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

July 29, 2013

EA-13-063

Gary J. Laughlin, Chief Nuclear Officer
and Head of Technical Services
Louisiana Energy Services
National Enrichment Facility, L.L.C.
P.O. Box 1789
Eunice, NM 88231

SUBJECT: LOUISIANA ENERGY SERVICES, URENCO USA FACILITY – NRC INTEGRATED INSPECTION REPORT NUMBER 70-3103/2013-003, INVESTIGATIVE SYNOPSIS, OFFICE OF INVESTIGATIONS CASE NUMBER 2-2011-038 AND NOTICE OF VIOLATION

Dear Mr. Laughlin:

This refers to the inspections conducted from April 1 through June 30, 2013, at the Louisiana Energy Services (LES), URENCO USA facility located in Eunice, New Mexico. The purpose of the inspections was to determine whether activities authorized under the license were conducted safely and in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of these inspections. The findings were discussed with members of your staff at exit meetings held April 24, 2013, May 9, 2013, May 24, 2013, June 6, 2013, June 13, 2013, and July 18, 2013, for this integrated inspection report.

During the inspections, the NRC staff examined activities conducted under your license as they related to public health and safety and to confirm compliance with NRC rules and regulations, and with the conditions of your license. Areas examined during the inspections are identified in the enclosed report. Within these areas, the inspections consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The inspections covered the following areas; Operational Safety, Facility Support, Radiological Controls, Construction, and Other Areas.

On May 12, 2011, the NRC's Office of Investigations (OI) initiated an investigation to determine whether subcontracted employees falsified material requisition and work plan documentation. Based on the investigation, completed on March 27, 2013, OI substantiated that subcontracted employees falsified the documents. Enclosure 3 provides the synopsis to the investigation. The NRC has determined that a Severity Level IV violation of regulatory requirements occurred.

The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is available on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding it are described in the subject inspection report.

If you contest the violation 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its Enclosures, will be made available electronically for public inspection in the NRC Public Document Room, or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Should you have any questions concerning these inspections, please contact us.

Sincerely,

/RA/

James A. Hickey, 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. Inspection Report No. 70-3103/2013-003
   w/Attachment: Supplementary Information
3. Investigative Synopsis, OI Case No. 2-2011-038

cc: (See page 3)

If you contest the violation 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.

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Distribution: (See next page)

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NAME	S. Mendez	L. Pitts	O.Demiranda	N. Pitoniak	P. Startz	R. Rzepka	A. Artayet
DATE	7/ 25 /2013	7/ 29 /2013	7/ 19 /2013	7/ 18 /2013	7/ 18 /2013	7/ 19 /2013	7/ 19 /2013
E-MAIL COPY	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO

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NAME	M. Magyar	B. Davis	N. Karlovich	C. Evans	J. Hickey		
DATE	7/ 19 /2013	7/ /2013	7/ /2013	7/ 25 /2013	7/ 29 /2013		
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Letter to Gary J. Laughlin from James A. Hickey dated July 29, 2013

SUBJECT: LOUISIANA ENERGY SERVICES, URENCO USA FACILITY – NRC NTEGRATED INSPECTION REPORT NUMBER 70-3103/2013-003, INVESTIGATIVE SYNOPSIS, OFFICE OF INVESTIGATIONS CASE NUMBER 2-2011-038 AND NOTICE OF VIOLATION

DISTRIBUTION:
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M. Bailey, NMSS
B. Smith, NMSS
P. Habighorst, NMSS
M. Raddatz, NMSS
PUBLIC

cc:
Butch Tongate, Deputy Secretary
New Mexico Department of Environment
Office of the Secretary
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, NM 87502-0157

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

The Honorable Sam D. Cobb, Mayor
City of Hobbs
200 E. Broadway
Hobbs, NM 88240

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

Commissioner Gregory H. Fuller
Chairman
Lea County Board of County Commissioners
Lea County Courthouse
100 North Main, Suite 4
Lovington, NM 88260

Daniel F. Stenger, Counsel
Hogan and Hartson
555 13th Street, NW
Washington, DC 20004

Michael Ortiz, Chief
Radiation Controls Bureau
Field Operations Division
Environmental Department
Harold S. Runnels Building
1190 St. Francis Drive, Room S 2100
P.O. Box 26100
Santa Fe, NM 87502-0157

Gregory Smith, President and Chief Executive Officer
Louisiana Energy Services, L.L.C.
Electronic Mail Distribution

Brenda Brooks, Director
Community Affairs and Government Relations
Louisiana Energy Services, L.L.C.
Electronic Mail Distribution

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

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

NOTICE OF VIOLATION

Louisiana Energy Services, Urenco USA
Eunice, NM

Docket No. 70-3103
License No. SNM-2010
EA-13-063

Following a U.S. Nuclear Regulatory Commission (NRC) investigation completed on March 27, 2013, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the *Code of Federal Regulations* (10 CFR) 70.9 (a) states, that information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

Special Nuclear Material License Number 2010 requires, in part, that the licensee shall conduct authorized activities at the Louisiana Energy Services, LLC (LES), URENCO USA (UUSA), National Enrichment Facility in accordance with statements, representations, and conditions in the approved Quality Assurance Program Description (QAPD), Revision 30, dated January 13, 2011, and supplements thereto.

