



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

October 28, 2011

Jay Laughlin, Chief Nuclear Officer
National Enrichment Facility
P.O. Box 1789
Eunice, NM 88231

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2011-004 AND NOTICE OF VIOLATION

Dear Mr. Sexton:

The U.S. Nuclear Regulatory Commission (NRC) conducted an inspection associated with the operations and construction activities of the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF). The purpose of the inspection was to determine whether activities were conducted safely and in accordance with NRC requirements and your license requirements. Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of a selective examination of records, interviews with personnel, and observations of activities in progress.

The NRC has determined that three violations of regulatory requirements occurred. The violations involved failure to implement various requirements in your Quality Assurance Program.

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. These violations are cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding them are described in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC.

If you contest the violations or the 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 the Regional Administrator, Region II, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration in presenting the corrective actions, the guidance from NRC Information Notice 96-28, Suggested Guidance Relating to Development and Implementation of Corrective Action, is available on the NRC website 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 accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," this document may be accessed through the NRC's public electronic reading room, Agency-Wide Document Access and Management System (ADAMS) on the internet at <http://www.nrc.gov/readingrm/adams.html>.

Should you have any questions concerning this letter, please contact me at (404) 997- 4418.

Sincerely,

/RA/

Joselito O. Calle, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

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

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 70-3103/2011-004

cc w/encls:

Perry Robinson, Vice President
Regulatory Affairs and General Counsel
National Enrichment Facility
P.O. Box 1789
Eunice, NM 88231

Michael Ortiz, Chief
Radiation Control Bureau
Field Operations Division
Environment 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

cc w/encls: (See page 3)

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

Should you have any questions concerning this letter, please contact me at (404) 997- 4418.

Sincerely,
/RA/

Joselito O. Calle, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

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

- Enclosures:
1. Notice of Violation
 2. NRC Inspection Report 70-3103/2011-004

cc w/encls:
Gary Sanford, Quality and Regulatory
Affairs Director
National Enrichment Facility
P.O. Box 1789
Eunice, NM 88231

Carlos Romero, Chief
Radiation Control Bureau
Field Operations Division
Environment 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

cc w/encls: (See page 3)

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE
ADAMS: X Yes ACCESSION NUMBER: ML11301A218 XD SUNSI REVIEW COMPLETE X FORM 665 ATTACHED

OFFICE	RII:CCI	RII:CCI	RII:CCI	RII:CCI	RII:EICS	RII:DFFI	RII:DFFI
SIGNATURE	/RA/ email	DHartland for	/RA/				
NAME	JBartleman	CJones	RJackson	SAlexander	AAllen	RPrince	DHartland
DATE	10/28/11	10/24/11	10/24/11	10/24/11	10/26/11	10/28/11	10/28/11
E-MAIL COPY?	YES NO	YES NO					

Raj Solomon, Deputy Secretary
New Mexico Department of Environment
Office of the Secretary
1190 St. Francis Drive
P. O. Box 26110
Sante 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

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

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

Brenda Brooks, Director
Community Affairs and Government
Relations
National Enrichment Facility
Electronic Mail Distribution

Gregory Smith, President
National Enrichment Facility
Electronic Mail Distribution

Perry Robinson, LES General Counsel
Louisiana Energy Services, L.L.C.
National Enrichment Facility
Electronic Mail Distribution

Letter to David E. Sexton from Joselito Calle, dated October 28, 2011

SUBJECT: NRC INSPECTION REPORT NO. 70-3103/2011-004 AND NOTICE OF VIOLATION

Distribution w/encls:

G. Chapman, NMSS

B. Smith, NMSS

J. Kinneman, NMSS

T. Gody, RII

M. Widmann, RII

J. Moorman, RII

J. Calle, RII

C. Taylor, RII

D. Hartland, RII

J. Yerokum, RII

M. Lesser, RII

S. Freeman, RII

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 July 1 through September 30, 2011, three violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. Special Nuclear Material (SNM) License No. 2010 requires, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF) in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), dated June 13, 2011, and supplements thereto.

Section 10 of the QAPD, "Inspection," states, in part that "finished items shall be inspected for completeness, marking, calibration, adjustments, protection from damage or other characteristics as required in order to verify the quality and conformance of the item to specified requirements."

Contrary to the above, before August 18, 2011, LES NEF failed to verify the quality and conformance of items to the specified requirements as described in the following examples:

- (1) LES Procedure EG-3-6000-04, Revision (Rev.) 6, "Erection of Structural and Miscellaneous Steel," requires that bolt installation be inspected per Specification LES-S-S-05131, "Erection of Structural and Miscellaneous Steel," which lists bolt torque as a Quality Level 1 critical attribute that shall be verified by quality control (QC) inspection. LES NEF performed final inspection on a finished item but failed to verify its quality and conformance to the specified requirements in the following:

Work Plan 1002-CIVIL-823-022, Rev. 0, "Completion of Cascade 5 LCS," states, in part, to remove / re-install lower cascade steel pieces for Cascade 5 in MH2B in accordance with EG-3-6000-04, "Erection of Structural and Miscellaneous Steel," Attachment 8, "Bolt maps, and Enrichment Technology Corporation (ETC) reference documents, drawing, and assembly bills," and directs QC to verify all bolted connections are tightened/torqued to specified requirements in accordance with ETC reference documents, drawings, and Assembly Bills. In addition, Drawing ETC4061706-1 specifies that all M10 bolts in the lower steelworks of Cascade 2.5 rows 3, 5, and 6 be pretensioned to 40kN.

Specifically, an M10 bolt on Cascade 2.5, Row 6 lower steelworks had received inspection verifying that the specified pretension had been achieved; however, the bolt was found to be loose and therefore was not in a pretensioned condition.

- (2) Procedure EG-3-6000-04, Rev. 6, "Erection of Structural and Miscellaneous Steel," specifies that field bolting receive a visual inspection that includes "proper bolt projection (flush or outside face of nut)."

Design Document ETC4054545, Issue 1, with ECR-6282A specifies that the lower steelwork turnbuckles have to be: "tightened to snug-tight (i.e. hand tight), turnbuckle marked and then turnbuckle tightened to ¼-turn past snug tight."

Specifically, LES NEF did not inspect turnbuckles on the lower steelworks of mini-halls 2A and 2B to verify they met the specified requirements of thread engagement (projection) and tightness.

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

- B. Special Nuclear Material (SNM) License No. 2010 states, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, L.L.C. (LES), National Enrichment Facility (NEF) in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), dated January 6, 2011, and supplements thereto.

Section 16, Corrective Action, of the LES NEF QAPD states, in part, that conditions adverse to quality shall be identified promptly and corrected as soon as practical, documented, and reported to the appropriate levels of management. Specifically, the LES NEF Corrective Action Program shall be established to implement a corrective action program that has prompt identification and correction of conditions adverse to quality.

LES Procedure CA-3-1001-01, "Performance Improvement Program," Rev. 17, Section 5.1.1, states that a Condition Report shall be initiated upon identification of an adverse condition. LES Procedure CA-3-1001-01 states that an adverse condition "is a deficiency in equipment, programs or processes that is undesired."

