



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200  
ATLANTA, GEORGIA 30303-1200

July 28, 2021

Mr. Wyatt Padgett  
Compliance and Licensing Manager  
LOUISIANA ENERGY SERVICES (LES) dba URENCO USA (UUSA)  
URENCO USA  
P.O. Box 1789  
Eunice, NM 88231

SUBJECT: URENCO USA (UUSA) – INTEGRATED INSPECTION REPORT  
07003103/2021002

Dear Mr. Padgett:

On June 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at URENCO USA (UUSA) and discussed the results of this inspection with Mr. Wyatt Padgett and other members of your staff. The results of this inspection are documented in the enclosed report.

No violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

**/RA/**

Robert E. Williams, Jr., Chief  
Projects Branch 1  
Division of Fuel Facility Inspection

Docket No. 07003103  
License No. SNM-2010

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: URENCO USA (UUSA) – INTEGRATED INSPECTION REPORT  
07003103/2021002 dated July 28, 2021

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number: 07003103

License Number: SNM-2010

Report Number: 07003103/2021002

Enterprise Identifier: I-2021-002-0117

Licensee: LOUISIANA ENERGY SERVICES (LES) dba URENCO USA (UUSA)

Facility: URENCO USA (UUSA)

Location: Eunice, NM

Inspection Dates: April 5 - 8 and May 3 - 6, 2021

Inspection  
Completion Date: June 30, 2021

Inspectors: B. Adkins, Sr. Fuel Facility Projects Inspector  
L. Cooke, Fuel Facility Inspector  
P. Glenn, Fuel Facilities Inspector  
G. Goff, Fuel Facilities Inspector

Approved By: Robert E. Williams, Jr., Chief  
Projects Branch 1  
Division of Fuel Facility Inspection

Enclosure

## SUMMARY

The U.S. NRC continued monitoring the licensee's performance by conducting an integrated inspection at URENCO USA (UUSA), in accordance with the fuel cycle facility inspection program. This is the NRC's program for overseeing the safe operation of licensed fuel cycle facilities. Refer to <https://www.nrc.gov/materials/fuel-cycle-fac.html> for more information.

### List of Violations

No violations of more than minor significance were identified.

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	07003103/2021002-01	Independence of the Radiation Protection Program	88020	Open

## **PLANT STATUS**

The URENCO USA facility in Eunice, New Mexico enriches uranium hexafluoride (UF6) using gas centrifuge technology. During the inspection period, the licensee conducted routine plant operations.

## **INSPECTION SCOPES**

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Inspections were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2600, "Fuel Cycle Facility Operational Safety and Safeguards Inspection Program." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## **SAFETY OPERATIONS**

### IP 88015 - Nuclear Criticality Safety

The inspectors evaluated selected aspects of the licensee's Nuclear Criticality Safety (NCS) program as part of a remote inspection to verify compliance with selected portions of 10 CFR 70, Chapter 5, "Nuclear Criticality Safety," of the facility's Safety Analysis Report (SAR), and applicable licensee procedures.

### Criticality Analysis (IP Section 02.01)

The inspectors interviewed licensee staff and reviewed nuclear criticality safety evaluations (CSEs), and associated assumptions and calculations to verify compliance with 10 CFR 70 and applicable sections of the SAR. Specifically, the inspectors interviewed licensee staff and reviewed the following CSEs associated systems related to decontamination, recycle, and rad waste operations:

- NCS-CSA-031, "NCSA of the Small Component Decontamination Train (SCDT)"
- NCS-CSA-037, "NCSA of the Slab Tanks"
- NCS-CSA-035, "NCSA of the Multifunctional Decontamination Train (MFDT)"

### Criticality Implementation (IP Section 02.02)

The inspectors selected controls from the licensee's integrated safety analysis (ISA) summary and or CSE/A to verify proper implementation through a review of process and system descriptions, and operator interviews to verify compliance with 10 CFR 70 and applicable sections of the SAR. Specifically, the inspectors interviewed licensee staff and reviewed the following controls, and their management measures, associated with the CSEs above and selected areas:

- passive engineered design features for the gaseous effluent vent system (GEVS) to prevent loss of safe by design features and supports items relied on for safety (IROFS) 24b
- administrative measures for accident sequence DS7-1 related to the decontamination workshop to prevent an over mass
- passive engineered design features for solid waste containers associated with accident sequence SW1-4 to prevent accumulation of uranium mass
- IROFS 54a, 54b, 24b

#### Criticality Operational Oversight (IP Section 02.03)

The inspectors assessed the NCS staff's oversight of plant operators, procedures, and operations of systems involving special nuclear material to verify compliance with 10 CFR 70 and applicable sections of the SAR. Specifically, the inspectors performed the following activities:

- Reviewed select IROFS and NCS training documents for recycle and rad waste operations and interviewed two operators assigned to those areas
- Interviewed NCS staff concerning criticality hazards and control methods
- Interviewed a licensee NCS engineer who conducted a weekly NCS audit and reviewed the resulting audit report
- Interviewed recycle and rad waste area operators concerning criticality hazards and control methods, including the use of system IROFS during operations

#### Criticality Programmatic Oversight (IP Section 02.04)

The inspectors reviewed NCS program procedures, audits, and NCS staff qualifications to verify compliance with 10 CFR 70 and applicable sections of the SAR. Specifically, the inspectors interviewed licensee NCS staff and or reviewed the following documents:

- NCS NQA-1 Audit 2021-A-01-002
- NCS procedure CR-3-1000-01, Verification for Implementation of NCS Evaluations and Analysis, Rev. 8
- Revised NCS CSEs that include NCS-CSE-026 related to the Sample Bottle Outgassing Station and NCS-CSA-007 related to GEVS Units in the Separations Building Modules (SBM)
- Interviewed NCS manager and NCS staff in training