Section 6, Document Control, of the LES UUSA QAPD states, in part, that implementing documents and documents specifying quality requirements or prescribing activities affecting quality, shall be reviewed in accordance with applicable procedures for adequacy, correctness and completeness and by the QA organization as specified by procedure, prior to approval and issuance.

Construction Work Plan Material List (EG-3-6000-01-F-5), and Warehouse Material Identification and Control, Material Requisition form (PR-3-3000-03-F-2), are licensee implementing documents for specifying quality requirements, including the installation of components into the Centrifuge Cooling Water of Cascade 2.

Section 17, Quality Assurance Records, of the LES UUSA QAPD states, in part, that LES completed QA records that furnish documentary evidence of quality shall be specified, prepared, and maintained in accordance with applicable regulatory requirements and applicable procedures.

Contrary to the above, on April 7 and 8, 2011, LES UUSA maintained documents that were not complete and accurate in all material respects. Specifically, a LES contractor employee forged the initials and signature of an LES Quality Control (QC) Inspector in the QC Verification block of the Construction Work Plan Material List (EG-3-6000-01-F-5), and the Warehouse Material Identification and Control, Material Requisition form (PR-3-3000-03-F-2), to allow for the installation of non-QL 1 bolts in the Centrifuge Cooling Water of Cascade 2. These forgeries facilitated the installation of QL-3 bolts and nuts in place of the required QL-1 bolts and nuts. In accordance with Section 17 of the LES QAPD, the Construction Work Plan Material List and the Warehouse Material Identification and Control, Material Requisition form are designated by LES as Quality Assurance Records that are required to be maintained; the documents are material to the NRC because they provide validation of traceability and reliability of a safety significant component.

This is a Severity Level IV violation in accordance with the Enforcement Policy Section 6.5.d.2.

Pursuant to the provisions of 10 CFR 2.201, the Louisiana Energy Services, URENCO USA Facility is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to 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: (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 certificate of compliance should not be modified, suspended, or revoked, or why such other action, as may be proper, should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room, or from the NRC's Agencywide Documents Access and Management 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 of receipt.

Dated this 29th day of July 2013

U. S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No:	70-3103
License:	SNM-2010
Report No:	70-3103/2013-003
Licensee:	Louisiana Energy Services, L.L.C. (LES)
Facility:	URENCO USA, National Enrichment Facility (NEF)
Location:	Eunice, NM 88231
Inspection Dates:	April 1 through June 30, 2013
Inspectors:	A. Artayet Senior Construction Inspector, Division of Construction Inspection (DCI) (Paragraph E.1) B. Davis, Senior Construction Inspector, DCI (Paragraph D.1) N. Karlovich, Construction Inspector, DCI (Paragraph E.1) M. Magyar, Construction Inspector, DCI (Paragraph E.1) S. Mendez, Fuel Facility Inspector, Division of Fuel Facility Inspection (DFFI) (Paragraph A.1 and E.1) L. Pitts, Senior Fuel Facility Inspector, DFFI (Paragraph A.1) N. Pitoniak, Fuel Facility Inspector, DFFI (Paragraph B.1) P. Startz, Fuel Facility Inspector, DFFI (Paragraph C.1)
Approved:	J. Hickey, Chief Fuel Facility Inspection Branch 2 Division of Fuel Facility Inspection

EXECUTIVE SUMMARY

Louisiana Energy Services, L.L.C., (LES), URENCO USA (UUSA)
NRC Integrated Inspection Report 70-3103/2013-003
April 1 - June 30, 2013

Inspections were conducted by regional inspectors during normal shifts in the areas of safety operations, radiological controls, facility support, construction, and other areas. The inspectors performed a selective examination of licensee activities that were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records.

Safety Operations

- The inspectors determined that item relied on for safety (IROFS) C23 was properly implemented for Cascades 3.10, 3.11, 3.12, and 4.1 in order to perform its intended safety function. (Paragraph A.1)

Radiological Controls

- The Radiation Protection program was implemented in accordance with the license application and regulatory requirements. (Paragraph B.1)

Facility Support

- The training program was implemented in accordance with the license application and regulatory requirements. (Paragraph C.1)

Construction

- The licensee's construction activities for Separations Building Module (SBM) 1005 uranium hexafluoride (UF_6) handling area footings and grade beams were consistent with design document, procedures, and quality processes. (Paragraph D.1)

Other Areas

- The licensee constructed and tested Autoclave 2 as required per approved procedures. The inspections and tests were performed by qualified personnel for the required construction and operational IROFS in the system. (Paragraph E.1)

- One Severity Level IV violation of NRC requirements was identified for failure to maintain documents that were complete and accurate in all material respects. (Paragraph E.2)

Attachment

Key Points of Contact
List of Items Closed and Discussed
Inspection Procedures Used
Documents Reviewed (Parital)

REPORT DETAILS

Summary of Plant Status

During the inspection period, the licensee conducted routine plant operation of the operating Cascades. The licensee initiated operation of four Cascades during the period after being granted authorization. Construction and testing in some areas of Separation Building Modules (SBMs) 1001, 1003, 1005, and other applicable process areas continued in preparation for future operation of additional cascades and equipment.