Contrary to the above, prior to August 25, 2011, LES failed to implement corrective actions to correct identified adverse conditions in accordance with Procedure CA-1-3-1000-01. During the inspection of problem identification, resolution, and corrective action (PIRCA), the NRC inspectors identified that the licensee had not initiated Condition Reports (CRs), defined corrective actions, or initiated actions to correct the following identified adverse conditions:

- (1) Quick Look Self-Assessment 2010-013 stated the Corrective Action Program Screening Committee (CAPSC) did not provide timely product reviews consistently. No CR was written to evaluate the identified condition or to provide corrective actions as needed.
- (2) Quick Look Self-Assessment 2010-013 stated that participation in CAPSC reviews were not in compliance with management expectations. No CR was written to evaluate the identified condition or to provide corrective actions as needed.
- (3) The evaluation for CR-2010-2541 stated that schedule pressure was an underlying cause for inadequately documented interdisciplinary reviews of configuration changes involving criticality safety. No CR or corrective actions were provided to address the identified problem with schedule pressure.

- (4) Audit Report 2010-A-03-007 stated a cultural weakness was identified in the means and methods used by LES NEF management to implement the corrective action program. Also, the report stated some managers did not know how to use the program or have not instructed their staff on its use. No CR was written to evaluate the identified conditions or to provide corrective actions as needed.

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

- C. Special Nuclear Material (SNM) License No. 2010 states, in part, that the licensee shall conduct authorized activities at the LES NEF in accordance with the statements, representations, and conditions of the approved QAPD.

Section 8, Identification and Control Materials, Parts, and Components, of the LES NEF QAPD states, in part, "the controls necessary to ensure that only correct and accepted items are used or installed will be required by the appropriate QA procedure. Identification requirements for materials, parts and components are stated in design specifications, drawings, and procurement documents. Control of materials, parts and components is governed by approved procedures."

Contrary to the above, during an inspection of PIRCA, the inspectors identified that the licensee had not established measures that were sufficient to prevent the use of incorrect or defective items. Specifically, a non-quality work control process was used to install structural components called fixing plates in upper steelworks designated Quality Level (QL) - 1. Traceability of the installed components had not been maintained. Also, fixing plates installed in AU1001 Cascades 1 through 8 and AU1002 Cascades 1 and 2 had been purchased as QL-2 and had not been dedicated for QL-1 service.

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

Pursuant to the provisions of 10 CFR 2.201, Louisiana Energy Services, LLC is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with copies to the Chief, Technical Support Group, Division of Fuel Cycle Safety and Safeguards, NMSS, and the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. 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.

The NRC has concluded that information regarding the reason for Violation C, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance will be (was) achieved, are already adequately addressed. However, you are

required to submit a written statement or explanation for Violation C pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 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).

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 28th day of October 2011

NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-3103

License: SNM-2010

Report No.: 70-3103/2011-004

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

Facility: National Enrichment Facility (NEF)

Location: Eunice, NM

Inspection Dates: July 1 through September 30, 2011

Inspectors: R. Prince, Fuel Facility Inspector
J. Bartleman, Senior Construction Inspector
C. Jones, Senior Construction Inspector
R. Jackson, Senior Construction Inspector
A. Allen, Enforcement and Investigation Coordination Staff Specialist
S. Alexander, Construction Inspector (Trainee)

Approved: J. Calle, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

EXECUTIVE SUMMARY

Louisiana Energy Services, L.L.C., National Enrichment Facility (LES NEF)
Nuclear Regulatory Commission (NRC) Inspection Report No. 70-3103/2011-004

This report is a summary of the quarterly inspections of the licensee's plant operations and construction activities. The inspections were conducted during the period of July 1, - September 30, 2011. The results of the inspections are contained in the details section of this report. The report details section was prepared to exclude the use of information the licensee identified as proprietary. The inspection was conducted through a review of selected records, interviews with personnel, and direct observation of activities in the area of plant operations

Radiation Protection

The licensee had established adequate access controls for entry to the radiological controlled area and had implemented adequate measures to support radiological work activities. Adequate controls had been established to monitor and maintain worker exposures as low as reasonably achievable. Radiological areas were properly posted and survey records adequately reflected radiological conditions in the field. Radiation work permits prescribed adequate radiological safety precautions and protective clothing requirements for specified work activities (Section 2).

Environmental Protection

Effluent and environmental monitoring program activities were implemented in accordance with approved procedures. Effluent monitoring equipment was in current calibration and routine operability checks performed in accordance with approved procedures. No measurable quantities of uranium-bearing material have been reported in gaseous releases since initial operation (Section 3).

Radioactive Waste Management

Programs covering the generation, handling and control of radioactive materials were implemented in accordance with approved procedures. The monitoring of potentially contaminated materials was adequate to ensure the safe handling and storage of these materials. Licensee efforts to minimize the amount of radioactive material have been effective in reducing the amount of material generated (Section 4).

Transportation

Plant procedures adequately specified the responsibilities of personnel and organizations responsible for the transportation of radioactive materials. The storage of uranium hexafluoride (UF₆) cylinders was in accordance with approved procedures (Section 5).

Mechanical Components

One violation, with two examples, of Section 10 of the licensee's Quality Assurance Program Description (QAPD) was identified for failure to adequately inspect bolts and turnbuckles of the lower steelworks. This was identified as violation (VIO) 70-3103/2011-004-01, Failure to Verify Items and Nonconformance (Section 6).

Design and Document Control

The inspectors reviewed the applicant's design change control program to determine if design changes were controlled in accordance with the licensee's QAPD. No issues of significance were identified (Section 7).

Quality Assurance: Problem Identification, Resolution and Corrective Action

The inspectors conducted a review of activities for implementation, verification, and oversight of activities associated with problem identification and resolution. One violation of Section 16 of the LES NEF QAPD was identified for a violation of requirements for use of documented procedures for conduct of activities affecting quality. This was identified as VIO 70-3103/2011-004-02, Failure to Identify and Correct Conditions Adverse to Quality (Section 8).

Structural Concrete Activities

The inspectors reviewed structural concrete documentation associated with safety related construction of Item Relied on For Safety (IROFS) 41 for the Separation Building Module (SBM) 1003. Additionally, inspectors observed structural concrete activities to the SBM 1003 roof. No issues of significance were identified (Section 9).

Instrumentation and Control Systems

The inspectors interviewed responsible instrument maintenance personnel and conducted direct observations of work. The inspectors performed field observations of site acceptance testing of IROFS 11 and 12 for the autoclave. No issues of significance were identified (Section 9).

Review of Previously Identified Items

The inspectors completed a follow-up review of information applicable to Unresolved Item (URI) 70-3103/2011-002-04, Control of Quality Level (QL)-1 Material. Based upon the information obtained, the inspectors identified a violation of the LES NEF QAPD Section 8 regarding requirements for control of quality related materials. This was identified as VIO 70-3103/2011-004-03, Failure to Control QL-1 Material. The corrective actions taken and planned to correct the violation and prevent recurrence already adequately addresses this violation (Section 11.a).

Attachment:

Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed

List of Acronyms Used

List of Documents Reviewed

REPORT DETAILS

1. Summary of Facility Status

The licensee conducted routine plant operation of Cascades 1 and 2 throughout the inspection period. Cascades 3 and 4 authorization construction and testing in some areas of SBMs 1001 and 1003 and other applicable process areas continued in preparation for future operation of other cascades and equipment.

2. Radiation Protection Inspection Procedure (IP) 88030

a. Scope and Observations

The inspection consisted of a review of the licensee's Radiation Protection (RP) Program. The inspection consisted of a review of documentation, interviews and discussions with responsible personnel, and field observations.

