



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

May 10, 2022

Mr. Wyatt Padgett
Compliance and Licensing Manager
Louisiana Energy Services
Urenco USA
P.O. Box 1789
Eunice, NM 88231

SUBJECT: URENCO USA – SPECIAL INSPECTION REPORT 07003103/2022006

Dear Mr. Padgett:

On March 11, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed its initial assessment of a loss of controls event, as stated in the Integrated Safety Analysis (ISA), which occurred on March 7, 2022. Based on our initial assessment, an inspection team was sent to your site on March 21, 2022. The purpose of the inspection was to inspect and assess the facts and circumstances surrounding the event. This event was reported to the NRC Operations Center on March 7, 2022 (Event Notice 55770), in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70, Appendix A, (a)(4) – An event or condition such that no items relied on for safety, as documented in the ISA summary, remain available and reliable, in an accident sequence evaluated in the ISA, to perform their function. The event notice (EN) was subsequently retracted on April 25, 2022.

Based on preliminary information provided by the licensee in the EN, the NRC determined that a special inspection (SI) was the appropriate level of regulatory response to obtain the additional information needed to fully assess the significance of the event. The SI objectives were to (1) develop a clear understanding of circumstances leading to a loss of all safety controls, (2) review and evaluate the licensee's completed and planned corrective actions, (3) review and evaluate the adequacy of the licensee's implementing procedures, (4) review and evaluate the licensee's processes for ensuring required controls are in place prior to commencement of work activities, (5) determine if personnel involved were properly trained, and (6) review the timeliness and adequacy of the licensee's one-hour event notification to the NRC. The SI consisted of facility walkdowns of areas within the facility; interviews with licensee staff; and selective document review including procedures and safety analyses. The enclosed report documents the results of the SI. The inspection results were discussed with you and other members of your staff at exit meetings held on March 24, and April 27, 2022.

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,



Signed by Masters, Anthony
on 05/10/22

Anthony D. Masters, Division Director
Division of Fuel Facility Inspection

Docket No. 07003103
License No. SNM-2010

Enclosures:

- Inspection Report
- Special Inspection Team Charter

cc w/ encl: Distribution via LISTSERV

SUBJECT: URENCO USA – SPECIAL INSPECTION REPORT 07003103/2022006
DATED MAY 10, 2022

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OFFICE	RII/DFFI	RII/DFFI	RII/DFFI	RII/DFFI	
NAME	N. Pitoniak	G. Goff	R. Williams	A, Masters	
DATE	05/06/2022	05/06/2022	05/09/2022	05/10/2022	

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

Docket Number: 07003103

License Number: SNM-2010

Report Number: 07003103/2022006

Enterprise Identifier: I-2022-006-0050

Licensee: Louisiana Energy Services

Facility: Urenco USA

Location: Eunice, NM

Inspection Dates: March 22, 2022–April 25, 2022

Inspectors: G. Goff, Fuel Facilities Inspector
N. Pitoniak, Sr. Fuel Facility Project Inspector

Approved By: Anthony Masters, Director
Division of Fuel Facility Inspection

SUMMARY

The U.S.NRC continued monitoring the licensee's performance by conducting a special 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.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	07003103/2022-006-01	Lack of Implementation of Safety Controls for an Analyzed High Consequence Event	88003	Open
URI	07003103/2022-006-02	Unanalyzed Condition of Vehicles within the CAA	88003	Open
URI	07003103/2022-006-03	Immediate Corrective Actions Upon Discovery of Lack of Controls (IROFS 50b/c)	88003	Open
URI	07003103/2022-006-04	Timeliness of reporting to the NRC under 10CFR70 Appendix A	88003	Open

PLANT STATUS

During the inspection period, UUSA was conducting routine operating activities. The vehicles of concern identified were removed from the Controlled Access Area (CAA) and construction activities were halted under a Stop Work Memorandum until a full investigation of the event was completed.

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.