A. Safety Operations

1. Plant Operations (Inspection Procedure (IP) 88020) Verification that the systems structures and components designed to support operation of Cascades 3.10, 3.11, 3.12, and 4.1 met license requirements prior to initiation of feed

a. Inspection Scope and Observations

The inspectors reviewed records associated with the Item Relied on for Safety (IROFS) C23 for the verification of Cascades 3.10, 3.11, 3.12, and 4.1. The inspectors determined that the design features for IROFS C23 for the TC 21 centrifuges were adequate to minimize releases and they were being adequately implemented and properly communicated as described in the Integrated Safety Analysis (ISA).

The inspectors confirmed that the passive engineered controls that were reviewed were present and capable of performing their intended safety function. The inspectors reviewed the procedure applicable to the operational validation of IROFS C23 and determined that the procedure was current, reflected the safety controls, and were followed by the operators and technicians.

Through interviews and document reviews, the inspectors verified that the licensee conducted calibration and surveillance activities as required by the ISA Summary and the commercial grade dedication (CGD) process for IROFS C23. The inspectors also reviewed the CGD package for each cascade to verify compliance with applicable procedures and license requirements.

b. Conclusion

No findings of significance were identified.

B. Radiological Controls

1. Radiation Protection (IP 88030)

a. Inspection Scope and Observations

The inspectors reviewed multiple self-assessments to verify that the program performance was being reviewed, at least annually, to comply with 10 CFR 20.1101. The inspectors reviewed organization charts and interviewed licensee staff to determine the radiation protection function's responsibilities and independence from operations. The inspectors

reviewed a selection of procedures to determine that changes in the radiological protection procedures made since the last inspection were consistent with regulatory and license requirements.

The inspectors observed the daily checks of several dose rate meters and scaler counters and reviewed calibration source records to verify that the performance of radiation protection instruments and equipment were in accordance with license requirements and procedures.

The inspectors reviewed the Total Effective Dose Equivalent results and determined that they were less than the regulatory limit of 5 rem per year. The inspectors reviewed the 2012 personnel dosimeter results as submitted to the licensee by their contractor and determined that the Lens Dose Equivalent and Shallow Dose Equivalent results were less than the regulatory limit of 15 rem and 50 rem/yr, respectively. The inspectors verified that records were maintained in accordance with 10 CFR 20.2106.

The inspectors reviewed the respiratory protection program and determined that the training, fit testing, and procedural uses of respiratory protection as required by the license application was in compliance with 10 CFR 20.1703.

The inspectors toured the facility and verified that radiological signs and postings accurately reflected radiological conditions within the posted area. Areas were posted in accordance with 10 CFR Part 20. The inspectors verified that the Notice to Employees, NRC Form 3, was posted in a high traffic area in accordance with 10 CFR 19.11.

The inspectors observed a daily contamination survey and reviewed a sample of survey records conducted in 2012 and determined that surveys adequately evaluated the magnitude and extent of radiation levels in accordance with 10 CFR 20.1501.

The inspectors reviewed Radiation Safety Committee meeting minutes and determined that the committee was in compliance with the license requirements. The inspectors reviewed the 2011 and 2012 As Low As Reasonably Achievable (ALARA) reports to verify that the program performance was being reviewed annually. The inspectors evaluated the ALARA principle during dose result reviews and plant tours and determined that management maintained a commitment to ALARA.

b. Conclusion

No findings of significance were identified.

C. Facility Support

1. Management Organization and Controls (IP 88005)

a. Scope and Observations

The inspectors interviewed members of the licensee management, supervisors, and operations personnel to verify that management understood and implemented company policy for operational safety as defined by the license. The inspectors reviewed personnel changes that occurred within the past year and verified that personnel either maintained their qualifications or new personnel acquired qualifications as required by the license,

Safety Analysis Report (SAR), and facility procedures. Through interviews, the inspectors verified that individuals were aware of and had implemented their assigned responsibilities and functions.

The inspectors verified the licensee's control of procedures through discussions with licensee staff. The inspectors reviewed procedures that were revised in the past year to ensure that they had been reviewed and approved in accordance with the license application and the licensee's change process.

The inspectors reviewed the licensee's problem identification and resolution program to determine if the program had been conducted in accordance with approved procedures and the license application. The inspectors interviewed selected staff to verify their knowledge of the problem identification and resolution program. The inspectors reviewed relevant records of several licensee Corrective Action Review Board (CARB) meetings that included presentations of Apparent Cause Evaluations for review by board members. The inspectors reviewed internal and external audits and determined that the audits had been conducted at the frequency required by the license. The licensee had entered issues from audits and assessments into the corrective action program. The inspectors reviewed recent event and incident investigations conducted by the licensee and determined that they had been conducted in accordance with the SAR section 11.6, Incident Investigations and Corrective Action Process. The Inspectors noted that the discovery of a malfunctioning piece of equipment discovered during the inspection period had been entered into the corrective action program.

The inspectors reviewed the safety committee meeting minutes and verified that the committee was operating per the requirements of the license and licensee's approved procedures. The inspectors verified that the licensee's quality assurance program was being implemented in accordance with the license application. Through interviews and examination of records, the inspectors determined that the licensee had been performing the appropriate tests on systems and components important to safety.

b. Conclusion

No findings of significance were identified.