The inspectors reviewed the RP organization and qualifications of RP personnel. The inspectors noted that organizational changes had been made since the last inspection. These changes included the appointment of a permanent qualified Radiation Protection Manager (RPM). The RPM was supported by a senior-level professional Health Physicist contractor. The inspectors noted that the RPM reported directly to a Director-level position, who also met the qualification requirements for the RPM position.

The inspectors toured the established radiological controlled area (RCA) and noted that the area was maintained in accordance with approved procedures. RCA areas were properly posted and access to the area was governed by radiation work permits (RWPs). Local area airborne contamination monitors were verified to be within current calibration and operational.

The inspectors reviewed radiological survey records and determined that survey results adequately reflected radiological conditions in the field. The inspectors noted that the vast majority of radiological survey results indicated that radioactive contamination had not been detected in operational areas of the plant. Radiation work permits were reviewed and the inspector determined that adequate radiological control measures for work activities were adequately specified in specific RWPs.

The inspectors reviewed personnel exposure records for 2010, and year-to-date for 2011. The inspector noted that the annual exposure for 2010, was 0.739 person-rem. The current exposure for 2011 was 0.259 person-rem. The inspectors noted that the licensee had re-evaluated the as low as reasonably achievable (ALARA) goal for 2011, and on July 21, 2011, the Safety Review Committee adopted an annual dose goal of 1.5 person-rem for the year. Based on the operational status of the facility and discussions with licensee personnel, the inspectors determined that adequate controls had been established to maintain worker exposures ALARA.

The inspectors observed licensee personnel as they performed the daily response and functional checks on personnel contamination monitors (PCMs) located at the primary RCA exit from the uranium handling area. Response checks were performed in

accordance with approved procedures utilizing a check source appropriate for the activity. The PCM detectors were functional and responded appropriately during the functional checks.

b. Conclusion

The licensee had established adequate access controls for entry to the RCA and had implemented adequate measures to support radiological work activities. Adequate controls had been established to monitor and maintain worker exposures ALARA. Radiological areas were properly posted and survey records adequately reflected radiological conditions in the field. Radiation work permits prescribed adequate radiological safety precautions and protective clothing requirements for specified work activities. No findings of significance were identified.

3. **Effluent Control and Environmental Protection (IP 88045)**

a. Scope and Observations

The inspection consisted of a review of the licensee's effluent and environmental protection program. The inspection consisted of a review of documentation, interviews and discussions with responsible personnel, and field observations.

The inspectors reviewed the environmental organization and noted that organizational changes had been made since the last inspection. These changes included the appointment of a permanent qualified Environmental Compliance Officer. The licensee obtained the services of a new contractor firm to collect various environmental samples in support of the environmental monitoring program. The licensee continued to utilize the analytical services of an approved offsite contractor firm for the processing and analysis of environmental samples.

The inspectors reviewed the most recent Semi-Annual Effluent report for the period July 1, 2010, through December 31, 2010, and the Annual Radiological Environmental Monitoring Report for 2010. Based on discussions with licensee personnel and review of effluent release data and supporting documentation, the inspectors noted that no measurable release of uranium-bearing material was reported for the monitoring period.

The inspectors reviewed energy calibration data sheets and related functional data packages for the alpha stack monitors and hydrogen fluoride (HF)-2 process and stack release monitors. The inspectors toured plant areas and observed the operational status of the SBM stack exhaust alpha and HF-2 monitors. The monitors were operable and in good material condition. Effluent monitors were in current calibration and no operability issues were identified based on a review of routine performance check data sheets.

The inspectors reviewed the licensee's problem identification and corrective action program for adverse trends. The inspectors reviewed the circumstances surrounding the loss of power to various environmental air monitoring stations. Based on discussions with licensee personnel and field observations, the inspectors determined

that these were isolated events. Due to the short duration of the events and implementation of timely corrective actions, the inspectors determined that these events had no significant impact on the licensee's environmental monitoring program.

b. Conclusion

Effluent and environmental monitoring program activities were implemented in accordance with approved procedures. Effluent monitoring equipment was in current calibration and routine operability checks performed in accordance with approved procedures. No measurable quantities of uranium-bearing material have been reported in gaseous releases since initial operation. No findings of significance were identified.

4. **Radioactive Waste Management (IP 88035)**

a. Scope and Observations

The inspection consisted of a review of the licensee's Radioactive Waste Management program. The inspection consisted of a review of documentation, interviews and discussions with responsible personnel, and field observations.

The inspectors discussed the generation and control of radioactive material with licensee personnel. The inspectors noted that limited quantities of radioactive material have been generated since initial plant operation. The inspectors performed field observations of radioactive material container staging and storage areas. The inspectors reviewed controls for monitoring and storing potentially contaminated materials in the field. The control of radioactive material was performed in accordance with approved procedures. Storage containers were properly posted and available to workers within the RCA.

Monitoring equipment utilized to survey potentially contaminated materials was available and calibrated. Calibration and operational checks for equipment utilized to assay radioactive materials were adequate to ensure that equipment was in current calibration and available to perform its intended function. Controls were adequate to ensure the safe handling and transport of radioactive materials within the RCA. Monitoring procedures were adequate to ensure that potentially contaminated materials were properly surveyed upon release from the RCA. The inspectors noted that the licensee subsequently surveyed potentially contaminated material for free release. Adequate processes and controls had been established to ensure that these materials were properly surveyed prior to free-release.

b. Conclusion

Programs covering the generation, handling and control of radioactive materials were implemented in accordance with approved procedures. The monitoring of potentially contaminated materials was adequate to ensure the safe handling and storage of these materials. Licensee efforts to minimize the amount of radioactive material have been effective in reducing the amount of material generated. No findings of significance were identified.

5. Transportation (IP 88051)

a. Scope and Observations

The inspection consisted of a review of the licensee's Radioactive Waste Management program as it related to transportation. The inspection consisted of a review of documentation, interviews and discussions with responsible personnel, and field observations.

The licensee had been receiving UF₆ feed cylinders for a number of months. The cylinders were stored on the uranium byproduct cylinder (UBC) storage pad. No cylinder shipments were received during the inspection period. The licensee was not shipping product cylinders pending commissioning of the autoclave. Product cylinders containing enriched UF₆ were stored in the uranium handling area of the SBM 1001 building.

The inspectors toured the UBC storage pad and noted that UF₆ cylinders were stored in the proper configuration and cylinder valve covers present as required by approved procedures. The UBC storage pad was properly posted and access controlled in accordance with approved procedures. No unauthorized combustible materials or equipment was present in the area.

The inspectors reviewed procedures for the performance of routine inspections and operational checks prior to use for cylinder handling equipment. The movement and handling of cylinders on the UBC storage pad was performed with the "shuttle lift." Procedures adequately addressed pre-operational checks to ensure that cylinder handling equipment was operable prior to the handling or movement of cylinders. Based on a review of documentation and discussions with licensee personnel, the inspectors determined that cylinder handling equipment was adequately maintained.

Through a review of procedures and discussions with licensee personnel, the inspectors determined that the responsibilities and roles of personnel and organizations responsible for the transportation of radioactive materials were adequately described. Training and qualification records for personnel who will be responsible for the preparation and shipment of radioactive material were current.

b. Conclusion

Plant procedures adequately specified the responsibilities of personnel and organizations responsible for the transportation of radioactive materials. The storage of UF₆ cylinders was in accordance with approved procedures. No findings of significance were identified.

