-EG-2008-0374, Remove Berm Requirements from the Cylinder Storage Pad

CC-EG-2009-0060, Addition of IROFS 36i to Mitigate Accident Scenario.

CC-EG-2009-0256, Addition of IROFS 36a and 36d to Accident Scenario

CC-EG-2009-0302, Removal of IROFS 3 from Accident Sequences

CC-EG-2009-0383, Removal of IROFS 6a, 6b, and 7 from Accident Sequences

CC-EG-2009-0004, Removal of Reference to Cylinder Preparation Area

CC-RW-2009-0001, Removal of Use of Laundry Equipment on Site

CC-EG-2009-0491, Removal of IROFS 3 from Accident Sequences

Kirk Air Test and Balance Report for NEF SBM GEVS, dated January 11, 2010

NEF Contract LES-GSA-3080, Provide Air Filter Alpha/Beta Analysis & Uranium Isotopic Composites and Request for Proposal

National Enrichment Facility Semi Annual Radioactive Effluent Release Report, January 1, 2009 Through June 31, 2009, dated August 31, 2009

# Work Orders:

WO 1000808/3001648, Perform MA-3-3400-05, IROFS5 Station Heater and Fan High Temperature Trip – TC Surveillance (Station 13), Rev. 0

WO 1000798/3001638, Perform MA-3-3400-01, IROFS1 Station Heater and Fan High Temperature Trip – RTD Surveillance, Rev. 0

# Work Plans:

CAT-09-020, SBM GEVS Integrated System Test, Rev. 1

CAT-CH-HF 002, HF Monitor Site Acceptance Test Plan, Rev .0

CAT-CH-ABPM-2015, Alpha Monitor Site Acceptance Test Plan, Rev. 0

PFTP-1001-IROFS1 & IROFS2, Rev. 0, SBM 1001 Preoperational Functional Test Plan IROFS1 IROFS2

PFTP-1001-IROFS4 & IROFS5, Rev. 0, SBM 1001 Preoperational Functional Test Plan IROFS4 IROFS5

SU-3-1000-01-F-1, Acceptance Requirements Package for Product Station 3 IROFS <sup>1</sup>/<sub>2</sub>

SU-3-1000-01-F-2, Acceptance Requirements Verification for Product Station 3 IROFS 1/2

SU-3-1000-01-F-1, Acceptance Requirements Package for Product Station 4 IROFS 1/2

SU-3-1000-01-F-1, Acceptance Requirements Package for Product Station 2 IROFS 1/2

SU-3-1000-01-F-1, Acceptance Requirements Package for Feed Station 1 IROFS 4/5
SU-3-1000-01-F-1, Acceptance Requirements Package for Feed Station 2 IROFS 4/5
SU-3-1000-01-F-1, Acceptance Requirements Package for Feed Station 3 IROFS 4/5
SU-3-1000-01-F-1, Acceptance Requirements Package for Tails Station 1 IROFS 1/2
WP-1001-ELEC-424-003, Perform IROFS Testing for Product Station 3B2, dated November 15, 2009

WP-1001-ELEC-434-003, Perform IROFS Testing for Tails Station 3B3, dated November 15, 2009

WP-1001-ELEC-414-005, Perform IROFS Testing for Solid Feed Station 3B1, Rev. 0 WP-1001-IROFS-FP-LTTS1, Installation of Items Relied On For Safety (IROFS) #1 and

#2 on Solid Feed Station #1001-415-1B3, dated November 4, 2009

WP-1001-IROFS-PS-LTTS3, Installation of Items Relied On For Safety (IROFS) #1 and #2 on Product Station #1001-424-3B2, dated October 24, 2009

#### Performance Training and Evaluation, Job Qualification Cards

OAHP2QC00101, Radiological Surveys, Rev. 0 OAHP2QC00102, Radiation Protection Postings, Rev. 0 OAHP2QC0105, Radiological Source Control, Rev. 0 OAHP2QC0106, Performance Checking Radiation Protection Instruments, Rev. 0 OAHP2QC0109, Radiation Protection Instruments, Rev. 0