#### Criticality Incident Response and Corrective Action (IP Section 02.05)

The inspectors reviewed the licensee's incident response and corrective action programs (CAP) to verify compliance with 10 CFR 70 and applicable sections of the SAR including Chapter 11.6, "Incident Investigations and Corrective Action Process." Specifically, the inspectors reviewed documents and or interviewed licensee staff concerning the following:

- Corrective actions as documented in the "Documents Reviewed" section of the report
- Response to Nuclear Criticality Safety Anomalous Condition or Criticality Accident Procedure CR-3-1000-04
- Criticality Emergency Response Procedure EP-3-0200-10

### IP 88020 - Operational Safety

The inspectors evaluated selected aspects of the licensee's Operational Safety program as part of an onsite inspection to verify compliance with selected portions of 10 CFR 70, including 70.61, 70.62, and Chapter 11, "Management Measures," of the facility's license application, and applicable licensee procedures.

### Identification of Safety Controls and Related Programs (IP Section 02.01)

The inspectors selected specific process areas for inspection based on the safety basis information of the facility, the risk/safety significance of the process areas, the description of plant changes submitted to the NRC, and past plant performance documentation. For the process areas of interest, the inspectors selected a sample of accident sequences in nuclear criticality safety, radiation safety, fire safety, and chemical safety based on the information provided in the ISA summary. The inspectors conducted a general plant tour of each major plant operating area. The process areas and accident sequences selected for review are listed below:

- Process areas reviewed include the Cylinder Receipt and Dispatch Building (CRDB) and the Separations Building Module 1003
- Accident Sequence TT2-1, Low temperature takeoff station defrost heater controller fails causing heater to remain on and subsequent cylinder failure and release of UF6
- Accident Sequence FF15-1, External fire propagation into the UF6 handling area
- Accident Sequence FF16-1, Fire within the UF6 handling area that results in failure of single cylinder hose
- Accident Sequence FF16-2, Fire within the UF6 handling area that results in failure of the aluminum piping manifold and 50% inventory release
- Accident Sequences PB2-6 and PT2-5, Hydrocarbon oil (a moderator) used in place of perfluoropolyether (PFPE) oil during maintenance of vacuum pumps
- Accident Sequence SW1-4, Accumulation of sufficient uranic mass to cause a criticality in removed filter media
- Accident Sequence SW2-1, Accumulation of sufficient uranic mass to cause a criticality in a non-safe by design solid waste container
- Accident Sequence PT5-1, Incorrect sampling sequence resulting in excessive flow of UF6 failing the vacuum pump seals and releasing UF6

### Review of Safety Controls and Related Programs (IP Section 02.02)

The inspectors reviewed information related to administrative, enhanced administrative, engineered, high availability engineered, and passive safety controls or IROFS for the

accident sequences selected above, including the identification of the licensee's assumptions and bounding cases as they apply to each of the selected accident sequences, safety controls, or IROFS. This review was performed to verify that the controls or IROFS were available and reliable to perform their intended safety functions and that the design basis assumptions were reflected in the actual conditions in the field. The specific safety controls selected for review are listed below:

- IROFS1, Automatic Trip of an SBM-1001 or SBM 1003 defrost heater and fan on high station internal air temperature to ensure cylinder integrity (hardwired resistance temperature detector (RTD) sensor), active engineered control, chemical safety
- IROFS2, Automatic Trip of an SBM-1001 or SBM 1003 defrost heater and fan on high station internal air temperature to ensure cylinder integrity (hardwired thermocouple sensor), active engineered control, chemical safety
- IROFS30a, Limit Hydrocarbon Oil by Controlling Type Used, administrative control, criticality safety
- IROFS30b, Limit Hydrocarbon Oil by Testing Prior to Adding to Pump, administrative control, criticality safety
- IROFS30c, Limit Hydrocarbon Oil by Testing Prior to Operation, administrative control, criticality safety
- IROFS31a/b, Limit Uranic Mass Inventory in Non-Safe-By-Design Solid Waste Containers, administrative control, criticality safety
- IROFS35, Fire Rated Barriers, active engineered control with high availability, fire safety
- IROFS36a, Limit Transient Combustible Loading in Uranic Areas, sole and enhanced administrative control, fire safety
- IROFSC21, Flow Restriction for Vacuum Pumps Used for Sampling or Evacuation, passive engineered control (sole IROFS), criticality safety

#### Implementation of Safety Controls (IP Section 02.03)

For the selected safety controls listed above, the inspectors reviewed management measures to verify proper implementation in accordance with 10 CFR 70 and applicable sections of the license application. This review was performed to verify that selected safety controls or IROFS were present, available, and reliable to perform their safety function and that the design basis assumptions were reflected in the actual conditions in the field. The inspectors conducted the following activities to verify the implementation of selected safety controls:

- observed implementation of the weekly IROFS 36a combustible control inspection in SBM-1003
- observed implementation of the annual IROFS1 and 2 station heater and fan high temperature trip interlocks for station 1002-434-5B3
- reviewed calibration records for measuring & test equipment (M&TE) used for functional check and calibration of IROFS1 and 2 interlocks
- reviewed IROFS30 hydrocarbon oil testing records and observed storage of oil
- observed implementation of IROFS31 through storage and U-235 mass analysis records for solid waste and trap material



- reviewed installation records for IROFSC21 flow restriction devices

#### Safety Control Support Programs (IP Section 02.04)

The inspectors assessed additional management measures and licensee's measures that support the availability and reliability of the selected safety controls to verify these were implemented in accordance with 10 CFR 70 and applicable sections of the license application. Specifically, the inspectors conducted the following:

- reviewed weekly inspection records/WOs for IROFS35 fire doors in the CRDB and SBM conducted in March 2021
- reviewed failure and degradation records for IROFS 1, 2, 30, 35, 36a, and C21
- reviewed CAP entries/documents for IROFS 1, 2, 30, 35, 36a, and C21
- reviewed NQA-1 audit 2020-A-10-018 related to implementation of IROFS
- reviewed NQA-1 audit 2020-A-06-011 related to procedures
- reviewed quality assurance audits performed on procedures and M&TE
- reviewed qualification and training documents for one control room/building operator
- discussed IROFS training and qualification with operators regarding IROFS 30, 31, and 36
- interviewed the UUSA Operations Manager to discuss recent organizational changes and operator qualification
- attended the UUSA plan of the day meeting on 05/05/2021
- observed operations evening shift turnover on 05/04/2021
- discussed timeliness of closing out open fire protection system impairments with UUSA management

### **RADIOLOGICAL CONTROLS**

#### IP 88030 - Radiation Protection

The inspectors evaluated selected aspects of the licensee's Radiation Protection (RP) program as a partially onsite partially remote inspection to verify compliance with selected portions of 10 CFR 19, 20, 40, 61, and 70, Chapter 4, "Radiation Protection," of the facility's SAR, and applicable licensee procedures.

#### Radiation Protection Program Implementation (IP Section 02.01)

The inspectors interviewed licensee staff and reviewed licensee procedures and other documentation related to the implementation of the RP and radioactive waste programs to verify compliance with 10 CFR 20.1101(a) and applicable sections of the SAR Chapter 4 - Radiation Protection. Specifically, the inspectors reviewed documents and interviewed licensee staff concerning the following:

- RP-2-1000-01, Radiation Protection Program, Rev. 11
- RP-2-1000-02, ALARA Program, Rev. 7

- RP-3-3000-08, Bioassay, Rev. 9

#### Radiation Protection Program Review (IP Section 02.02)

The inspectors reviewed the licensee's as low as reasonably achievable (ALARA) Reports, audits, and self-assessments to verify compliance with 10 CFR 20.1101, 20.2102, and Chapter 4 of the SAR. Specifically, the inspectors reviewed the following:

- 2019-A-12-020, UUSA Radiation Protection Program NQA-1 Audit
- 2021-A-12-020, UUSA Radiation Protection Program NQA-1 Audit
- 2019-A-04-006, Radioactive Waste Management NQA-1 Audit
- 2020-S-02-001, Surveillance of Recycling Related IROFS Requirements Flowdown
- QA-3-2000-01, Quality Assurance Audit, Rev. 23

#### Radiation Protection and Radioactive Waste Procedures (IP Section 02.03)

The inspectors assessed the licensee's review and implementation of RP related changes to the plant and procedures to verify compliance with 10 CFR 70.72, Chapters 4 and 11 of the SAR, and AD-3-1000-01, Requirements for Program Documents. Specifically, the inspectors completed the following activities:

- reviewed RP-3-2000-02, Radiological Postings and Access Controls, Rev. 19
- reviewed RP-3-1000-05, Annual ALARA Report, Rev. 0
- reviewed RP-3-2000-07, Contaminated Individual Response, Rev. 12
- reviewed NEF-BD-23b, Personal Respiratory Use for Handling Designated Uranic Material in the CRDB, Rev. 3
- reviewed NEF-BD-24a, Establishment of Airflow Away from the Worker for Handling Designated Uranic Material in the CRDB, Rev. 3
- walked down solid waste collection system (SWCS) 3 and 4
- interviewed rad waste manager regarding categorization and shipment of waste
- observed implementation of IROFS 55a, 55b, 58a, and 58b

#### Training (IP Section 02.04)

The inspectors reviewed RP and radioactive waste related training records, training material, and procedures to verify compliance with 10 CFR 19.12, 19.13, 70.61(f)(2), Chapter 4 of the SAR, and TQ-3-1000-12, Training Guidelines, Rev. 5. Specifically, the inspectors reviewed the following training records for three recycling technicians, two RP technicians, and four RP task qualified individuals:

- GWRECTECH UUSA Recycling Technician Qualification Standard, Rev. 2
- RP-RPTQC, Radiation Protection Technician Qualification Card, Rev. 3
- RPTQIC00, Radiation Protection Task Qualified Individual, Rev. 5
- records of fit testing for respirators

### Safety-Significant Events (IP Section 02.05)

The inspectors reviewed the licensee's review of safety-significant events and RP and radioactive waste related CAP entries to verify compliance with 10 CFR 20.2201, 20.2202, 20.2202(a), 20.2202(b), 20.2203, 70.50, 70.52, 70.74, Part 70 Appendix A, and Chapters 4 and 11 of the SAR. Specifically, the inspectors reviewed documents and interviewed licensee staff concerning the following:

- EV 141584
- EV 140210
- EV 140786
- EV 141551
- EV 142980
- EV 140657
- EV 140786
- EV 141583
- EV 141584
- EV 141585

### Radiation Work Permits (IP Section 02.06)

The inspectors interviewed licensee staff and reviewed radiation work permits (RWPs) to verify compliance with the SAR Chapter 4.4.1. Specifically, the inspectors observed work performed under the following RWPs:

- RWP 21-001, General Facility Access for Inspections, Tours, Planning, and Surveillances
- RWP 21-003, Routine RP Group Activities
- RWP 21-005, Routine Maintenance and Facilities Group Activities

### Instrument Calibration (IP Section 02.07)

The inspectors interviewed licensee staff and reviewed licensee procedures for RP instrument calibration to verify compliance with 10 CFR 20.1501(c) and Chapter 4.7 of the SAR. Specifically, the inspectors observed calibration stickers and reviewed records for the following equipment:

- alpha, beta, and gamma detectors
- Tennelec analyzers
- fixed and portable air monitors
- criticality accident alarm system (CAAS)

### Instruments and Equipment (IP Section 02.08)

The inspectors interviewed licensee staff and reviewed the licensee's use of radiation detecting instruments and equipment to verify compliance with 10 CFR 20.1501(a),

70.24(b), and Chapter 4.8.4 of the SAR. Specifically, the inspectors observed the operability range and usage of the following equipment:

- hand-held survey meters
- hand and foot monitors
- personnel contamination monitors

#### Posting (IP Section 02.09)

The inspectors observed the posting of radiation areas and radioactive material storage areas to verify compliance with 10 CFR 20.1902, 20.1903, and Chapter 4.7.3 of the SAR. Specifically, the inspectors observed postings in the following areas:

- radiation area posting in the entry way to the CRDB processing areas
- internal contamination postings on the trains in the SCDT
- radiation area postings in various locations throughout the CRDB
- contamination posting in the chemistry laboratory

#### Container Labeling (IP Section 02.10)

The inspectors observed the labeling of packages and containers that contain radioactive material to verify compliance with 10 CFR 20.1905 and Chapter 4.7.3 of the SAR. Specifically, the inspectors observed the following types of labels:

- storage areas in the CRDB for containers that may contain radioactive material
- signs with the wording "Caution Radioactive Material"
- an exemption to labeling each container that may contain radioactive material as per 10 CFR 20.1905

#### Posting of Notices (IP Section 02.11)

The inspectors observed the Posting of Notices to verify compliance with 10 CFR 19.11. Specifically, the inspectors observed notices in the following areas:

- the security entrance/exit area
- an external warehouse
- an external office area near the above warehouse

#### Access Control (IP Section 02.12)

The inspectors observed the licensee's access control measures to radiation areas to verify access was in compliance with Chapter 4.7.2 of the SAR. Specifically, the inspectors observed:

- access to radiation areas is posted with signage bearing the radiation trefoil and wording, "CAUTION - RADIATION AREA" - in magenta lettering on a yellow background
- reading and signing the appropriate RWP was required prior to entry
- procuring a electronic dosimeter was required prior to entry

#### Licensed Material Control (IP Section 02.13)

The inspectors observed the licensee's measures to control and maintain constant surveillance of licensed material not in storage to verify compliance with 10 CFR 20.1802. Specifically, the inspectors observed that SNM was stored in labeled containers behind yellow/magenta rope with proper radiological postings in the following areas:

- CRDB
- SBM 1001
- SBM 1003

#### Radiation Surveys (IP Section 02.14)

The inspectors interviewed licensee staff and reviewed records of external radiation surveys to verify compliance with 10 CFR 20.1501(a), 20.2103, Chapter 4.7 of the SAR, and procedure RP-3-2000-04 (Radiation and Contamination Surveys). Specifically, the inspectors interviewed staff and reviewed radiation surveys related to the following areas:

- CRDB
- SBM 1001
- SBM 1003
- SBM 1005

#### Contamination Control (IP Section 02.15)

The inspectors interviewed licensee staff and reviewed records of the licensee's contamination control measures to verify compliance with 10 CFR 20.1501(a), Chapter 4.8.1.2 and 4.8.5.1 of the SAR, and procedure RP-3-2000-04, Radiation and Contamination Surveys. Specifically, the inspectors observed activities related to the following:

- equipment used to measure the contamination levels was within calibration
- contamination surveys in the CRDB
- observed air filter change-outs on continuous air samplers of the CRDB

#### Sealed Sources (IP Section 02.16)

The inspectors observed the storage and control of NRC-licensed sealed sources and reviewed records of leak checks to verify compliance with 10 CFR 20.1903(c) and SAR Chapter 4.11.1. Specifically, the inspectors observed or reviewed the following:

- the storage room for sealed sources
- several sealed and unsealed sources listed as NRC-licensed sources
- reviewed the last two years of leak test records

#### Occupational Dose Results (IP Section 02.17)

The inspectors reviewed records of the occupational doses received by workers to verify compliance with 10 CFR 20.1201, 20.1207, 20.1208, and Chapter 4 of the SAR. Specifically, the inspectors reviewed the following:

- Occupational Radiation Exposure Report dated 02/05/2020
- Occupational Radiation Exposure Report dated 05/07/2020
- Occupational Radiation Exposure Report dated 08/10/2020
- Occupational Radiation Exposure Report dated 10/09/2020

#### Exposure Controls (IP Section 02.18)

The inspectors observed engineering controls used to keep doses ALARA by controlling the air flow from areas of lesser contamination to areas of higher contamination in order to verify compliance with 10 CFR 20.1101(b), 20.1701, and Chapters 4.6 and 4.8 of the SAR. Specifically, the inspectors observed:

- chemical hoods and gloveboxes were maintained at a slightly negative air flow compared to the air flow outside of these units
- the GEVS for the CRDB was routed through a bank of pre-filters and high efficiency particulate air (HEPA) filters prior to being discharged through an exhaust stack
- verified IROFS 24b was implemented
- the licensee has National Institute for Occupational Safety and Health (NIOSH) approved respirators and cartridges for any jobs requiring respirator usage

#### Bioassay Program (IP Section 02.19)

The inspectors interviewed licensee staff and reviewed the bioassay program to verify compliance with 10 CFR 20.2103(b)(3) and Chapter 4 of the SAR. Specifically, the inspectors interviewed licensee staff, and reviewed records related to the following:

- Uranic Bioassay Analysis Results dated 11/16/2020
- Cardinal Labs Bioassay Analysis dated 02/18/2021
- RP-3-4000-F-1, Dose Evaluation Report 2020-001 dated 04/17/2020

#### Whole Body Counting (IP Section 02.20)

The inspectors verified that this section was not applicable as the licensee does not use whole body counters as a means of in vivo counting.