6. Mechanical Components (IP 88136)

a. Scope and Observations

On August 15 - 18, 2011, the NRC conducted an inspection to assess the manufacture, procurement, installation, and inspection of IROFS 41, mechanical components, and lower steelworks for Mini-halls 2A, 2B, and 1C in SBM-1001.

The inspectors reviewed procurement documentation to verify that technical and quality requirements were adequately incorporated for procurement of the lower steelworks. Also, the inspectors reviewed procurement documentation to verify that technical and quality requirements were adequately incorporated for procurement of weld filler metal used for repairs on the lower steelworks. The inspectors also reviewed a sample of receipt inspection records to verify that receipt of the lower steelworks met the requirements of Criterion 7 of the licensee's QAPD.

The inspectors performed a walkdown of all 12 cascades in the three mini-halls and chose samples for further inspection. The inspectors chose two T-columns and an end frame and performed as-built dimensional inspections to verify that members' sizes and positions as well as weld and bolt sizes, locations, and specifications met the approved drawing. Also, the inspectors chose two welds, two bolted connections, and three steel members to verify that the following records were accessible and adequate as applicable:

- Traceability to a Certified Material Test Report (CMTR),
- The welding procedure used and its qualification record,
- The identity of the welder and his qualification record,
- All non-destructive examination (NDE) inspection records,
- Quality Control (QC) bolt installation inspection records, and
- Skidmore-Wilhelm test records.

The inspectors also:

- Verified that both the licensee had measures in place to positively verify welder's identity during qualification.
- Reviewed non-conformance reports (NCRs) dealing with the lower steelworks to verify they received adequate review and disposition.
- Reviewed the report from the licensee's audit of the steelworks supplier to verify adequate implementation of Criterion 18 of the QAPD.
- Observed QC inspection of bolted connections in Mini-hall 1c. This included verification that inspection records were filled out adequately and that maintenance and test equipment (M&TE) was properly calibrated.

Findings Identified

- During the walkdown of Cascade 2.5, the inspectors identified a loose bolt and noted that it was marked as having been pretensioned as required by Specification LES-S-S-05131 "Erection of Structural and Miscellaneous Steel," Rev. 1. The bolt was part of a QL-1 structural connection in the lower steelworks and designed to have 40kN pretension.

The inspectors verified by discussion with the licensee's staff and review of inspection documents that the bolt had been pretensioned, inspected by QC, and found acceptable. Upon questioning, the licensee was unable to show a reason for it to have been loosened or anything to show that it would have been reinspected and tightened.

The inspectors determined that the failure to adequately inspect the bolt torque was a violation (VIO) of Section 10 of the QAPD, "Inspection," which required, in part, that finished items shall be inspected for completeness, marking, calibration, adjustments, protection from damage or other characteristics as required in order to verify the quality and conformance of the item to specified requirements." This was identified as example 1 for VIO 70-3103/2011-004-001.

This violation was considered greater than minor because it represented a condition adverse to quality (CAQ) that rendered the quality of the structure indeterminate and was a deficiency in installation and inspection that required rework and supplemental examination and inspection. The licensee issued Condition Report (CR) 2011-2747 to address this issue.

- During the walkdown of Cascade 2.2, the inspectors identified a turnbuckle that had not achieved thread engagement that was flush with the surface. Sufficient thread engagement was defined as being at least flush with the surface in the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" which was included in American Institute of Steel Construction (AISC) N690 and Procedure EG-3-6000-04, Rev. 6, "Erection of Structural and Miscellaneous Steel."

The inspectors then requested inspection records from the licensee for the turnbuckles. As a result, the inspectors determined that the licensee did not perform inspection of the lower steelworks turnbuckles in Mini-halls 2A and 2B. Specifically, they weren't inspected for sufficient thread engagement or tightness. Tightness was checked by craft supervisors, but a QC inspection was not performed.

Because the turnbuckles were classified as QL-1 and served a safety function in the structure as a rigid bracing, inspection of specified criteria under Criterion 10 of the licensee's QAPD was required. Procedure EG-3-6000-04, Rev. 6, "Erection of Structural and Miscellaneous Steel," specified that field bolting received a visual inspection that included "proper bolt projection (flush or outside face of nut)." Also, design document ETC4054545, Issue 1, with ECR-6282A specified that the lower steelwork turnbuckles had to be tightened to snug-tight (i.e. hand tight), marked, and then tightened to ¼-turn past snug tight.

The inspectors determined that the failure to perform inspection of the turnbuckles was a violation of Section 10 of the QAPD, "Inspection," which required, in part, that "finished items shall be inspected for completeness, marking, calibration, adjustments, protection from damage or other characteristics as required in order to verify the quality and conformance of the item to specified requirements." This was identified as example 2 for VIO 70-3103/2011-004-001, Failure to Verify Items and Nonconformance.

This violation was considered greater than minor because if left uncorrected it represented a CAQ that rendered the quality of structures indeterminate and was associated with a deficiency that required supplemental inspections to verify their adequacy. The licensee issued CRs 2011-2738 and 2011-2742 to address this issue.

b. Conclusion

One violation, with two examples, of Section 10 of the licensee's QAPD was identified for failure to adequately inspect bolts and turnbuckles of the lower steelworks. This was identified as VIO 70-3103/2011-004-001, Failure to Verify Items and Nonconformance.

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

a. Scope and Observations

The inspectors reviewed the applicant's design change control program to determine if design changes were controlled in accordance with the QAPD. The inspectors reviewed Work Plan 1003-CIVIL-853-001, multiple CRs, and Engineering Change Requests (ECRs) to verify that design changes were subject to design control measures commensurate with those applied to the original design.

b. Conclusion

No findings of significance were identified.

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

a. Scope and Observations

The inspectors assessed the adequacy of the licensee's programs for problem identification, evaluation, and corrective action (PIRCA) to conditions adverse to quality during the past twelve months. This was accomplished by evaluating the thresholds for problem identification, the effectiveness of immediate and preventive corrective actions, the accuracy and thoroughness of problem documentation, and the adequacy of corrective actions for previously identified compliance issues.

The inspectors conducted reviews to evaluate management's quality assurance (QA) oversight of the corrective action process, reviewed documents associated with the implementation of the corrective action process, and observed the conduct of a Corrective Action Program Screening Committee (CAPSC). In addition, the inspectors evaluated the licensee's compliance with NRC requirements, including implementation of 10 CFR 50.55(e) for reporting significant construction deficiencies. Inspection information related to cross-cutting areas was evaluated in support of the assessment process.

The inspectors reviewed a sample of CRs selected from reports of problems at the NEF. The sample covered a diverse selection of sources, including problems identified in audits and assessments, findings from NRC inspections, concerns from anonymous sources, and concerns identified as adverse trends.

The NRC inspection team interviewed LES staff and contractor personnel at the NEF performing construction work and inspection activities associated with IROFS. In addition, the NRC inspection team reviewed the LES Employee Concerns Program (ECP) and LES' oversight of the ECPs of their contractors. The inspectors performed walk downs of the site and conducted interviews with various site personnel. The inspectors confirmed that ECP information was visible and access to information for reporting concerns was readily available in locations that would not interfere with the concerned individual(s)' willingness to report safety concerns.

The specific LES policies, procedures, and supporting documentation reviewed by the NRC inspection team are documented in the attachment of this report.