OTHER AREAS

88003 - Reactive Inspection For Events At Fuel Cycle Facilities

Develop a clear understanding of circumstances leading to a loss of all safety controls to mitigate the event

A. Inspection Scope

The inspectors conducted walkdowns of barriers placed in support of IROFS 50b/c establishment as well as walkdowns of the area of concern (AOC), including internal and external areas of the Separations Building Module (SBM) 1001 UF₆ handling area (Figures 1 and 2). The inspectors also conducted walkdowns of the site preparation construction vehicle staging area and the vehicle delivery path (Figure 3) used to bring the three subject vehicles (front-end loader, grader, and roller) into the Controlled Access Area (CAA) and conducted independent measurements to assess the proximity of the staged vehicles to the AOC as well as the standoff distance of the barriers from the AOC in accordance with OP-3-1000-16, IROFS 50b External Boundary Control, Rev. 10, and OP-3-1000-17, IROFS 50c External Boundary Control, Rev. 11. The inspectors conducted walkdowns of various site areas throughout the facility to verify that similar hazards did not exist without required controls applied.

The inspectors conducted interviews with primary contractor and sub-contractor personnel knowledgeable of the event to assess their understanding of the requirements, roles, and responsibilities for Integrated Safety Analysis (ISA) accident sequence OC2-1. The inspectors also interviewed UUSA project management personnel responsible for developing and coordinating the planned construction activities to assess the level of knowledge with WC-3-1000-02, Work Package – Initiation through Closure, Rev. 42 and WC-3-1000-06, Control of Vendor/Contractor

Supported Work, Rev 6. Additionally, the inspectors interviewed operations personnel including operators, shift managers, operations management staff, licensing staff, and security department personnel to assess their level of knowledge of IROFS 50b/c requirements and processes utilized for establishing and monitoring safety controls in accordance with OP-3-3300-01, Operations Surveillance Procedure, Rev. 40, OP-3-1000-01, Conduct of Operations, Rev. 37, and LS-3-1000-05, Notifications and Event Reporting, Rev. 19.



Figure 1. IROFS barriers (west side)



Figure 2. IROFS barriers (south side)

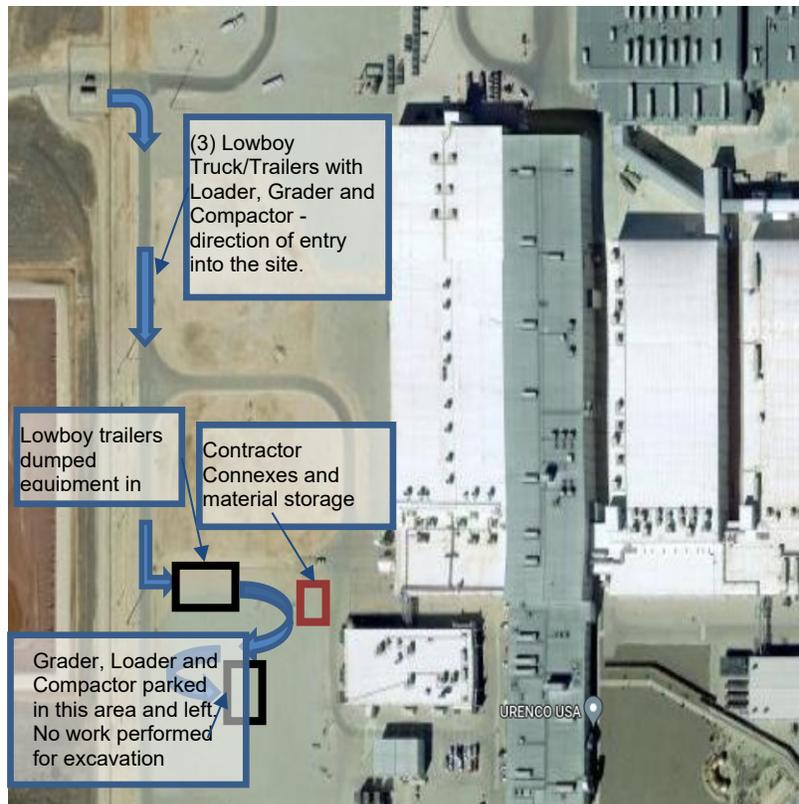


Figure 3. Vehicle delivery path

The inspectors reviewed documents; conducted interviews with UUSA staff, management personnel, and contractors; reviewed log records; and viewed video recordings to develop the timeline of events provided below:

(All times are in local Mountain Standard Time – MST):

2016

IROFS 50b/c removed after being in place continuously for several years

March 2, 2022

- 1024 Project Manager provides verbal direction to sub-contractor to move construction vehicles into the CAA; sub-contractor moves construction grader into the CAA utilizing a flatbed “low boy” delivery vehicle and staged for future work approximately 300 feet from the area of concern
- 1309 Sub-contractor moves construction front-end loader into the CAA utilizing a flatbed “low boy” delivery vehicle and staged for future work approximately 300 feet from the area of concern
- 1545 Sub-contractor moves construction roller into the CAA utilizing a flatbed “low boy” delivery vehicle and staged for future work approximately 300 feet from the area of concern

March 3, 2022

- 0940 Prime contractor barrier placement begins on IROFS 50b/50c

March 4, 2022

- 1050 Prime contractor barrier placement complete for first independent barrier (IROFS 50b)
- 1134 Prime contractor barrier placement complete for second independent barrier (IROFS 50c)
- 1545 Project Manager notifies Shift Manager that barriers are set and ready for IROFS 50b/c verification walkdown and work order hold point signoff

March 5, 2022

- 1553 Shift Manager #1 walks down barriers and identifies that they do not meet independence requirements; email communications are sent to the Day Shift Manager and all Shift Managers regarding specific deficiencies that need to be corrected

March 6, 2022

- Shift Manager #2 walks down barriers and identifies barriers do not meet independent requirements

March 7, 2022

- ~0900 Relief Shift Manager walks down barriers and verifies that barriers do not meet independence requirements and additionally identifies that construction vehicles are already onsite within the CAA
- ~0915 Relief Shift Manager verbally communicates discovery of the event condition to the Shift Manager (Shift Manager #2), the Day Shift Manager, and the Deputy Operations Manager; The Day Shift Manager and the Deputy Operations Manager direct the Project Manager to have the construction vehicles removed from the CAA immediately
- 0927 Licensing Manager notified of the event condition via text from Day Shift Manager
- ~0930 Project Manager verbally directs the sub-contractor to immediately remove the vehicles from the CAA
- 0945 Licensing Manager verbally notified by Reserve Shift Manager of the event condition
- 0951 Construction front-end loader, under its own power, removed from the CAA by the sub-contractor
- 1006 Construction grader, under its own power, removed from the CAA by the sub-contractor
- 1022 Construction roller, under its own power, removed from the CAA by the sub-contractor
- 1045 Discussion between the Licensing Manager and the Shift Manager determines one-hour notification to the NRC is required
- 1144 One-hour notification to the NRC complete (EN 55770)
- Stop Work Memorandum initiated to prevent site preparation construction vehicles from entering the CAA

March 25, 2022

- 1805 24-hour notification to the NRC made (EN 55802) for Potential Unanalyzed Condition (resulted from extent of condition reviews of the original event)

- Stop Work Memorandum revised and expanded to include additional vehicles

April 25, 2022

- 1006 Licensee retracts EN 55770 based on a revised assessment of ISA accident sequence OC2-1 being “not credible”

B. Conclusion

The licensee did not have established controls in place (IROFS 50b/c) to support bringing the site preparation construction vehicles into the CAA on March 2, 2022, as per the documented ISA requirements approved at the time. Although no actual consequences occurred as a result of the event, Unresolved Item (URI) 07003103/2022-006-01, Lack of Implementation of Safety Controls for an Analyzed High Consequence Event, is being opened to assess the potential consequences based on an evaluation of the hazard, required controls, and the subsequent reevaluation of accident sequence OC2-1 by the licensee.