2. Operator Training and Retraining (IP 88010)

a. Scope and Observations

The inspectors reviewed the Operator Training program and evaluated the program against the license application. The inspection team interviewed the licensee staff about changes and challenges to the training program and reviewed related documentation revised during the past year. The inspectors determined that programmatic and documentation revisions had been accomplished in accordance with the license application and management policies and procedures.

The inspectors discussed training requirements and qualifications evaluations with selected staff in a variety of management and operational positions. The inspection team reviewed samples of training activities, training elements and related documentation, exams, and student feedback forms. The inspectors interviewed a training instructor about the adequacy of student exams and performance, and determined that the training programs remained in accordance with the license application and approved procedures.

The inspectors interviewed the Training Manager regarding instructor development and qualification requirements. The inspectors determined that the plant routinely reviews requirements through the Operations Curriculum Review Committee. Training on IROFS was performed and documented in accordance with the approved for Operator Training and Qualification.

b. Conclusion

No findings of significance were identified.

D. Construction

1. Structural Concrete Activities (IP 88132)

a. Scope and Observations

The inspectors performed a field inspection of the Quality Level (QL) -1 structural concrete activities for the footings and grade beams of the uranium hexafluoride (UF6) handling area of the SBM 1005 building in support of IROFS 27e (constructed to withstand design basis natural phenomena hazards and external hazards). The inspectors observed the placement of reinforcing steel and structural concrete for the grade beams and footings along column line six between column lines B and D to verify the footings and grade beams were constructed in accordance with design documents and applicable codes and standards. The inspectors also observed the form work for the footings to verify that the formwork was adequate for its use and clean of any debris that could be deleterious to the concrete. During placement of the concrete, the inspectors observed quality control personnel perform slump, air, density, and temperature tests for the concrete to verify the concrete was a designed and tested at the prescribed intervals.

The inspectors reviewed LES UUSA engineering specifications to determine if the applicable requirements were adequately translated into construction and testing procedures used for the structural concrete and reinforcing steel.

The inspectors reviewed procurement documents to verify that appropriate design requirements and acceptance requirements were delineated within the procurement packages. The inspectors also reviewed a sample of the licensee's receipt inspection reports for QL-1 reinforcing steel to ensure the licensee receipt inspection process adequately verified the material procured met the technical requirements specified within the procurement documents and receipt inspection checklists.

In addition, the inspectors reviewed the licensee's CGD process for the structural concrete. The inspectors reviewed the CGD plan to ensure the appropriate critical characteristics for acceptance were identified verified as required. The inspectors also reviewed a sample of the commercial test records for the concrete constituents to ensure the appropriate components were used. The inspectors also verified the certification of the batch plant and the calibration of batching equipment.

b. Conclusion

No findings of significance were identified.

E. Other Areas

1. Special Topics - Operations Reediness Review for Autoclave 2 (AC2)

a. Operational Safety (IP 88020)

(1) Inspection Scope and Observations

The inspectors reviewed records associated with the AC2. The inspectors determined that the IROFS reviewed were adequately implemented and properly communicated as described in the ISA. The inspectors confirmed that the active and passive engineered controls reviewed were present and capable of performing their intended safety functions.

The inspectors reviewed one administrative controls' IROFS and determined that the required actions as identified in the ISA had been correctly transcribed into written operating procedures. Through document reviews, the inspectors verified that the licensee conducted preventive maintenance, calibration, and periodic surveillance as required by the ISA for the IROFS reviewed. The inspectors reviewed the licensee Corrective Action Program (CAP) entries for the AC2 and determined that deviations from procedures and unforeseen process were documented and investigated promptly.

(2) Conclusion

The inspectors' review the IROFS in AC2 were adequately calibrated and functionally tested prior to operation.

b. Quality Assurance: Control of Materials, Equipment, and Services (Pre-licensing and Construction) IP 88108); and Mechanical Components (IP 88136)

(1) Inspection Scope and Observations

The inspectors reviewed a sample of documents for procurement, receipt inspection, fabrication, installation, and testing activities related to the AC2 pressure vessel for IROFS 10 (safe design of vessel) and 28 (internal safety controls for the vessel) to determine if associated components met the licensee's QL-1 criterion and CDG requirements of the Quality Assurance Program Description (QAPD). As part of this inspection, the inspectors reviewed changes made by the licensee to the CGD plans between AC1 and AC2.

The inspectors reviewed design documents and drawings to determine which basic components were dedicated as commercial grade from those that were designated as QL-1. The inspectors reviewed drawings, work plans (WP), procedures, CGD plan, and other documents. The inspectors interviewed personnel, performed walkdowns, reviewed documentation, and evaluated activities associated with a sample of components to determine if:

- Requirements and commitments in the QAPD were addressed, established, and maintained in quality assurance (QA) plans, instructions, and procedures;
- CGD plan and technical evaluations identified critical characteristics (CCs) that would ensure the components were capable of performing their intended safety functions as described in the SAR;

- Acceptance criteria for each CC were consistent with the design and licensing bases for the component;
- Autoclave installation was in compliance with regulatory requirements, licensee commitments, and applicable codes and standards required by the QAPD;
- Acceptance criteria were met for each CC;
- Commercial grade surveys and quality assurance audits/surveillances were performed in accordance with the QAPD;
- IROFS components that were not commercial grade dedicated were procured, controlled, and installed as QL-1 in accordance with the QAPD; and
- Reporting and dispositioning of nonconformances associated with fabrication, procurement, installation, and testing of commercial grade items were implemented in accordance with the QAPD.