The inspectors identified four instances where corrective actions were not established to correct identified adverse conditions in accordance with Procedure CA-1-3-1000-01, Section 5.1.1:

- (1) Quick Look Self-Assessment 2010-013 stated the CAPSC did not provide timely product reviews consistently. No CR was written to evaluate the identified condition or to provide corrective actions as needed.
- (2) Quick Look Self-Assessment 2010-013 stated that participation in CAPSC reviews were not in compliance with management expectations. No CR was written to evaluate the identified condition or to provide corrective actions as needed.
- (3) The evaluation for CR -2010-2541 stated that schedule pressure was an underlying cause for inadequately documented interdisciplinary reviews of configuration changes involving criticality safety. No corrective actions were provided to address the identified problem with schedule pressure.
- (4) Audit Report 2010-A-03-007 stated a cultural weakness was identified in the means and methods used by licensee management to implement the corrective action program (CAP). Also, the report stated some managers do not know how to use the program or have not instructed their staff on its use. No CR was written to evaluate the identified conditions or to provide corrective actions as needed.

LES NEF QAPD, Section 16, "Corrective Action," stated, in part, that conditions adverse to quality shall be identified promptly and corrected as soon as practical, documented, and reported to the appropriate levels of management. The failure to identify and correct conditions adverse to quality was identified as a VIO 70-3103/2011-004-02, Failure to Identify and Correct Conditions Adverse to Quality.

The inspectors determined this violation meets Agency guidance for more-than-minor finding because it is illustrative of a licensee problem that could have a safety or regulatory impact.

b. Conclusion

The inspectors determined that several conditions adverse to quality were not adequately entered into the LES NEF's CAP. One violation of Section 16 of the LES NEF QAPD was identified with four examples for a violation of requirements for use of documented procedures for conduct of activities affecting quality. This was identified as VIO 70-3103/2011-004-02, Failure to Identify and Correct Conditions Adverse to Quality.

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

a. Scope and Observations

Inspectors conducted an on-site inspection to determine if structural concrete activities were performed in accordance with NRC regulations and the requirements of the LES QAPD. The inspectors reviewed Work Plan 1003-CIVIL-853-001 for QL-1 structural concrete activities related to IROFS 41 for the SBM-1003 to verify that documentation was complete for as-built and planned flomel installation and fabrication activities.

Inspectors reviewed LES concrete construction procedures and specifications for mix design and placement activities to verify that they are appropriate and specify adequate control of hold points. Several drawings, Wallach Concrete mix designs, and Quality Inspection Services, Inc. (QISI) concrete specimen test reports were reviewed to ascertain whether the flomel infill structural concrete construction installation and fabrication activities were being controlled and accomplished in accordance with the LES procedures and specifications.

Test data was determined to be complete and accurate. All drawings reviewed were current and legible. Work instructions were adequate and QC signatures were appropriate for the work accomplished. A concrete batch ticket was reviewed to verify proper mix, placement location and amount of water matched the mix design specified. Time between mixing and delivery was reviewed, and the maximum time limit was not exceeded. Also, the total number of revolutions of the truck mixer did not exceed 300.

Inspectors observed construction activities associated with Work Plan 1003-CIVIL-853-001. The inspectors observed field engineering personnel and the QC Inspector perform their formwork and rebar installation inspections to verify the corresponding section was ready for concrete placement. The inspectors directly observed personnel conduct pre-placement concrete slump, temperature, and air entrainment testing at the placement site. The actual placement was observed once in-process testing confirmed the concrete met the ready-mix design specifications.

b. Conclusion

No findings of significance were identified.

10. Instrumentation and Control Systems (IP 88140)**a. Scope and Observations**

The inspectors interviewed responsible instrument maintenance personnel and conducted direct observations of work. The inspections were performed to determine whether the licensee's activities relative to instrumentation and control components in IROFS 11 and 12 were controlled and accomplished in accordance with approved specifications, drawings, and procedures.

The inspectors reviewed Work Plan 1001-ELEC-471-004, Rev. 00, Site Acceptance Testing of IROFS 11 and 12 Autoclave, and conducted field observations of work activities. Observations were conducted to determine whether work was performed using written instructions in the work plan and whether the maintenance instrument technicians were specifically qualified for IROFS work. The inspectors observed initial verifications of electrical connections in autoclave control panel 1-470-1B1-C11 and power panel 1-470-1B1-P11. The inspectors observed that workers appropriately stopped work and initiated a CR when configurations for electrical connections did not conform to their drawings.

b. Conclusion

The inspection of activities related to site acceptance testing of IROFS determined that work was controlled in accordance with documented instructions and drawings. No findings of significance were identified.

11. Review of Previously Identified Items**a. (Closed) URI 70-3103/2011-002-04, Control of QL-1 Material****(1) Scope and Observations**

In March 2011, inspectors questioned the control and handling of several material parts used in the installation of cascade upper steel works in Mini-Hall 2A of SBM 1001. The components had been staged for installation in AU1002 Cascades 1 through 4 and were labeled as QL-1 items. The inspectors questioned the appropriateness of not maintaining the material within identifiable QL-1 storage areas, and not controlling the handling, installation and inspection of the material in accordance with QL-1 work procedures. URI 70-3103/2011-002-04, Control of QL-1 Material, was opened to evaluate the circumstances under which the material was handled without use of QL-1 controls. The licensee issued CR-2011-751 to address the inspectors' questions. The CR was later superseded by CR-2011-958.

The inspectors interviewed responsible construction personnel and reviewed documentation for CR-2011-958 to determine whether the condition was adequately characterized, whether the significance of the condition was properly categorized, and whether appropriate corrective actions were defined and promptly implemented.

The inspectors reviewed the results of the licensee's investigation of the condition. The licensee confirmed that QL-1 structural steel spacer plates, also known as "fixing plates," had not been controlled under QL-1 work procedures as required. As a result, traceability of the materials and assurance of configuration control had not been adequately maintained for installations in AU1002 Cascades 1 and 2. In addition, the licensee's extent of condition review identified that fixing plates purchased as QL-2 had been installed in Mini-Halls 1A and 1B (i.e. AU1001 Cascades 1 through 8) under a non-quality work control process.

QL-1 procedures had not been used to install the QL-2 components and the components had not been subjected to a commercial grade dedication (CGD) process to verify acceptability for use in QL-1 installations. At the time the licensee's investigation was conducted, AU1001 Cascades 1 and 2 were operational and AU1001 Cascades 3 and 4 were completing the site acceptance and operating readiness review process. AU1001 Cascades 5 through 8 and AU1002 Cascades 1 through 3 were under construction. Construction had not begun for AU1002 Cascades 4 and higher.

The inspectors reviewed Nonconformance Report (NCR) 2011-958, Rev. 1, Traceability Lost on Fixing plates in Upper Steel – Cascades 3 & 4. The NCR had been issued to identify, evaluate, and disposition nonconforming installations of fixing plates in upper steel header units located in AU1001 Cascades 3 and 4 (Mini-Hall 1A). The inspectors reviewed the NCR documentation to determine whether the documentation identified the requirements that were violated, whether an adequate technical basis was provided for corrective actions, and whether a record of completed actions was created.