Review and evaluate the licensee’s completed and planned corrective actions, extent of condition evaluation, and implementation of any compensatory measures

A. Inspection Scope

The inspectors reviewed immediate corrective actions taken by the licensee upon discovery of the condition on March 7, 2022, to include removal of the site preparation construction vehicles (front-end loader, grader, and roller) from the CAA and implementation of the Stop Work Memorandum. Specifically, the inspectors reviewed actions taken by the licensee against actions in accordance with ORM 50b-50c, Operating Requirements Manual, Rev. 5. The inspectors confirmed that UF₆ cylinder operations were being conducted in the AOC during the time the three subject construction vehicles were within the CAA. The inspectors determined that the decision to immediately remove the vehicles from site was coordinated by the Day Shift Manager and the Deputy Operations Manager without direct engagement and coordination with the Shift Manager. Upon discovering the direction to remove the vehicles, the Shift Manager was unable to execute the appropriate, required actions as the vehicles had already been removed from the CAA.

The licensee entered the event into the corrective action program as EV149740. The inspectors reviewed the assigned interim corrective actions as prescribed in EV149740 to include the initial Stop Work Memorandum, Rev. 0. These actions included (1) All activities conducted by contractors and vendors in the CAA will be done from within an open work order package to ensure that all work such as pre-staging of material and equipment are captured within the work control process; (2) All project managers will qualify on IROFS 50 series to ensure that applicable personnel fully understand the consequences and risks of bringing such equipment into the CAA for any reason; (3) Shift Managers will assess the operator’s requisite level of knowledge on IROFS 50 series to determine whether adequate minimum understanding exists to preclude recurrence; (4) Security will not allow any site preparation construction vehicles into the CAA without obtaining the approval of the Shift Manager; (5) A documented extent of condition will be performed by Shift Operations to ensure compliance with IROFS 50

series. Completion of these actions would be required in order to lift the stop work regarding site preparation construction vehicles.

The inspectors reviewed the extent of condition in progress regarding site preparation construction vehicles and discussed concerns with the calculation basis for selection of vehicles, documented exemptions, and review of other potential vehicle types not addressed by accident sequence OC2-1. As a result of the concern and an expansion of the licensee's extent of condition review, the licensee implemented a revised Stop Work Memorandum (Rev. 1) on March 25, 2022, that expanded the restriction of all vehicles on site by security until the vehicle type was reviewed and approved for entry into the CAA by site engineering personnel.

B. Conclusion

The inspectors reviewed actions taken by the licensee against actions required in accordance with ORM 50b-50c, Operating Requirements Manual, Rev 5. Based on the licensee's reassessment of the event as "not credible", URI 07003103/2022-006-02 is being opened to review and evaluate actions taken for those required for the actual event. Additionally, based on the expanded extent of condition and additional potential unanalyzed conditions as reported in EN 55802, URI 07003103/2022-006-03, Unanalyzed Condition of Vehicles within the CAA, is being opened to review evaluations and assessments of various vehicles by the licensee.

Review and evaluate the adequacy of the licensee's implementing procedures and Boundary Definition Documents (BDDs) for IROFS 50b and 50c.

A. Inspection Scope

The inspectors reviewed NEF-BD-50b, Administratively Control Proximity of Vehicles by Use of Barriers, Rev. 9, and NEF-BD-50c, Administratively Control Proximity of Vehicles by Use of Barriers, Rev. 9 to verify that the boundaries established for accident sequence OC2-1 were adequately identified to address the required controls to meet IROFS 50b and IROFS 50c. The inspectors reviewed OP-3-1000-16, IROFS 50b External Boundary Control, Rev. 10, OP-3-1000-17, IROFS 50c External Boundary Control, Rev. 11, and OP-3-1000-24, Managing IROFS50 Series Areas of Concern, Rev. 4 to assess the adequacy of IROFS 50b and IROFS 50c. The procedures established administrative independence between IROFS 50b and IROFS 50c to meet the control requirements as documented in the ISA. The inspectors reviewed the Root Cause Evaluation (RCE) for Construction Equipment Brought into the CAA Prior to IROFS 50 Series Declared Operable, dated April 21, 2022. The licensee identified the root cause as "less than adequate change management" that encompasses processes, procedures, and training to address the failure to establish IROFS 50b and IROFS 50c prior to bringing the subject equipment into the CAA.