The inspectors reviewed engineering evaluations, to determine whether the CCs and acceptance criteria for the various autoclave CGD plans were consistent with the design and licensing basis. The inspectors reviewed design analysis and calculations to determine whether design calculations for pressure boundary integrity (as it pertains to IROFS 10 and 28) were in accordance with the general and specific design requirements of the 2007 Edition, including 2008 Addenda, of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII, Division 1, Rules for Construction Pressure Vessels, including form UW-2(a) for lethal service. The FMEA supported the conservative design pressure and temperature ratings that provide a safety factor of more than 10:1.

The inspectors reviewed ASME Code Case 2211-1, Pressure Vessels with Overpressure Protection by System Design, which permits the use of a designed system for overpressure protection in lieu of a pressure relief device, as required by Section VIII, Division 1, and paragraph UG-125 (a).

The inspectors reviewed the following commercial grade dedicated components that were part of IROFS 10 and 28:

Pressure Vessel, Stillage, Skid, and Pipe Train Assembly (Methods 1 and 3)

The inspectors reviewed CGDP-010-0036, Revision 0, with focus on the autoclave pressure vessel and supporting documentation to verify the adequacy of the dedication activities for the AC2. The inspectors reviewed the following CCs for this CGD plan:

CC #1: Geometry and Dimensions of the Pressure Vessel, Stillage, and Vessel Structural Supports. The licensee used Method 1 (testing and inspections) and Method 3 (source verification) to verify the acceptance criteria for this CC by measuring the geometry and dimensions of different associated parts. The inspectors reviewed Urenco surveillance reports of the Aerospace Services & Controls, Inc. (ASC) Process Systems pressure vessel fabricator to determine whether the contents supported the conclusion that this CC was satisfactorily met. The inspectors also reviewed drawings and Engineering Change Requests to determine whether the AC2 stillage (saddle) assembly modifications would provide clearance to ease insertion of the transport carriage without interferences.

CC #2: Pressure Vessel Material Strength, Weld Integrity, and Pressure Retention Safety Function; and CC #3: Pressure Vessel Wall Thickness for the Shell and Ellipsoidal Heads, in accordance with the design requirements. The licensee used Method 1 to verify the acceptance criteria for these CCs by inspection and testing the ASME Section VIII pressure

vessel with adequate material strength and cold-forming thickness verifications (consistent with the FMEA by the use of any carbon steel specification/grade). The inspectors reviewed surveillance reports, and the documents provided by the pressure vessel manufacturer, to determine whether the material strength, weld integrity, thicknesses, and pressure retention were satisfactorily met.

- Material certifications with chemical analysis and mechanical properties from Evraz Inc. for the vessel shell, and Nucor Steel and SSAB Laboratory for the ellipsoidal heads;
- Material certification from Baker Tankhead Inc. for compliance to ASME Section VIII, Division 1, paragraphs UG-81 and UCS-79(d) for the cold-formed heads;
- Four manufacturer's welding procedures with supporting procedure qualification records;
- Welder performance qualification records and continuity logs for 2010 thru 2012;
- Post weld heat treatment strip charts of butt welds for cooling/heating rates and minimum hold temperature/time;
- Radiography reports and films for Category A (longitudinal) and B (circumferential) full penetration butt welds; and
- Vacuum and hydrostatic pressure test records; and ASME Section VIII, Division 1, Form U-1A Manufacturer's Data Report with National Board Number 50 signed by the authorized inspector and nameplate attached to the AC2 vessel.

CC #4: Material Type of Pressure Vessel, Pressure Vessel Structural Supports and Stillage. This CC required Methods 1 and 3 verification using magnet testing (consistent with the FMEA to verify use of carbon steel). The inspectors reviewed surveillance reports to determine whether the documentation supported the conclusion that this CC was satisfactorily met.

CC #5: Skid Structural Support Structural Welds Verified by Visual and Dimensional Inspection to be Per Design. This CC required Methods 1 and 2 (survey of supplier) visual inspections of the welds in accordance with drawings and AWS D1.1, Structural Welding Code – Steel. The inspectors reviewed surveillance reports to determine if the documentation supported the conclusion that this CC was satisfactorily met.

CC #6: Structural Weld Filler Material Conformance to the Applicable Weld Filler Material Standard Chemical Requirements. This CC required Method 1 verification of test reports. The inspectors reviewed surveillance reports, condition reports, and Element Materials Technology test reports for Lot Numbers 12669279, 13014643, and 13018422 to determine if the documentation supported the conclusion that this CC was satisfactorily met.

CC #9: Pipe Train Assembly Components – Maintain Pressure Boundary Integrity. This CC required Method 3 verification of pressure boundary integrity by the successful completion of a vacuum test. The licensee witnessed the performance of the vacuum test and the inspectors reviewed surveillance reports to determine whether the completed pneumatic test and pressure drop supported the conclusion that this CC was satisfactorily met.