The licensee's evaluation determined that fixing plates purchased as QL-2 had been installed in an estimated 40 installations in AU1001 Cascades 3 and 4 (Mini-Hall 1A). Testing was implemented and documented in NCR 2011-958 for a sample of 10 of the 40 locations to demonstrate that the QL-2 installations exhibited acceptable ferromagnetic properties. NCR actions included field Inspections under QL-1 work plan 1001-MECH-453-012 to verify correct configurations had been established. QL-1 work plan 1001-CIVIL-823-053 verified correct bolt torque. Commercial Grade Dedication Plan CGD-41-13 was implemented to verify correct hardness of bolts and fasteners. The inspectors found that all of the specified actions were documented as complete in the NCR record package.

The NCR provided an engineering evaluation to justify the use of ferromagnetic testing to verify ASTM A36 carbon steel in lieu of the more extensive testing originally specified. The evaluation stated that the grade of carbon steel was not critical for transferring compressive loads. Also, an evaluation was provided to show the loss of material traceability was not critical since the intent of requiring traceability was to demonstrate the results of testing were applicable to each installation.

The inspectors found that corrective actions defined in CR 2011-958 established CGD-041-003, Rev. 2 to implement inspections of installations of QL-2 fixing plates in AU1001 Cascades 5 through 8 (Mini-Hall 1B) and AU1002 Cascades 1 and 2. The CR documented that uninstalled QL-2 fixing plates previously issued for installation in AU1002 Cascade 3 and higher (Mini-Halls 2A and 2B) were returned to Stores and were replaced with QL-1 plates. To properly control future work, work control packages for AU1002 Cascade 3 and higher were issued as QL-1 packages.

The inspectors reviewed the licensee's operability evaluation for AU1001 Cascades 1 and 2 (Mini-Hall 1A) to determine whether the impact of nonconforming installations had been adequately evaluated. The evaluation documented in CR 2011-958 stated that an engineering evaluation of available purchase and work records, and satisfactory results received from implementation of the CGD process provided sufficient bases for operability.

LES NEF QAPD, Section 8, Identification and Control Materials, Parts, and Components, states, in part, "The controls necessary to ensure that only correct and accepted items are used or installed will be required by the appropriate QA procedure. Identification requirements for materials, parts and components are stated in design specifications, drawings, and procurement documents."

The failure to control QL-1 Construction was identified as a VIO 70-3103/2011-004-03, Failure to Control QL-1 Construction. Specifically, a non-quality work control process was used to install structural components called fixing plates in upper steelworks designated quality class QL-1. Traceability of the installed components had not been maintained. Also, fixing plates installed in AU1001 Cascades 1 through 8 and AU1002 Cascades 1 and 2 had been purchased as QL 2 and had not been dedicated for QL-1 service.

The inspectors determined this violation meets Agency guidance for more-than-minor significance because the condition if left uncorrected, represents a condition adverse to quality that renders the quality of the activity unacceptable or indeterminate, and represents a failure to establish, implement or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate. The inspectors also determined that the licensee actions taken after communication of the concerns in the URI were sufficient to correct the nonconforming installations, assure operability of in-service systems, structures, and components, and to preclude recurrence in the future.

(2) Conclusion

The inspectors closed URI 70-3103/2011-002-04, Control of QL-1 Material, to VIO 70 3103/2011-004-03, Failure to Control QL-1 Material. This violation was identified for using a non-quality work control process and installing non-quality structural components in upper steelworks designated quality class QL-1. The inspectors determined that the licensee's evaluation of the identified condition and actions taken were acceptable, and no further response will be required for the violation. This violation is closed.

b. (Closed) VIO 70-3103/2010-002-04, Failure to Ensure Records are Legible, Accurate, and Complete.

(1) Scope and Observations

The inspectors reviewed LES corrective action activities for VIO 70-3103/2010-002-04, Failure to Ensure Records are Legible, Accurate, and Complete. In response to this violation, LES initiated CR 2010-2311, CR 2010-2380, and CR 2010-2530. As a result of these CRs, LES conducted human performance training, initiated a memo to all site personnel on the significance of a person's

signature, updated procedure EG-3-2100-05, and restructured the management organization of the CGD process. The inspectors reviewed the condition reports to verify that they adequately characterized the condition, whether the significance of the condition was adequately characterized, if the root cause determination sufficiently addressed the condition, and whether corrective actions were defined and promptly implemented. As part of this evaluation, the inspectors reviewed the training records of personnel and verified that it was conducted and the CGD team attended. Additionally, the inspectors reviewed the memo on the significance of a person's signature and verified adequacy. Procedure EG-3-2100-05, Commercial Grade Dedication, was reviewed to confirm adequate revisions had been made. The LES management organization for the CGD process was also reviewed for effectiveness.

(2) Conclusion

Based on the review, VIO 70-3103/2010-002-04 is closed. No finding of significance was identified.

12. Exit Meeting / Interviews

Exit meetings were held with members of the licensee staff. 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. Members of your staff acknowledged the observations and findings during the exit meeting noted above. No dissenting comments were received from the licensee.

ATTACHMENT

1. List of Personnel Contacted

Licensee Personnel:

S. Cowne, Director of Operations
J. Dahlin, Emergency Preparedness Manager
D. Lakin, Performance Assessment and Feedback Manager
J. Laughlin, Technical Services Director
P. Law, Engineering Systems Manager
C. Markert, Engineering Manager
P. McCasland, Licensing Specialist
W. Padgett, Licensing Manager
G. Sanford, Chief of Staff
D. Sexton, Chief Nuclear Officer/Vice President of Operations
C. Schwarz, Security Manager
A. Sorrell, Plant Support Director
O. Torres, QA Manager
R. Williams, Operations Shift Manager

2. Inspection Procedure (IP) Used

IP 86740 Transportation
IP 88030 Radiation Protection
IP 88035 Radioactive Waste Management
IP 88045 Environmental Management
IP 88107 Design and Document Control
IP 88110 Quality Assurance: Problem Identification, Resolution and Corrective Action (PIRCA)
IP 88132 Structural Concrete Activities
IP 88136 Mechanical Components
IP 88140 Instrumentation and Control Systems

3. List of Items Opened, Closed and Discussed

VIO 70-3103/2011-004-01	Opened	Failure to Verify Items and Nonconformance (Section 6.a)
VIO 70-3103/2011-004-02	Opened	Failure to Identify and Correct Conditions Adverse to Quality (Section 8.a)
VIO 70-3103/2011-004-03	Opened/ Closed	Failure to Control QL-1 Material (Section 11.a)
URI 70-3103/2011-002-04	Closed	Control of QL-1 Material (Section 11.a)
VIO 70-3103/2010-002-04	Closed	Failure to Ensure Records are Legible, Accurate, and Complete (Section 11.b)

4. **List of Acronyms Used**

ADAMS	Agency-Wide Document Access and Management System
ALARA	As Low As Reasonably Achievable
AISC	American Institute of Steel Construction
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CAPSC	Corrective Action Program Screening Committee
CFR	Code of Federal Regulations
CGD	Commercial Grade Dedication
CMTR	Certified Material Test Report
CR	Condition Report
ECP	Employee Concerns Program
ECR	Engineering Change Request
ETC	Enrichment Technology Corporation
HF	Hydrogen Flouride
IP	Inspection Procedure
IROFS	Items Relied on for Safety
LES	Louisiana Energy Services
M&TE	Measuring and Test Equipment
NCR	Nonconformance Report
NDE	Non-Destructive Examination
NEF	National Enrichment Facility
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
PCM	Personnel Contamination Monitor
PIRCA	Problem Identification, Resolution, and Corrective Action
QA	Quality Assurance
QAPD	Quality Assurance Program Description
QC	Quality Control
QISI	Quality Inspection Services, Inc.
QL	Quality Level
RCA	Radiation Control Area
RII	Region 2
RP	Radiation Protection
RPM	Radiation Protection Manager
RWP	Radiation Work Permit
SBM	Separation Building Module
SL	Severity Level
SNM	Special Nuclear Materials
UBC	Uranium Byproduct Cylinder
UF ₆	Uranium Hexafluoride
URI	Unresolved Item
VIO	Violation