B. Conclusion

The inspectors determined that these procedures were adequate to implement the IROFS as described in the ISA.

Review and evaluate licensee processes for ensuring required controls are in place and available and reliable prior to commencement of work activities.

A. Inspection Scope

The inspectors reviewed work orders (WOs) 1000526306 and 1000537772 associated with the planned chill water construction project. The inspectors noted that WO 1000537772 was established as a Quality Level 1 (QL-1) safety requirement to establish the barriers for IROFS 50b and IROFS 50c; however, WO 1000526306 was established as Quality Level 3 (QL-3) non-safety-related and was developed to stage material only. The subject vehicles were part of the staging of equipment associated with WO 1000526306, yet no reference to having IROFS 50b and IROFS 50c as a safety-related prerequisite (WO 1000537772) was conveyed to the subcontractor prior to staging the subject vehicles onsite. The inspectors noted that the work performed by the subcontractor (delivery and removal of the subject vehicles) was done via verbal authorization, as it was determined by the project manager to not be directly affected by IROFS 50b and IROFS 50c. The inspectors reviewed WC-3-1000-02, Work Package – Initiation through Closure, Rev. 42, and WC-3-1000-06, Control of Vendor/Contractor Supported Work, Rev. 6 to verify that licensee oversight of contractor activities was adequately identified and to verify that operations' approval to conduct safety-related activities was addressed. The inspectors reviewed the corrective actions identified in the Stop Work Memorandum, specifically, the training and establishment of the requirement for written work orders for all contractor activities at the site.

B. Conclusion

The inspectors determined that the Stop Work Memorandum adequately addressed the deficiencies of the identified event. The inspectors determined that the licensee's initial conclusion that IROFS 50b and IROFS 50c were not required to be established prior to staging the construction vehicles did not align with their procedures and analyses in effect at the time of the event. URI 07003103/2022-006-01 will assess the potential consequences based upon an evaluation of the hazard, required controls, and the subsequent re-evaluation of accident sequence OC2-1 by the licensee.

Determine if personnel involved in the implementation of the IROFS 50b and 50c were properly trained

A. Inspection Scope

The inspectors conducted interviews with contract and sub-contract personnel and licensee employees from the operations, engineering, licensing, and security departments to assess training and the level of knowledge of IROFS 50b and IROFS 50c. The inspectors reviewed training materials associated with IROFS 50b and 50c.

The inspectors noted that:

- The prime contractor personnel were not formally trained on IROFS 50b and IROFS 50c requirements associated with this chill water construction project prior to commencing work activities; notably, the placement of barriers by the prime contractor were not in accordance with OP-3-1000-16, IROFS 50b External Boundary Control, Rev. 10 and OP-3-1000-17, IROFS 50c External Boundary Control, Rev. 11

- The sub-contractor was not formally trained on IROFS 50b and IROFS 50c requirements associated with this chill water construction project prior to commencing work activities
- The Project Manager was not formally trained and qualified on IROFS 50b and IROFS 50c requirements associated with this chill water construction project prior to commencing work activities
- Operations supervisors and managers were formally trained on IROFS 50b and 50c requirements associated with this chill water construction project prior to commencing work activities
- Security personnel were not formally trained on IROFS 50b and IROFS 50c requirements associated with this chill water construction project prior to commencing work activities

B. Conclusion

The inspectors determined that licensee's training on IROFS 50b and IROFS 50c was not timely and comprehensive for the conditions identified in the work activity. Since the applicable IROFS were continuously in place until 2016, the requirements for IROFS 50b and IROFS 50c originally established prior to 2016 remained continuously in place and the use of construction vehicles became a routine activity with no changing condition of the controls required. The inspectors noted that formal training and qualification requirements were assigned as corrective actions in the Stop Work Memorandum. URI 07003103/2022-006-01 will assess the potential impact that staff and contractor training of the site procedures contributed to the event.