<u>Douglas Electrical Components and Conax Autoclave Penetration Seals (Method 1)</u>
The inspectors reviewed CGDP-010-0044, Rev.1, and supporting documentation to verify adequacy of the dedication activities. The inspectors were made aware by the licensee of minor changes to the CGD plan from AC1 to AC2, specifically:

- Penetration seals for AC2 were combined and moved to the same CGD plan;

- Electrical penetration seal material was changed from a Teflon material to an epoxy type material; and
- Valve actuator penetration seal material was changed from a Teflon material to a Polyether Ether Ketone type material.

The inspectors determined, as also indicated by the licensee, that none of the minor changes to the CGD plan affected the IROFS 10 pressure vessel FMEA, or the critical characteristics. Inspectors previously reviewed all critical characteristics associated with the seal materials for AC1, as documented in Inspection Report 70-3103/2011-007. For this inspection, and due to the licensee's change in material type, the inspectors reviewed the critical characteristics associated with the minor changes.

Douglas Electrical Seal Penetration

CC#3: Non-metallic Sealing Material. This CC required the materials optical emission trace to be consistent with the optical trace from the Epoxy sample cube. The material baseline for electrical penetration seals was established by mechanical testing (i.e., hardness, compression) using American Society for Testing and Materials (ASTM) testing methods to provide validity for the acceptance of the 2-part epoxy mixture, and substantiate the Fourier Transform Infrared Spectroscopy used to verify the acceptance criteria of the CC. The inspectors reviewed the following documentation:

- QA-3-3000-18-F-1, QC Receipt Inspection Plan Report
- EG-3-2100-05-F-3, Commercial Grade Dedication Verification Results
- EG-3-2100-17-F-1, Commercial Grade Dedication Test Results Review
- P-26-30, Certified Test Report

CC #4: Leak Tightness. This CC required successful completion of a pressure test. The licensee verified this CC during the same pressure test that the inspectors reviewed for CC#4 for the above Conax seals. The inspectors reviewed ECR 7543 to determine whether the bill of materials was modified to show the quality class of items on the nozzle schedule drawing # ASC-08367-200-18-1.

Conax Autoclave Penetration Seals

CC#3: Non-Metallic Sealing Material. This CC required the materials optical emission trace to be consistent with the optical trace for Teflon filled PEEK as verified by the FTIR. The inspectors reviewed the following documentation:

- QA-3-3000-18-F-1, QC Receipt Inspection Plan Reports
- EG-3-2100-05-F-3, Commercial Grade Dedication Verification Results
- EG-3-2100-17-F-1, Commercial Grade Dedication Test Results Review
- P-26-30, Certified Test Report

CC #4: Leak Tightness. This CC required successful completion of a pressure test. The inspectors reviewed SR 2013-S-04-071 to determine whether the documentation supported the conclusion that this CC was satisfactorily met.

Review of Work Plans for QL-1 Components

The inspectors reviewed drawings and specifications to identify components related to IROFS 10 and 28 that were not commercial grade dedicated. The inspectors reviewed documentation to determine if the components were classified as QL-1 and selected a sample of those components for review.

The inspectors reviewed WP 1001-MECH-471-018, Installation of Autoclave 1001-471-2B1 and Autoclave Utility Post, and LES Purchase Order 2439, to determine if AC2 was procured and installed in accordance with the QL-1 requirements of the QAPD. The inspector's review of this work plan package included material requisitions, QC receipt inspection plant reports, AWS D1.1 weld history cards with inspection hold points, weld inspection reports, liquid penetrant examination report, and helium leak test report for two pressure transducers, to determine if the work was adequately performed under the licensee's QA program for QL-1 components.

Autoclave Nonconformance Report (NCR) Evaluations

The inspectors reviewed five NCRs associated with IROFS 10 and 28 of AC2 to determine if the licensee identified, evaluated, and resolved issues in accordance with the QAPD. The inspectors reviewed the licensee's evaluations for discrepancies disposition as use-as-is to determine if they were technically justified and in accordance with relevant codes and standards as required by the QAPD.

(2) Conclusion

No findings of significance were identified.

c. Instrumentation and Control Systems (IP 88140)

1. Inspection Scope and Observations

The inspectors conducted an inspection of LES UUSA documents for AC2 relating to IROFS 11, which is the automatic trip of the autoclave heater and fan on autoclave high internal air temperature; and IROFS 12, which is the automatic trip of the autoclave heater and fan on autoclave high internal air pressure.

The inspectors reviewed surveillance procedures, site acceptance test, and surveillance work packages for IROFS 11 and 12 to verify whether the documents showed that the test equipment was properly calibrated, approved procedures were used, and test data and results were properly documented and evaluated. The inspectors reviewed the training records of the craft performing the testing to verify whether they were current and met the requirements as laid out in there training plans for performing the testing.

The inspectors reviewed the construction work package and associated procedures for IROFS 11 and 12 to verify whether required inspections were performed, recorded, and evaluated by qualified personnel. The inspectors reviewed the qualification records of two of the QC personnel who performed signoffs on the package to verify the records were current and met the requirements laid out in their qualification procedure, and the records reasonably supported the qualification.

The inspectors also reviewed the immediate actions of ERs associated with the construction of IROFS 11 and 12 and an ECR associated with the construction of IROFS 12.

(2) Conclusion

No findings of significance were identified.

2. Special Topics – Failure to maintain documents that were complete and accurate in all material respects

a. Operational Safety (IP 88020)

(1) Inspection Scope and Observations

During review of LES condition reports (CR), an NRC inspector noted that LES identified an issue regarding forged quality control (QC) initials on work plan documentation.