5. **List of Documents Reviewed**

LES Procedures

CA-3-1001-01, Performance Improvement Program, Rev. 17
 CH-3-4000-01, Rev. 5, Alpha Monitor (ABPM201 S) Operation
 CH-3-4000-02, Rev. 5, MacGiver HF-2 Monitor
 EC-3-1000-01, Employee Concerns Program, Rev. 5
 EG-3-6000-04, Rev. 6, Erection of Structural and Miscellaneous Steel
 EG-3-6000-31, Rev. 0, Welding Procedure Specifications
 EG-3-2100-05, Commercial Grade Dedication Process, Rev. 11
 EG-3-6000-03, Concrete and Grout Placement, Rev. 4
 EG-3-6000-22, Storage and Transportation of Flomels, Rev. 0
 EG-3-6000-23, Alignment and Leveling of Flomels, Rev. 1
 EG-3-6000-24, Grouting of Flomels, Rev. 2
 EG-3-6000-34, Rev. 3, Welding Material Control
 EG-3-6000-33, Rev. 2, Welder Performance Qualification
 EG-3-6000-25, Concrete Infill of Flomels, Rev. 0
 EN-3-1000-02, Rev. 5, Radiological Effluent and Environmental Monitoring
 EN-3-1000-06, Rev. 1, Meteorological Monitoring Program
 OP-3-0660-01, Rev. 5, Gaseous Effluent Ventilation System
 LO-3-2000-02 Rev. 3, On-Site Handling of UF6 Cylinders
 LO-3-2000-06, Rev. 1, Container Handling Yard Tractor Inspection
 RP-2-1000-01, Rev. 4, Radiation Protection Program
 RP-2-1000-02, Rev. 3, ALARA Program
 RP-3-2000-01, Rev. 7, Radiation Work Permits
 RP-3-2000-02, Rev. 7, Radiological Posting and Access Controls
 RP-3-2000-04, Rev. 6, Radiation and Contamination Surveys
 RP-3-2000-06, Rev. 5, Airborne Radioactivity Monitoring
 RP-3-2000-07, Rev. 6, Personnel Contamination Events
 RP-3-2000-11, Rev. 4, Release of Material from an RCA
 RP-3-2000-12, Rev. 12, Radioactive Source Control
 RP-3-3000-01, Rev. 1, Dose Limits and Administrative Control Levels
 RP-3-3000-05, Rev. 1, Area TLD Monitoring Program
 RW-2-1000-01, Rev. 1, Waste Acceptance Program
 RW -3-1000-01 Rev. 2, Waste Management
 RW-3-1000-03, Rev. 2, Satellite Accumulation Area Management Program
 RW-3-3000-06, Rev. 0, Operation of the Canberra Inspector 1000 Digital Handheld Multichannel Analyzer with an Attached IPRPL-1 LaBr Probe
 RW-3-3000-07, Rev. 0, Operation of the Canberra Osprey Multichannel Analyzer with an Attached 2x2 NaI Probe
 LES Welding Procedure WPS GT-03 Rev. 0
 EPD Welder/Welding Operator Qualification and Continuation Procedure Rev. 13
 EPD welding procedure WPS2-0101F01 Rev. 5

Specifications / Calculations / Drawings

ETC strength analysis report
 ETC4054564 issue 1
 ETC4054545, Issue 1
 Drawing ETC4087618-1
 Drawing ETC4061706-

Gerdau Ameristeel Drawings

BC-1003-GA-S-1C, In-Fill Slab – Pour 1 Plan, October 20, 2010
 BC-1003-GA-S-1D, In-Fill Slab – Pour 1 Details, Sections and Schedule, October 20, 2010
 BC-1003-GA-S-2C, In-Fill Slab – Pour 2 Plan, October 22, 2010
 BC-1003-GA-S-2D, In-Fill Slab – Pour 2 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-3C, In-Fill Slab – Pour 3 Plan, October 29, 2010
 BC-1003-GA-S-3D, In-Fill Slab – Pour 3 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-4C, In-Fill Slab – Pour 4 Plan, October 29, 2010
 BC-1003-GA-S-4D, In-Fill Slab – Pour 4 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-5C, In-Fill Slab – Pour 5 Plan, October 29, 2010
 BC-1003-GA-S-5D, In-Fill Slab – Pour 5 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-6C, In-Fill Slab – Pour 6 Plan, October 29, 2010
 BC-1003-GA-S-6D, In-Fill Slab – Pour 6 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-7C, In-Fill Slab – Pour 7 Plan, October 29, 2010
 BC-1003-GA-S-7D, In-Fill Slab – Pour 7 Details, Sections and Schedule, October 29, 2010
 BC-1003-GA-S-8C, “In-Fill Slab – Pour 8 Plan, October 29, 2010
 BC-1003-GA-S-8D, “In-Fill Slab – Pour 8 Details, Sections and Schedule, October 29, 2010

Draheim Steel Drawings

ETC4087850-3, SBM 1003 Layout Drawing Embedded Plates Cascade 1-24, October 20, 2010
 ETC4087851-3, SBM 1003 Layout Drawing Embedded Plates Cascade 1-12, October 20, 2010
 ETC4087852-3, SBM 1003 Layout Drawing Embedded Plates Cascade 13-24, October 20, 2010
 ETC4087910-3, SBM 1003 Workshop Drawing Embedded Plates Detail X1 & X2 Cascade 1-24, October 20, 2010
 ETC4087911-3, SBM 1003 Workshop Drawing Embedded Plates Detail X3 Cascade 1-24, October 20, 2010

Parsons Drawings

444758-1003-C-ARC-002-01, SBM-1003 Overall First Floor Plan, Rev. 1
 444758-1003-C-CON-004-01, Concrete SBM-1003 Cascade Hall Flommel In-Fill Plan
 and Details, Rev. 1
 444758-1003-C-CON-004-02, Concrete SBM-1003 Cascade Hall Sections, Rev. 1

Wallach Concrete NEF Specifications

114489-S-S-03311, Mix Designation F, Mix 4000F-4 Proportions
 114489-S-S-03311, Mix Designation H, Mix 4000F-NA-4 Proportions
 114489-S-S-03311, Mix Designation I, Mix 4000F-NAHR-1 Proportions
 114489-S-S-03311, Mix Designation J, Mix 4000F-NAHR-4 Proportions

QISI Test Reports for Specimen Type: Concrete ASTM-C39-04a(1)