### Dosimetry (IP Section 02.21)

The inspectors observed that dosimetry was properly worn by workers and reviewed dosimetry records to verify compliance with 10 CFR 20.1502(a) and the applicable RWPs 20.1501(d) and Chapter 4.7.5 of the SAR. Specifically, the inspectors reviewed the following:

- Occupational Radiation Exposure Report dated 02/05/2020
- Occupational Radiation Exposure Report dated 05/07/2020
- Occupational Radiation Exposure Report dated 08/10/2020
- Occupational Radiation Exposure Report dated 10/09/2020
- Dosimetry worn by licensee personnel working in SNM areas

### Dose Assessment Programmatic Review (IP Section 02.22)

The inspectors interviewed licensee staff and reviewed records and calculations related to the licensee's assessment of the dose to workers to verify compliance with 10 CFR 20.1202, 20.1204, 20.1502(b), 20.2104, and 20.2106, as well as Chapter 4 of the SAR. Specifically, the inspectors interviewed licensee staff and reviewed records related to the following:

- Uranic Bioassay Analysis Results dated 11/16/2020
- Cardinal Labs Bioassay Analysis dated 02/18/2021
- RP-3-4000-F-1, Dose Evaluation Report 2020-001 dated 04/17/2020
- Radiation Safety Committee Minutes 10/22/2020
- Radiation Safety Committee Minutes 04/24/2020

### As Low As Reasonably Achievable (ALARA) (IP Section 02.23)

The inspectors interviewed licensee staff and reviewed records related to the implementation of the ALARA program to verify compliance with 10 CFR 20.1101(b) and Chapter 4 of the SAR. Specifically, the inspectors interviewed licensee staff and reviewed records related to the following:

- Annual ALARA Report CY2019, Rev. 0
- Radiation Safety Committee Minutes 10/22/2020
- Radiation Safety Committee Minutes 04/24/2020

## **FACILITY SUPPORT**

### IP 88070 - Permanent Plant Modifications

The inspectors performed onsite follow-up to the remote Permanent Plant Modifications inspection detailed in inspection report 70-3103/2020-004 (ML21028A706).

### Sample Selection (IP Section 02.01)

The inspectors performed field walkdowns, reviewed documents, and observed operator activities related to plant modifications. Specifically, the inspectors performed the following:

- observed an operator perform Attachment 4 of the autoclave liquid sampling procedure OP-03-0470-01 including implementation of IROFS42 and IROFS28
- conducted a walkdown of MOD-19-0032, RTD Support Modification for the UTC Sub-Sampling Rig
- conducted a walkdown of MOD-2019-140, Replace Existing Boiler Unit on SCDT with Tankless Water Heater
- reviewed revision to ORM C23 and OP-3-0450-03 based on results from CALC-S-00136 regarding the impact on IROFS C23 of crashed/idled machines

## INSPECTION RESULTS

Unresolved Item (Open)	Independence of the Radiation Protection Program URI 07003103/2021002-01	88020
<p><u>Description:</u> During a review of the organizational structure of the Operations department, NRC staff identified an Unresolved Item (URI) related to the independence of the RP organization. On April 12th, 2021, Urenco implemented an organizational change that eliminated the RP Supervisor position, merged the Chemistry and RP departments, and created the Chemistry and RP Manager position that reported to the Operations Manager. NRC staff questioned Urenco on how they planned to maintain independence of the RP program with this change. Urenco had not completed a Change Management Plan prior to implementing this change, which would have evaluated how the Urenco RP department planned to maintain its independence. Independence of the RP program is required per Safety Analysis Report Section 4.1.3, which states that "...the RP program is independent of the facility's production activities. This independence ensures that the RP program maintains its objectivity and is focused only on implementing sound radiation protection principles necessary to achieve doses that are ALARA. As previously noted in section 4.1.1.3, in matters involving radiation protection, the RP Supervisor has direct access to the Chief Nuclear Officer (CNO)." This URI is being opened to determine whether or not a violation exists.</p> <p>Planned Closure Actions: Urenco is creating a Change Management Plan to address how the Urenco RP department planned to maintain its independence after the organizational change. The Change Management Plan will also evaluate the impact of the organizational change on Urenco's established programs and processes. The results of the Change Management Plan are needed to inform NRC's assessment of the issue of concern.</p> <p>Licensee Actions: The licensee generated EV 143431 in response to NRC staff's concerns. They conducted interviews with representatives from Chemistry and RP to inform the change management process and are currently developing the change management package.</p> <p>Corrective Action References: EV 143431</p>		



## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On June 30, 2021, the inspectors presented the integrated inspection results to Mr. Wyatt Padgett and other members of the licensee staff.
- On May 6, 2021, the inspectors presented the Exit Meeting inspection results to Karen Fili and other members of the licensee staff.
- On April 8, 2021, the inspectors presented the Exit Meeting inspection results to Karen Fili and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88015	Corrective Action Documents	EV 137740		
88015	Corrective Action Documents	EV 138808		
88015	Corrective Action Documents	EV 137835		
88015	Corrective Action Documents	EV 139011		
88015	Corrective Action Documents	EV 140415		
88015	Miscellaneous		Urenco USA General Employee Training	06/2019
88015	Miscellaneous		SWCS Qualification List	04/01/2021
88015	Miscellaneous	51-2400542-01-LES	Solid Waste System HAZOP and Risk Determination Analysis	Rev 3
88015	Miscellaneous	2021-A-01-002	NCS NQA-1 Audit	02/23/2021
88015	Miscellaneous	EG-3-3200-02-F-1	NCS Analysis/Evaluation	11/05/2020
88015	Miscellaneous	GWIROFSQC	Deco and Recycling IROFS Certification Program - Operator Records	04/07/2021
88015	Miscellaneous	GWRECTECH	USSA Recycling Technician Qualification Standard - Operator Training Record	04/07/2021
88015	Miscellaneous	GXNSWLP00I00ILT	Nuclear Safety Worker	Rev 11
88015	Miscellaneous	ISA-HAZ_0009	GEVS HAZOP and Risk Determination Analysis	
88015	Miscellaneous	NCS Walkthrough Log		
88015	Miscellaneous	NCS-CSA-007	NCSA of GEVS Units in the SBM	Rev 5
88015	Miscellaneous	NCS-CSA-007	NCS Analysis of GEVS Units in SBM	Rev 5
88015	Miscellaneous	NCS-CSA-031	NCSA of the Small Component Decontamination Train	Rev 1
88015	Miscellaneous	NCS-CSA-035	NCSA of the Multifunctional Decontamination Train (MFDT)	Rev 0
88015	Miscellaneous	NCS-CSA-037	NCSA of the Slab Tanks	Rev 0
88015	Miscellaneous	NCS-CSE-008	NCSE of the HVAC Filters	Rev. 1
88015	Miscellaneous	NCS-CSE-026	NCSE for the Sample Bottle Outgassing Station	Rev 6
88015	Miscellaneous	TQ-3-0100-12-F-10	Training Approval Form - Nuclear Safety Training: Nuclear	06/23/2020

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			Safety Worker	
88015	Miscellaneous	TQ-3-0100-12-F-10	Training Approval Form - Qualification GET	06/14/2019
88015	Procedures	CR-3-1000-04	Response to Nuclear Criticality Safety Anomalous Condition or Criticality Accident	Rev 4
88015	Procedures	EP-3-0200-10	Criticality Emergency Response	Rev 6
88020	Calculations	1003-9-2021-011 CALC	Cascade Hall 1003/1004 Transient Combustible Permit	05/04/2021
88020	Calculations	CALC-F-00001	Fire Hazard Analysis Combustible Loading	Rev. 20
88020	Calculations	ETC-UPD0202978	Calculation of the Temperature at which a Full Cylinder will Hydraulically Rupture	05/01/04
88020	Calculations	LES-K-0011	LES Calculation Title Process Station Defrost Heater and Fan High Temperature Trip - RTD (IROFS1)	0
88020	Corrective Action Documents	EV 137784	CRDB IROFS36a Surveillance Unsat Conditions	04/07/2020
88020	Corrective Action Documents	EV 140714	IROFS30a	08/21/2020
88020	Corrective Action Documents	EV137784	CRDB IROFS36a Surveillance Unsat Conditions	04/07/2020
88020	Corrective Action Documents	EV137786	Unsat IROFS 36d Weekly Inspection	04/07/2020
88020	Corrective Action Documents	EV138588		06/29/2020
88020	Corrective Action Documents	EV138592		06/29/2020
88020	Corrective Action Documents	EV138593		06/29/2020
88020	Corrective Action Documents	EV138594		06/29/2020
88020	Corrective Action Documents	EV138595		06/29/2020
88020	Corrective Action Documents	EV138696		06/15/2020
88020	Corrective Action Documents	EV140846		10/22/2020

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88020	Corrective Action Documents	EV143153		03/11/2021
88020	Corrective Action Documents Resulting from Inspection	EV 144714	IROFS36a Transient Combustible Inspection SBM 1003	05/04/2020
88020	Drawings	NFT-40012108	Tri-Clamp Orifice Spool Detail	Rev. A
88020	Engineering Evaluations	NEF-BD-01	Auto Trip of Station Defrost Heater Fan (RTD)	3
88020	Engineering Evaluations	NEF-BD-02	Auto Trip of Station Defrost Heater & Fan (T/C)	3
88020	Engineering Evaluations	NEF-BD-30a	Limit Hydrocarbon Oil by Controlling Type Used	Rev. 5
88020	Engineering Evaluations	NEF-BD-30b	Limit Hydrocarbon Oil by Testing Prior to Adding to Pump	Rev. 7
88020	Engineering Evaluations	NEF-BD-30c	Limit Hydrocarbon Oil by Testing Prior to Operation	Rev. 7
88020	Engineering Evaluations	NEF-BD-31a	Limit Uranic Mass Inventory in Non-Safe-By-Design Solid Waste Containers	Rev. 13
88020	Engineering Evaluations	NEF-BD-36a	Limit Transient Combustible Loading in Uranic Areas	Rev. 17
88020	Engineering Evaluations	NEF-BD-36a	Limit Transient Combustibles in Uranic Areas	17
88020	Engineering Evaluations	NEF-BD-C21	Flow Restriction for Vacuum Pumps Used for Sampling or Evacuation	Rev. 8
88020	Engineering Evaluations	NF-BD-02	Autotrip of Station Defrost Heater and Fan (T/C)	3
88020	Engineering Evaluations	ORM 30	Limit Hydrocarbon Oil (Moderator Mass) in Enriched Uranium Product	Rev. 4
88020	Engineering Evaluations	ORM 36a	Administratively Limit Transient Combustible Loading	Rev. 9
88020	Engineering Evaluations	ORM C23	Design Feature of Centrifuges to Minimize Releases	Rev. 5
88020	Miscellaneous	OPQCRO00	Control Room Operator Certification Card for C. Slaughter	03/02/21