According to the CR originated on April 26, 2011, a warehouse employee's initials were forged on a material requisition form (Material List) for bolts and nuts for release from the warehouse. The CR documents that the QC inspector verified his initials were forged and indicated that he was not onsite when the parts were released or taken from the warehouse.

The licensee verified that the bolts and nuts were used for a QL-1 application and provided a copy of the forged forms to the NRC inspector. The bolts and nuts were installed in the Cascade Cooling Water System (CCW), specifically the CCW for Cascade 2.2. Replacement of these bolts and nuts, with the correct QL-1 bolts and nuts, was completed on 12/15/2011. Cascade 2.2 was not operated until after the correct QL-1 nuts and bolts were installed.

The licensee performed and internal assessment based on the CR to determine the root cause of the problem and applied corrective actions. During LES's investigation into this matter, one of the individuals admitted to the forgery.

The NRC Office of Investigations performed an investigation into this event and substantiated that the contractor employees willfully forged LES employee's initials/signatures on material requisition and work plan documents. These forgeries facilitated the installation of QL-3 bolts and nuts in place of the required QL-1 bolts and nuts. In accordance with Section 17 of the LES QAPD, the Construction Work Plan Material List and the Warehouse Material Identification and Control, Material Requisition form are designated by LES as Quality Assurance Records that are required to be maintained; these documents are material to the NRC because they provide validation of traceability and reliability of a safety significant component.

(2) Conclusion

One Severity Level IV violation of NRC requirements was identified for failure to maintain documents that were complete and accurate in all material respects. The violation is documented in Enclosure 1 and identified as 70-3103/2013-003-01, Falsification of Construction Quality Records Discovered Prior to Cascade Operation.

F. Exit Meeting

The inspection scope and results were presented to senior licensee representatives and staff on April 24, 2013, May 9, 2013, May 24, 2013, June 6, 2013, June 13, 2013, and July 18, 2013. Proprietary information was discussed but not included in the report.

SUPPLEMENTARY INFORMATION

1. KEY POINTS OF CONTACT

Name	Title
R. Albright	LES Regulatory Compliance
D. Brewer	LES Projects
C. Casto	LES Licensing
J. Deemie	LES Project Management
G. Donaldson	LES Quality Assurance
K. Engan	LES Construction
B. Graham	LES Licensing
D. Greenwood	Operations Manager
M. Griffith	LES Quality Control
T. Hendrix	Construction Engineer
T. Knowles	Licensing and Performance Assessment Manager
J. Laughlin	Chief Nuclear Officer
P. McCasland	Licensing Specialist
P. Newey	LES Procurement
J. Rickman	LES Licensing
G. Schnell	Radiation Protection Supervisor
G. Schultz	LES Project Manager/Director
C. Slama	Licensing Engineer/Senior Operator
S. Thyne	Training Manager
M. Tidwell	LES Quality Assurance Manager
O. Torres	LES Quality Assurance
W. Warren	Baker Concrete Quality Assurance Supervisor
R.Williams	LES Corporate

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

70-3103/2013-003-01	VIO	Falsification of Construction Quality Records Discovered Prior to Cascade Operation

3. INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 88010	Operator Training and Retraining
IP 88020	Operational Safety
IP 88030	Radiation Protection
IP 88108	Quality Assurance: Control of Materials, Equipment, and Services (Pre-licensing and Construction)
IP 88132	Structural Concrete Activities
IP 88136	Mechanical Components
IP 88140	Instrumentation and Control Systems

4. DOCUMENTS REVIEWED (PARTIAL LIST)

Procedures:
MA-3-3400-11, IROFS11 Autoclave Heater and Fan High Temperature Trip – RTD Surveillance, Rev. 3
MA-3-3400-12, IROFS12 Autoclave Heater and Fan High Pressure Trip- Pressure Detector Surveillance, Rev. 3

IMC-3-6000-01, Item Control, Rev. 8, 2/18/2012
EG-3-2100-01, Configuration Change, Rev. 19, 8/9/2012
EG-3-4100-05, Engineering Change Request, Rev. 13, 3/7/2013
TQ-3-0100-09, Training Equivalency, Rev. 5, 6/19/2013
RP-3-3000-11, Radiological Dose Reports, Rev. 3, 10/22/2012
RP-2-4000-01, Respiratory Protection Program, Rev. 2, 4/11/2011
RP-3-4000-06, Respirator Fit Testing Using the Porta Count Pro, Rev. 3, 4/25/2011
SU-3-1000-05, Turnover and Acceptance, Rev. 0

Event Reports(ER) Written as a Result of the Inspection
ER-2013-877, Documented Comments Identified by NRC during IP 88030 inspection
ER-2013-893, Documented Comments Identified by NRC during IP 88030 inspection
ER-2013-907, Documented Comments Identified by NRC during IP 88030 inspection