Placement # 1003-858-035-01, March 17, 2011, Set 3627
 Placement # 1003-858-035-01, March 17, 2011, Set 3627A
 Placement # 1003-858-035-01, March 17, 2011, Set 3628
 Placement # 1003-858-035-01, March 17, 2011, Set 3629
 Placement # 1003-858-035-01, March 17, 2011, Set 3630
 Placement # 1003-858-047-06, May 12, 2011, Set 3703
 Placement # 1003-858-047-06, May 12, 2011, Set 3703A
 Placement # 1003-858-047-06, May 12, 2011, Set 3704
 Placement # 1003-858-047-06, May 12, 2011, Set 3704A
 Placement # 1003-858-047-06, May 12, 2011, Set 3705
 Placement # 1003-858-047-06, May 12, 2011, Set 3705A
 Placement # 1003-858-051-04, August 12, 2011, Set 3807
 Placement # 1003-858-051-04, August 12, 2011, Set 3807A
 Placement # 1003-858-051-04, August 12, 2011, Set 3808

LES Condition Reports (CRs)

CR-2011-1850, Loss of 1001-734-UPSA Power
 CR-2011-1010, Unauthorized Work on 1001-565-1MA1
 CR-2011-1645, Environmental Air Monitoring Stations AP2 and AP3 Found to Have
 tripped GFCI's
 CR-2011-1771, Air Monitoring Station (AP3) Found not Running due to Shorted
 Electrical Cable Causing GFCI to Trip
 CRs-2011-2726, 2011-1243, 2011-2735, 2011-2695, 2011-2728, 2011-2710, 2011-
 2699, 2011-2747, 2011-2739, 2011-2742,
 CR-2010-2311, Flomel Data Spreadsheet has incorrect anchor location information
 1001-CIVIL-852-005
 CR-2010-2380, Potential Violation of Section 17 of the QAPD - QA Records
 CR-2010-2530, NRC Cascade 3 Inspection Potential Violation of UUSA QAPD Section 2
 Inspection
 CR-2010-2541 Potential Adverse Trend in Criticality Safety
 CR-2010-2799, Improper Handling of Restricted Atoll, August 30, 2010
 CR-2010-3157 B&D Industries Quality Assurance Program Found to be Ineffective
 During Audit 2010-A-08-038

CR-2010-3253, Rejectable Indications in Welds of Turnbuckles, October 11, 2010
 CR-2010-3716, Turnbuckles in Cascades 2 and 3 Not Properly Dedicated in that no RT or UT Records Could Be Located, November 19, 2010
 CR-2011-751, NRC Identified Components Labeled QL-1 were being stored and handled by a non-QL-1 Organization
 CR-2011-758, Current HAZOP Methods Used May Not Capture NCS-Identified Credible Upset Conditions or Accident Pathways, March 8, 2011
 CR-2011-817, Shim Plates Found Without Proper Identification, March 14, 2011
 CR-2011-958, Upper Cascade Steel Spacer Plates Purchased and Managed as QL-2 and QL-3 Supplier Installed Plates with no CGD
 CR-2011-1306, Commercial Grade Dedication Inspection of the Autoclave Found Numerous Non-Conformances, April 21, 2011
 CR-2011-1546, Autoclave Door Damaged at Factory, May 11, 2011
 CR-2011-1769, Improper Transmittal of Classified Information, May 27, 2011
 CR-2011-2035, Commercial Grade Dedication Issues Identified in NRC Inspection Report 70-3103/2011-008, June 22, 2011
 CR-2011-2661, Adverse Trend in Quality Assurance Inspector Qualification Program, August 12, 2011
 CR-2011-2690, IROFS12 Pressure Transmitter Designed without 24v Supply Power, August 16, 2011
 CR-2011-2845, Adverse Conditions Identified by UUSA but No Condition Reports Written, August 24, 2011
 Detailed Apparent Cause Evaluation (DACE) for CR-2010-2799, Improper Handling of Restricted Atoll, October 8, 2010

Nonconformance Reports

NCRs 2011-1243, 2011-1840, 2010-2698, 2010-0978, 2010-0811, 2010-0810, 2010-0585, 2010-1573, 2010-1211

Engineering Change Requests

ECR-6282A

Procurement and Receipt Documents

CMTRs for heat/lot numbers: 9103470, 50185597, 50191206, 50185607, 50185588, 50185618, 50201747, 50201365, 50208297, 1098317220, 50168093, 09208, B857211-02

LES-PO-303037 (Purchase order for ER70S-2 weld filler metal)

LES-PO-302683 (Purchase order for Lower steel for Mini-halls 2A and 2B)

LES-PO-303289 (Purchase order for lower steel in Mini-halls 1C and 2C) and 945D

QC Receipt Inspection Plan Report for MH 1C diagonal rods

QC Receipt Inspection Plan Report for ER70S-2 weld wire (PO 303037)

QC Receipt Inspection Plan Report for T-columns on Cascade 2.5

QC Receipt Inspection Plan Report for Back Frame Assemblies (PO 303289)

Miscellaneous Documents Reviewed

Annual Radiological Environmental Monitoring Program Report January 1, 2010 through December 31, 2010

Semi-Annual Radioactive Effluent Release Report, July 1, 2010 through December 31, 2010

Environmental Compliance Audit Report No. 2011-A-06-018, for June 13-17, 2011

SRC Meeting 2011-15, Meeting Minutes for July 7, 2011

QA audit report 2008-3139-EXT-AUD URS Washington Division Engineered Products Department EPD

Weld Repair Datacard 1002-CIVIL-855-001, weld 69RX1

WPQ for welder ID 302 (Intermech)

WPQ for welder ID W165 (EPD)

Audit Plan 2009-A-06-046

Specification: Erection of Structural and Miscellaneous Steel LES-S-S-05131 Rev. 1

Response to LES audit 2008-3139-EXT-AUD report

Bolted Connection Worksheet for Cascade 1.9 Row 4 lower angle

Fastener Pretension / Torque Verification from work plan 1001x-aul-843-001

ASME NQA-1-1994, Quality Assurance Requirements for Nuclear Facility Applications

CAPSC meeting attendance roster for July 21 and 27, 2011; August 2, 3, 10, 11, 17 and 23, 2011

Construction Work Plan 1001-ELEC-471-001, Electrical Installation for IROFS 11 & 12 Autoclave 1001-471-1B1

Drawing 02-9022511, Rev. E

Drawing ET4057962, Liquid Sampling Autoclave 1001-537-01B1, Revision

ECR 6771, Revise Drawing LES-1001-E-WIR-010-05

ECR-6315, Concrete Mix Design Selection for SBM 1003 Roof, Rev. 2

EG-3-6000-03-F-1, Concrete Placement Report, Concrete Placement No. 1003-828-042-04, August 21, 2011

EG-3-6000-03-F-2, Key Attribute Guide, Concrete Placement No. 1003-828-042-04, August 21, 2011

EG-3-6000-03-F-3, Supplemental Concrete Placement Data, Concrete Placement No. 1003-828-042-04, 8/25/2011

LES-S-S-03311, Specification for "Concrete Mix Design, Rev. 1

LES-S-S-03312, Specification for Placing Concrete and Reinforcing Steel, Rev. 1

NRC Materials License SNM-2010, Amendment 45

Safety Analysis Report - Appendix A, Quality Assurance Program Description, Rev. 30d

URENCO 2010 Safety Culture Survey

Wallach Concrete NEF, Concrete Batch Ticket No. 18096, Purchaser: Baker 1003, Placement: 828-051-04, Mix J, August 12, 2011

Work Plan 1003-CIVIL-828-047, Roof Concrete Slab Pour Sequence #12

Work Plan 1003-CIVIL-853-001, Installation of Flomels in Assay Hall 1003 (Book 1 of 2)