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88020	Miscellaneous	OSIROFSQC00100	IROFS and Operating Requirements Manual Operations Training Program	Rev. 09
88020	Miscellaneous	PR-3-2000-02-F-1	Receipt Inspection Plan for PO 4500134982	Rev 22
88020	Miscellaneous	QA-3-3000-18-F-1	QC Receipt Inspection Plan Report for PO 4500134982	Rev. 15
88020	Procedures	FP-3-2000-04	IROFS35 Weekly Fire Door Inspection and IROFS36a Combustible Control Inspection SBM	Rev. 18
88020	Procedures	MA-3-0400-03	Installation and Verification of Flow Restriction Orifice (IROFSC21)	Rev. 2
88020	Procedures	MA-3-2000-01	PFPE Oil Sampling	Rev. 5
88020	Procedures	MA-3-2000-03	Oil Addition to Vacuum Pumps	Rev. 10
88020	Procedures	MA-3-3400-01	IROFS1 Station Heater and Fan High Temperature Trip - RTD Surveillance	12
88020	Procedures	MA-3-3400-02	IROFS2 Station Heater and Fan High Temperature Trip - TC Surveillance	14
88020	Procedures	RW-3-1000-18	Bulking Enriched Waste	Rev. 8
88020	Self-Assessments	2020-A-01-003	Report for UUSA Louisiana Energy Services, LLC Maintenance (M&TE) [limited scope] NQA-1 Audit	03/11/2020
88020	Self-Assessments	2020-A-06-011	Report for UUSA Louisiana Energy Services, LLC Procedures Program Biennial NQA-1 Audit	07/07/2020
88020	Self-Assessments	2020-A-10-018	Report for Ureco USA (UUSA) IROFS Compliance NQA-1 Audit	11/18/2020
88020	Work Orders	PO 4500134982	Purchase Order for PFPE Oil	09/02/2020
88020	Work Orders	WO 1000035476	IROCSC21 Install Flow Restriction Orifice	11/15/2011
88020	Work Orders	WO 1000353915	7 Bar Rig C21 Orifice Install	11/15/2018
88020	Work Orders	WO 1000461456	IROFS30a, b, and c Add Oil and Sample	09/15/2020
88020	Work Orders	WO1000465351	1W: IROFS35, Fire Doors Inspect	03/01/2021
88020	Work Orders	WO1000465352	1W: IROFS35, Fire Doors Inspect	03/08/2021
88020	Work Orders	WO1000465354	1W: IROFS35, Fire Doors Inspect	03/22/2021
88020	Work Orders	WO1000465884	1W: 1003 IROFS36A COMBUST CONT INSP	05/04/2021
88030	ALARA Plans		Annual ALARA Report CY2019	04/30/2020
88030	Corrective Action Documents	EV 140210		
88030	Corrective Action	EV 140657		

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	Documents			
88030	Corrective Action Documents	EV 140786		
88030	Corrective Action Documents	EV 140786		
88030	Corrective Action Documents	EV 140786		
88030	Corrective Action Documents	EV 141476		
88030	Corrective Action Documents	EV 141534		
88030	Corrective Action Documents	EV 141551		
88030	Corrective Action Documents	EV 141583		
88030	Corrective Action Documents	EV 141584		
88030	Corrective Action Documents	EV 141585		
88030	Corrective Action Documents	EV 142980		
88030	Corrective Action Documents Resulting from Inspection	EV 143431		
88030	Corrective Action Documents Resulting from Inspection	EV 143435		
88030	Miscellaneous		Radiation Safety Committee Minutes	04/24/2020
88030	Miscellaneous		RMA Exit Monitoring Requirements Training	
88030	Miscellaneous		UUSA Organizational Chart	01/27/2021
88030	Miscellaneous		Integrated Safety Analysis Summary	Revision 32
88030	Miscellaneous		Safety Analysis Report	Revision 48

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88030	Miscellaneous		Uranic Bioassay Analysis Reslts	11/16/2020
88030	Miscellaneous		Cardinal Labs Bioassay Analysis	02/18/2021
88030	Miscellaneous		Occupational Radiation Exposure Report	02/05/2020
88030	Miscellaneous		Occupational Radiation Exposure Report	05/07/2020
88030	Miscellaneous		Occupational Radiation Exposure Report	08/10/2020
88030	Miscellaneous		Occupational Radiation Exposure Report	10/09/2020
88030	Miscellaneous		NRC Form 3	08/2017
88030	Miscellaneous		Posting Locations for NRC Form 3	
88030	Miscellaneous		Aggregate Source Inventory (excluding UF6 cylinders)	01/26/2021
88030	Miscellaneous	GWRECTECH	UUSA Recycling Technician Qualification Standard - Purvis, Beadnell, and Sewell	Rev. 2
88030	Miscellaneous	Radiation Safety Committee Minutes		10/22/2020
88030	Miscellaneous	RP-RPTQC	Radiation Protection Technician Qualification Card - Creed and Anderson	Rev. 3
88030	Miscellaneous	RPTQIQC00	Radiation Protection Task Qualified Individual - Anderson, Holguon, Hurlbut, and Harris	Rev. 5
88030	Miscellaneous	RW-3-1000-01-F-1	Hazardous Waste Storage Area Weekly Inspection	04/07/2021
88030	Miscellaneous	RW-3-1000-01-F-11	Non-Radioactive Used Oil	04/07/2021
88030	Miscellaneous	RW-3-1000-01-F-3	Hazardous Waste Storage Area Inventory	04/07/2021
88030	Miscellaneous	RW-3-1000-01-F-7	Radioactive Waste Storage Area Weekly Inspection	04/07/2021
88030	Miscellaneous	RW-3-1000-01-F-8	Radioactive Waste Storage Area Inventory	04/07/2021
88030	Miscellaneous	RW-3-1000-01-F-9	RCRA Weekly Inspection Cover Sheet	04/07/2021
88030	Miscellaneous	RW-3-1000-11-F-1	Inspection of Universal Waste Storage Area(s)	04/07/2021
88030	Procedures	AD-3-1000-01	Requirements for Program Documents	Rev. 34
88030	Procedures	EG-3-3100-06-F-7	Integrated Safety Analysis Process (Hazard and Risk Determination Analysis ISA Record Cover Form)	Revision 16
88030	Procedures	LS-4-1000-03	Processing Correspondence	Revision 4
88030	Procedures	NEF-BD-23b	Personal Respiratory Use for Handling Designated Uranic Material in the CRDB	Revision 3
88030	Procedures	NEF-BD-24a	Establishment of Airflow Away From the Worker for Handling Designated Uranic Material in the CRDB	Revision 3
88030	Procedures	QA-3-2000-01	Quality Assurance Audit	Rev. 23