Event Reports (ERs) Reviewed

ER 2012-1400	ER 2013-884	ER 2013-1020
ER 2012-3165	ER 2012-2512	

Work Plans/Work Orders
1005-CIVIL-822-001, Rev. 0, SBM 1005 UF6 Foundation/Grade Beams
1005-CIVIL-822-003, Rev. 0, SBM 1005 Drilled Piers
1002-ELEC-471-001, Install IROFS 11& 12 Components and Wiring, December
1001-ELEC-471-007, Site Acceptance Testing of IROFS 11 &12 Autoclave #2 (471-2B3), 11/16/2012
WO 1000100789 Autoclave IROFS 11 & 12 Surveillance
Baker Commercial Grade Dedication Plans
1002-CIVIL-471-001, Install IROFS 10 Pressure Boundary Retention Components QL-1 Penetration Seals, 1/16/2013
1001-MECH-471-018, Installation of Autoclave #2 (1001-47-2B1) and Utility Posts, 9/25/2012
1001-MECH-471-019, Remove/Reinstall Door and Heater Seals Autoclave #2 (for CGD testing by qualified laboratory), 3/5/2013

Commercial Grade Dedication Packages
CGDP-010-0036, Rev. 0, Pressure Vessel, Stillage, Skid & Pipe Train Assembly (Autoclave # 08367-2), 5/8/2013
CGDP-010-0044, Rev. 1, Douglas Electrical Components & Conax Autoclave Penetration Seals, Douglas Electrical Component P/N 50176, 5/7/2013
CGDP-010-0044, Rev. 1, Douglas Electrical Components & Conax Autoclave Penetration Seals, Douglas Electrical Component P/N 50177, 5/7/2013
CGDP-010-0044, Rev. 1, Douglas Electrical Components & Conax Autoclave Penetration Seals, Conax Autoclave Penetration Seal EGPK-500-A-XX (MID# 57365), 5/7/2013

CGDP-010-0044, Rev. 1, Douglas Electrical Components & Conax Autoclave Penetration Seals, Conax Autoclave Penetration Seal EGPK-500-A-XX (MID# 57366), 5/7/2013
CGDP NEF-003, Commercial Grade Dedication Plan of Ready Mix Concrete, Rev. 1

Drawings
444758-1005-C-CON-000-07, Rev. 1
444758-1005-C-CON-000-03, Rev. 1
444758-1005-C-CON-002-01, Rev. 2
444758-1005-C-CON-002-02, Rev. 3
Electrical Separation Building Module Attachment to Autoclave Details IROFS 12, LES 1001-E-EQP-008-03-1, Rev. 1
LES-1001-E-EQP-001-10, Separation Building Module Autoclave IROFS 10 and 28 Boundaries, Rev. 1
DWG 08367-900-1-1, P&I General Arrangement System Liquid Sample Autoclave 1001-4714, Sheet 1 of 1, Rev. H
DWG ASC-08367-600, Stillage Assembly, 30B Cylinder, Sheet 1 of 1, Rev. B

Baker Quality Inspection Reports
Baker Inspection Report: NEF-INS-10.01-12b-0006, Rev. 1
Baker Inspection Report: NEF-INS-10.01-4-0001, Rev. 3
Baker Inspection Report: NEF-INS-10.01-5-0001, Rev. 2

Training Plans and Records
MP254TPE12I00, Maintain IROFS12, Rev.3
MP254TPE12I00, Maintain IROFS12, Rev.2
MP254TPE11I00, Maintain IROFS 11, Rev. 2
MP254TPE11I00, Maintain IROFS11, Rev.3

Nonconformance Reports
NCR-2012-0449, Autoclave commercial grade inspection CGDP-010-0036 nonconforming items
NCR-2013-0493, Required dimension for CGDP-10-0036 not taken
NCR-2012-1292, Issues identified during surveillance and inspections of ASC Surveillance 2012-S-04-007
NCR-2012-3155, Stillage steel dimensional issues identified under CGDP-101-0036
NCR-2012-4024, Weld filler material traceability cannot be established from vendor ASC

Audits & Surveillances
SR 2012-C-01-001, dated April 19, 2012
SR 2012-S-04-007, dated June 6, 2012
SR 2012-S-11-096, dated December 5, 2012
SR 2012-S-11-096R1, dated April 3, 2012
SR 2012-S-12-100, dated December 13, 2013
SR 2013-S-03-043, dated May 25, 2013
SR 2013-S-03-049, dated April 4, 2013
SR 2013-S-04-071, dated May 2, 2013
SR 2013-S-04-073, dated May 3, 2013

Engineering Evaluations and Calculations
AN-ARC-921, Failure Modes and Effect Analysis of the Autoclave QL-1, 8/13/2011
AN-ARC-845, Rev. 0, ASME VIII Pressure Vessel Design Calculation for the Autoclave Quality Level – QL1

ECR-7543, Revise ASC Autoclave BOM to incorporate QL-1 components and add quality level column, 4/13/2012
ECR-7579, Change of the 30B Stillage (Saddle) to work with the Siempelkamp Transport Carriage, 5/4/2012

SYNOPSIS

This investigation was initiated by the United States Nuclear Regulatory Commission (NRC), Office of Investigations (OI), Region II, on May 12, 2011, to determine whether employees working for Mosman Projects BV, Netherlands, conducting subcontract work at Louisiana Energy Services (LES), Eunice, New Mexico willfully forged LES employee's initials/signatures on material requisition and work plan documentation.

Based on the evidence developed during this investigation, the allegation that Mosman employees willfully forged LES employee's initials/signatures on material requisition and work plan documentation was substantiated.

Approved for release by MMC on 7/16/13