



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

EN56550
EN56670

January 5, 2024

Wyatt Padgett
Compliance Manager
Louisiana Energy Services dba URENCO USA (UUSA)
URENCO USA
P.O. Box 1789
Eunice, NM 88231

SUBJECT: URENCO USA – INTEGRATED INSPECTION REPORT 07003103/2023004

Dear Wyatt Padgett:

On December 7, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed inspections at URENCO USA and discussed the results of these inspection with you and other members of your staff. The results of these inspections are documented in the enclosed report.

No violations of more than minor significance were identified during these inspections.

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,

A handwritten signature in black ink, appearing to read "R. Williams".

Signed by Williams, Robert
on 01/05/24

Robert E. Williams, 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 – INTEGRATED INSPECTION REPORT 07003103/2023004
DATED JANUARY 5, 2024

DISTRIBUTION:

J. Rowley, NMSS
M. Bartlett, NMSS
A. Masters, RII
T. Sippel, RII
P. Startz, RII
T. Shewmaker, RII
R2EICS
PUBLIC

ADAMS ACCESSION NUMBER: **ML24004A129**

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RII/DFFI	RII/DFFI	RII/DFFI	RII/DFFI	
NAME	T. Shewmaker	P. Startz	T. Sippel	R. Williams	
DATE	01/4/2024	01/5/2024	01/4/2024	01/5/2024	

OFFICIAL RECORD COPY

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

Docket Number: 07003103

License Number: SNM-2010

Report Number: 07003103/2023004

Enterprise Identifier: I-2023-004-0066

Licensee: Louisiana Energy Services dba URENCO USA (UUSA)

Facility: URENCO USA

Location: Eunice, NM

Inspection Dates: October 16, 2023, to December 7, 2023

Inspectors: T. Shewmaker, Fuel Facility Inspector
T. Sippel, Sr. Fuel Facility Project Inspector
P. Startz, Fuel Facility Inspector

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

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at URENCO USA, 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
WER	07003103/2023-003-00	Partial Loss of Criticality Accident Alarm System (EN56550)	88015	Closed
WER	07003103/2023-004-00	No Analysis for Stacked Containers When Not in an Engineered Storage Array (EN56670)	88015	Closed

PLANT STATUS

The UUSA Facility in Eunice, New Mexico enriches uranium hexafluoride (UF₆) using gas centrifuge technology. During the inspection period, normal production activities were ongoing.

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

88015 - Nuclear Criticality Safety

The inspectors evaluated selected aspects of the licensee's Nuclear Criticality Safety (NCS) program to verify compliance with selected portions of Title 10 of the *Code of Federal Regulations* (10 CFR) 70, including 70.24, 70.50, 70.61, 70.62, and Appendix A, Chapter 5, "Nuclear Criticality Safety," of the facility's license application, and applicable licensee procedures.

Criticality Analysis (IP Section 02.01)

The inspectors interviewed licensee staff and reviewed criticality safety evaluations (CSEs) and analyses (CSAs), to verify compliance with 10 CFR 70 and applicable sections of the license application, including 5.2.1.3, 5.2.1.4, 5.2.1.6 and 5.2.1.7. Specifically, the inspectors interviewed licensee staff and reviewed the following:

- NCS-CSA-013, Nuclear Criticality Safety Analysis of 55-Gallon Waste Drums, Revision (Rev.) 6, including the review of normal and credible abnormal conditions, non-credible accident sequences, and calculation assumptions, inputs and results
- NCS-CSA-022, "Safe Spacing for SBD Waste Drums Involving Decontamination Activities," Rev. 4, specifically reviewing the basis for non-credible stacking upsets, and reviewing the calculation assumptions, inputs and results
- NCS-CSA-035, "Nuclear Criticality Safety Analysis of the Multifunction Decontamination Train (MFDT)," Rev. 1, including the review of accident sequences DS1-6 and DS1-7, which cover loss of mass control scenarios in the MFDT, and reviewing the calculation assumptions, inputs and results
- NCS-CSA-031, "Nuclear Criticality Safety Analysis of the SCDT," Rev. 3, including the review of what-if analysis, normal and credible abnormal

conditions, and accident sequence DS7-1 in the small component decontamination train (SCDT)

- NCS-CSE-026, "NCSE for the Sample Bottle Outgassing Station," Rev. 7, including the review of changes made to the CSE to allow additional operational flexibility
- Walked down the SCDT and MFDT to verify that they were in accordance with what was analyzed in the CSA (e.g., sample ports in correct location, nearby equipment included as necessary in the analysis)

Criticality Implementation (IP Section 02.02)

The inspectors selected engineered and administrative controls, including items relied on for safety (IROFS) from the licensee's integrated safety analysis summary to verify proper implementation through a review of process and system descriptions, plant walkdowns, and operator interviews to verify compliance with 10 CFR 70 and applicable sections of the license application. Specifically, the inspectors interviewed licensee staff and reviewed the following controls, and their management measures:

- a non-IROFS administrative spacing control, applied to Uranium barring components and containers in the various facility areas, including the decontamination workshop, and spacer 'donut' used as a visual operator aid
- administrative mass control IROFS54a/b for the SCDT, and associated operating procedure RW-3-4000-01
- administrative mass control IROFS56a/b for the MFDT, and associated operating procedure RW-3-4000-02
- administrative mass control IROFS57a/b for the MFDT, and associated operating procedure RW-3-4000-02
- passive engineered volume control used for various 'safe-by-design' components and containers

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 license application, including 5.1 and 11.5.1. Specifically, the inspectors:

- interviewed NCS staff concerning criticality hazards and control methods, including monitoring for long-term accumulations in the SCDT and MFDT
- observed a licensee NCS engineer conduct an NCS weekly walkthrough of the pump rebuild workshop and reviewed a sample of records documenting recent NCS weekly walkthroughs in 2023, and interviewed licensee management concerning scheduling of NCS weekly walkthroughs
- interviewed a recycling operator concerning criticality hazards and control methods, including the use of IROFS 54a/b, 56a/a and 57a/b during SCDT and MFDT operations, including how they monitor for and prevent long-term accumulations

Criticality Programmatic Oversight (IP Section 02.04)

The inspectors reviewed recent changes to NCS program procedures, audits, and interviewed NCS staff about in-progress qualifications to verify compliance with 10 CFR 70 and applicable sections of the license application, including 11.5.2. Specifically, the inspectors interviewed licensee NCS staff and reviewed the following documents:

- interviewed a qualifying NCS engineer concerning the qualification process and status
- the most recent audit of the licensee's NCS program by the licensee's quality assurance function, which was documented in: 2023-A-02-003, "Nuclear Criticality Safety Program NQA-1 Biennial Audit," dated March 1, 2023
- the most recent NCS self-assessment: SA-2023-001, "Nuclear Criticality Safety Programmatic Self-Assessment," dated April 21, 2023
- the most recent revision to licensee procedures: EG-3-3200-02, "Nuclear Criticality Safety Analysis/Evaluation," and EG-3-3200-03, "Safe-By-Design Attribute Verification"

Criticality Incident Response and Corrective Action (IP Section 02.05)

The inspectors reviewed the licensee's criticality accident alarm system (CAAS) and corrective action program (CAP) to verify compliance with 10 CFR 70 and applicable sections of the license application, including 5.4. Additionally, the inspectors followed-up on two WERs related to a CAAS failure and issue with the analysis of stacked drums. Specifically, the inspectors:

- reviewed selected NCS and CAAS-related CAP entries and interviewed licensee staff about the CAP entries, including several that were opened as a result of the licensee audits and self-assessments listed above
- reviewed CAAS tests results documented in work order (WO) 1000585793 to verify that the CAAS audibility and detector logic were being tested
- interviewed licensee staff about NCS evacuation drill plans for December 13, 2023, observed evacuation maps posted in the facility

FACILITY SUPPORT

88051 - Evaluation of Exercises and Drills

The inspectors observed and evaluated the licensee's graded biennial exercise conducted on October 18, 2023, as well as briefings and critiques (involving both onsite and offsite participants), to verify compliance with 10 CFR 70.32(i) and the Emergency Plan. The scenario included a truck carrying a 48Y cylinder crashing into a 10,000 gallon fuel tank due to medical incapacitation of the driver. The crash resulted in a breach of the fuel tank and subsequent ignition of the spilling fuel, which engulfed the cylinder. After 30 minutes, the cylinder failed and a UF6 release occurred.

Exercise Planning (IP Section 02.01)

The inspectors reviewed the emergency exercise scenario, discussed the exercise objectives with licensee personnel, observed player and controller/evaluator briefings, and walked down the plant areas before the exercise to verify compliance with the Emergency Plan, emergency procedures and 10 CFR 70.32(i). The inspectors reviewed the following:

- the frequency of exercises conducted by the licensee
- the scenario as it related to testing all elements of the Emergency Plan and probability
- pre-staging of equipment and exercise props in preparation for the exercise
- duties and responsibilities for exercise personnel including players, actors, controllers, evaluators, and observers
- confidentiality of the scenario and objectives
- plans to address a real world emergency that occurred during the exercise
- the use of props and simulation during the exercise

Exercise Execution and Emergency Plan Implementation (IP Section 02.02)

The inspectors observed the initiation of the emergency exercise, the activation of the Emergency Operations Center (EOC), notifications being sent out, protective action recommendations being generated, periodic briefings, recovery and re-entry planning, and reviewed notification documents and chemical release assessments to verify compliance with the Emergency Plan, emergency procedures and 10 CFR 70.32(i). The inspectors reviewed or observed the following:

- the licensee's analysis of plant conditions including assessment and classification of the accident scenario
- staffing for all EOC positions
- protective action recommendations implemented by the EOC and control room
- drafting of offsite notifications including a review of content and time of issuance
- onsite communication to occupational workers as it related to protective action recommendations
- occupational workers participation in protective actions (e.g., shelter-in-place)
- the Emergency Director's command and control of the EOC
- dose assessor use of applicable Radiological Assessment System for Consequence Analysis software and use of the dose assessment/chemical release during assessment of the accident scenario
- response coordinators' recommendations regarding conditions for terminating the event and restarting normal operations
- recovery planning by the EOC
- members of the licensee's emergency response team assembly at designated assembly areas and the arrival of offsite emergency responders including fire, HAZMAT, police, etc.
- emergency response team's actions including search and rescue activities for casualties, initial medical treatment, and assessment of the affected area
- response to emerging situations to address the exercise scenario and meet the exercise objectives

- the Incident Commander's command and control of the emergency response team and coordination of actions with offsite emergency responders

Critiques, Exercise Control, and Identification and Resolution of Problems (IP Section 02.03)

The inspectors observed the staff critiques of the emergency exercise and reviewed the licensee's related CAP entries to verify compliance with the Emergency Plan, emergency procedures and 10 CFR 70.32(i). The inspectors reviewed the following:

- hot washes conducted by the licensee immediately following the exercise
- critiques conducted by the licensee
- documented deficiencies identified during critiques including items planned for entry into the licensee's CAP

INSPECTION RESULTS

WER	Partial Loss of Criticality Accident Alarm System (EN56550) WER 2023-003	88015
<p>Description: On June 1, 2023, the licensee reported (EN56550) a partial loss of the CAAS detector coverage required by 10 CFR 70.24. This report was made in accordance with 10 CFR 70.50(b)(2).</p> <p>The inspectors interviewed licensee staff, including the technicians who worked on the CAAS, reviewed the licensee's CAP entry (EV 160632, "BCI UUSA Reportable - CAAS D15/D16 Detector Actuated Indication in Phase II CAAS"), reviewed the licensee's work order to fix the issue (WO 1000607479, "TSB: 561-LCS2 Detector D15/D16 Activated") and the licensee's 30-day report (Agencywide Documents Access and Management System (ADAMS) Accession No.: ML23177A118). The inspectors verified that the licensee's testing following this event included checking the functionality of the CAAS with a gamma source to determine that the CAAS detectors were functional during the time period that EN56550 was reported and that the CAAS would have alarmed as required. Therefore, CAAS coverage was never actually lost. The CAAS was then repaired to proper functionality so that CAAS' self-monitoring features no longer incorrectly showed failures. No violations were identified.</p> <p>This closes WER 07003103/2023-003-00, "Partial Loss of Criticality Accident Alarm System (EN56550)."</p>		

WER	No Analysis for Stacked Containers When Not in an Engineered Storage Array (EN56670) WER 2023-004	88015
<p>Description: On August 8, 2023, the licensee reported (EN56670) that they had identified a potential unanalyzed condition in that their criticality safety analysis did not analyze for stacked, criticality safe containers when not in an engineered storage array. The licensee stopped work and verified that no containers were actually stacked in this way before further reviewing the situation.</p> <p>The inspectors reviewed this event, including reviewing the licensee's CAP entry (EV 161478, "BCI UUSA Reportable Stacked Isolated CSA Containers Not Analyzed in NCS-CSA-022"),</p>		

the licensee's CSA (NCS-CSA-022, "Safe Spacing for SBD Waste Drums Involving Decontamination Activities"), the licensee's 60-Day report (ADAMS Accession Numbers: ML23268A318 and ML23268A319) and interviewing licensee NCS engineers.

Upon completing their further review the licensee determined that the container stacking upset in question had been analyzed, but was not clearly documented and discussed in NCS-CSA-022, Rev. 3. Therefore, the licensee issued Rev. 4, with additional discussion of the container stacking upset to clarify how it was analyzed and that a resulting criticality was incredible. The inspectors reviewed both versions of the CSA, walked down the area and interviewed licensee engineers concerning the rationale for the incredibility determination. No violations were identified.

This closes WER 07003103/2023-004-00, "No Analysis for Stacked Containers When Not in an Engineered Storage Array (EN56670)."