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88030	Procedures	RP-2-1000-01	Radiation Protection Program	Rev. 11
88030	Procedures	RP-2-1000-02	ALARA Program	Rev. 7
88030	Procedures	RP-2-4000-01	Respiratory Protection Program	Revision 6
88030	Procedures	RP-3-1000-05	Annual ALARA Report	Rev. 0
88030	Procedures	RP-3-2000-01	Radiation Work Permits	Revision 16
88030	Procedures	RP-3-2000-02	Radiological Postings and Access Controls	Rev. 19
88030	Procedures	RP-3-2000-03	Labeling of Radioactive Material	Revision 5
88030	Procedures	RP-3-2000-04	Radiation and Contamination Surveys	Revision 14
88030	Procedures	RP-3-2000-07	Contaminated Individual Response	Rev. 12
88030	Procedures	RP-3-2000-12	Radioactive Source Control	Revision 9
88030	Procedures	RP-3-3000-08	Bioassay	Rev. 9
88030	Procedures	RP-3-3000-19	Personnel Contamination Monitors	Revision 10
88030	Procedures	RP-3-4000-01	Respiratory Protection	Revision 8
88030	Procedures	RP-3-4000-03-F-1	Dose Evaluation Report 2020-001	04/17/2020
88030	Procedures	RP-3-4000-07	Portable Instruments	Revision 10
88030	Procedures	RP-3-4000-10	Continuous Air Monitors	Revision 6
88030	Procedures	RP-3-4000-17	Personal Air Monitors	Revision 5
88030	Procedures	RP-3-4000-26	QC Checks of the Ludlum Model 2929 Dual Scaler	Revision 3
88030	Procedures	RP-3-4000-29	Operation of the Ludlum Model 375 Area Radiation Monitor	Revision 4
88030	Procedures	RW-2-1000-01	Waste Acceptance Program	Revision 8
88030	Procedures	RW-3-1000-01	Waste Management	Revision 9
88030	Procedures	RW-3-1000-09	Radioactive Waste Container Setup, Handling and Disposition	Revision 18
88030	Procedures	RW-3-1000-18	Bulking Enriched Waste	Revision 8
88030	Procedures	RW-3-4000-01	Startup, Shutdown, and Operations of the SCDT	Rev. 10
88030	Procedures	TQ-3-1000-12	Training Guidelines	Rev. 5
88030	Radiation Surveys	20-0120	Sealed and Unsealed Source Inventory and Survey	07/24/2020
88030	Radiation Surveys	21-0029	Sealed and Unsealed Source Inventory and Survey	January-March 2021
88030	Radiation Work Permits (RWPs)	21-001		Revision 0
88030	Radiation Work	21-002		Revision 0



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	Permits (RWPs)			
88030	Radiation Work Permits (RWPs)	21-003		Revision 0
88030	Radiation Work Permits (RWPs)	21-004		Revision 0
88030	Radiation Work Permits (RWPs)	21-005		Revision 0
88030	Radiation Work Permits (RWPs)	21-006		Revision 0
88030	Radiation Work Permits (RWPs)	21-007		Revision 0
88030	Radiation Work Permits (RWPs)	21-008		Revision 0
88030	Radiation Work Permits (RWPs)	21-009		Revision 0
88030	Radiation Work Permits (RWPs)	21-010		Revision 0
88030	Radiation Work Permits (RWPs)	21-011		Revision 0
88030	Self-Assessments	2019-A-04-006	Radioactive Waste Management NQA-1 Audit	06/06/2019
88030	Self-Assessments	2019-A-12-020	UUSA Radiation Protection Program NQA-1 Audit	01/11/2020
88030	Self-Assessments	2020-S-02-001	Surveillance of Recycling Related IROFS Requirements Flowdown	02/28/2020
88030	Self-Assessments	2021-A-01-001	UUSA Radiation Protection Program NQA-1 Audit	02/02/2021
88030	Work Orders	1000421714		05/20/2020
88030	Work Orders	1000438968		11/17/2020
88030	Work Orders	1000466558		04/07/2021
88070	Calculations	CALC-S-00136	Impact on IROFS C23 Due to Crashed/Idled Machines	Rev. 2
88070	Engineering Changes	10 CFR 70.72(c) Screen 2019-004	Revision to Liquid Sampling Procedure OP-3-0470-01	01/23/2019
88070	Engineering Changes	10 CFR 70.72(c) Screen 2019-103	Modification of IROFS 43 RTD Brackets	05/28/2019
88070	Engineering Changes	10 CFR 70.72(c) Screen 2019-206	Revision to ORM C23	10/01/2019

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88070	Engineering Changes	10 CFR 70.72(c) Screening 2019-140	Install Tankless Water Heater on SCDT	06/13/2019
88070	Engineering Changes	MOD-18-0012C	SCDT Boiler Replacement with Tankless Water Heater Unit	08/01/2019
88070	Engineering Changes	MOD-19-0032	RTD Support Modification for UTC Sub-Sampling Rig	05/25/2019
88070	Procedures	OP-3-0450-03	(U) IROFS C23 Surveillance Procedure	
88070	Procedures	OP-3-0470-01	Liquid Sampling System	31