EXIT MEETINGS AND DEBRIEFS

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

- On October 19, 2023, the inspectors presented the emergency preparedness exercise inspection results to Karen Fili and other members of the licensee staff.
- On December 7, 2023, the inspectors presented the nuclear criticality safety inspection results to Scott Diggs and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88015	Corrective Action Documents	EV 160068, EV 160566, EV 160887, EV 160997, EV 160999, EV 161088, EV 161192, EV 161346, EV 161413, EV 161997, EV 162109, EV 162186, EV 162187, EV 162783	NCS and CAAS-Related CAP Entries	Various in 2023
		EV 160632	BCI UUSA Reportable - CAAS D15/D16 Detector Actuated Indication in Phase II CAAS	Entered 06/01/2023, Completed 06/13/2023, Final Sign-Off 09/11/2023
		EV 161478	BCI UUSA Reportable Stacked Isolated CSA Containers Not Analyzed in NCS-CSA-022	Entered 08/08/2023
	Engineering Changes		Change Process Review Form for EG-3-3200-02 Rev. 16	04/07/2023
			Change Process Review Form for EG-3-3200-03 Rev. 08	
	Engineering Evaluations	NCS-CSA-013	Nuclear Criticality Safety Analysis of 55-Gallon Waste Drums	Rev. 6
		NCS-CSA-022	Safe Spacing for SBD Waste Drums Involving Decontamination Activities	Rev. 4
		NCS-CSA-035	Nuclear Criticality Safety Analysis of the Multifunction Decontamination Train (MFDT)	Rev. 1
		NCS-CSE-026	NCSE for the Sample Bottle Outgassing Station	Rev. 7
	Miscellaneous		URENCO USA Emergency Preparedness	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			December 13, 2023 CAAS Evacuation Drill Plan	
		LES-23-074-NRC	10 CFR 70.50(c) 30 Day Report for EN 56550 - Partial Loss of Criticality Accident Alarm System	06/24/2023
		LES-23-138-NRC	60 Day Report for EN 56670, Waste Container Stacking Not Analyzed	09/25/2023
	Procedures	CR-3-1000-03	NCS Weekly Walkthroughs and Periodic Assessments	Rev. 17
		EG-3-3200-02	Nuclear Criticality Safety Analysis/Evaluation	Rev. 15 & 16
		EG-3-3200-03	Safe-By-Design Attribute Verification	Rev. 8
		RW-3-4000-01	Startup, Shutdown, and Operation of the SCDT	Rev. 12
		RW-3-4000-02	Startup, Operation and Shutdown of the Multi-Function Decontamination Train	Rev. 20
		Self-Assessments	2023-A-02-003	Nuclear Criticality Safety Program NQA-1 Biennial Audit
	NCSI-2023-049		Vacuum Pump Rebuild Workshop	12/07/2023
	NCSI-23-0015		SBM1001 UF6 Handling Area	04/18/2023
	NCSI-23-0016		Decontamination Workshop	05/02/2023
	NCSI-23-0028		CTP CAAS	07/11/2023
	NCSI-23-0035		Criticality Anomalous Condition for IROFS58a/b Areas	09/01/2023
	NCSI-23-0035		Criticality Anomalous Condition for IROFS58a/b Areas	09/01/2023
	NCSI-23-0041		LECTS Room	10/14/2023
	SA-2023-001		Nuclear Criticality Safety Programmatic Self-Assessment	04/21/2023
	Work Orders	WO 1000585793	1Y: Site CAAS Annual Maintenance	Completed 07/17/2023
		WO 1000607479	TSB: 561-LCS2 Detector D15/D16 Activated	Completed 06/05/2023
		WO 1000611959	TSB: 1500-592 CAAS Blue Loop Failure	Completed 07/06/2023
		WO 1000615701	SBM1: 561-D3 Test Trip Function (EMERG)	Completed 07/18/2023
		WO 1000619821	1500: KOWL Fixtures Missing Lights	Completed 08/22/2023
	88051	Corrective Action Documents	EV 162420, EV 162454, EV 162455, EV 162456, EV	Licensee Identified Emergency Preparedness Exercise related CAP items

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		162457, EV 162468, EV 162473, EV 162474, EV 162494		
	Corrective Action Documents Resulting from Inspection	EV 162478, EV 162479, EV 162480, EV 162481, EV 162482, EV 162483	CAP entries documenting NRC observations	
	Miscellaneous		2023 NRC Evaluated Exercise binder	
			Notification of URENCO USA (UUSA) 2023 Full-Scale Emergency Exercise, with enclosure: UUSA Emergency Preparedness 2023 Full Scale Exercise Package	08/13/2023
	Procedures		Emergency Plan	Rev. 28a
		EP-3-0200-01	Classification of Emergency Events	Rev. 11
		EP-3-0200-02	Emergency Notification	Rev. 28
		EP-3-0200-06	Assembly and Personnel Accountability	Rev. 15
		EP-3-0200-07	Recovery and Termination	Rev. 5
		EP-3-0200-11	Emergency Operations Center Operations	Rev. 13
		EP-4-0200-01	Emergency Action Plan for UUSA Site	Rev. 0
		OP-3-2000-02	Fire Response	Rev. 19