Review the timeliness and adequacy of the licensee's one-hour event notification to the NRC.

A. Inspection Scope

The inspectors developed a timeline of events to assess the discovery, identification, and notification of event conditions. The inspectors conducted interviews with contractor personnel and licensee employees from the operations, engineering, licensing, and security departments. The inspectors reviewed LS-3-1000-05, Notifications and Reporting, Rev. 19. The licensee documented the discovery of the condition at 1045 MST and completed the required notification to the NRC per 10 CFR 70 Appendix A (a)(4) at 1144 MST, in event notification (EN) 55770. The inspectors interviewed licensing and operations personnel regarding roles and responsibilities and reviewed the NRC Form 361A, Fuel Cycle and Material Event Notification Worksheet. Upon further evaluation of condition, the licensee retracted the event notification on April 25, 2022.

B. Conclusion

The required notification to the NRC requires additional information of the detailed event re-analysis to determine reporting applicability. The timeliness of the one-hour report is a concern based on the applicability of the condition requiring the notification, the licensee's re-evaluation of the condition, and the licensee's subsequent retraction of EN 55770. An unresolved item is being opened to evaluate the applicability of the safety controls and associated reporting/notification requirements, URI 07003103/2022-006-04,

Evaluate the Timeliness and Applicability of Reporting to the NRC under 10 CFR 70 Appendix A.

INSPECTION RESULTS

Unresolved Item (Open)	Lack of Implementation of Safety Controls for an Analyzed High Consequence Event URI 07003103/2022-006-01	88003
<p><u>Description:</u> The licensee identified a lack of controls (IROFS 50b and IROFS 50c) available while three site preparation construction vehicles were within the CAA. A one-hour NRC notification was made (EN 55770) on March 7, 2022, and subsequently retracted on April 25, 2022, based on an evaluation of the hazard and site operating conditions (Operating While Constructing vs. Operating). An unresolved item is being opened to assess the potential consequences based on evaluation of the hazard, required controls, and subsequent reevaluation of accident sequence OC2-1 by the licensee.</p> <p><u>Planned Closure Actions:</u> The NRC will assess the licensee’s re-evaluation of the event and applicability of IROFS 50b and 50c to determine if a violation exists.</p> <p><u>Licensee Actions:</u> The licensee implemented a Stop Work Memorandum to prohibit entry of all vehicles until evaluated and approved and formal training was conducted.</p> <p><u>Corrective Action References:</u> EV 149740</p>		

Unresolved Item (Open)	Unanalyzed Condition of Vehicles within the CAA URI 07003103/2022-006-03	88003
<p><u>Description:</u> The licensee identified and reported a potential unanalyzed condition (EN 55802) to the NRC in accordance with 10 CFR 70 Appendix A(b)(1) on March 25, 2022, based on the NRC inspectors’ inquiries and the extent of condition review. The condition was not present at the site during the time of the NRC onsite inspection as evidenced by inspector walkdowns, but the licensee identified that some vehicles that could potentially result in a hazard to the facility were previously brought within the CAA without establishing IROFS 50b and IROFS 50c. An unresolved item was opened to review evaluations and assessments of various vehicles by the licensee.</p> <p><u>Planned Closure Actions:</u> The NRC will review the licensee’s evaluation of the historical vehicles identified and applicability to potential accident sequences that may result to determine if a violation exists.</p> <p><u>Licensee Actions:</u> The licensee implemented a Stop Work Memorandum to prohibit entry of all vehicles until evaluated and approved and formal training was conducted.</p> <p><u>Corrective Action References:</u> EV149740</p>		

Unresolved Item (Open)	Immediate Corrective Actions Upon Discovery of Lack of Controls (IROFS 50b/c) URI 07003103/2022-006-02	88003
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Description: The licensee immediately removed the three site preparation construction vehicles from the CAA under their own power upon discovering the event condition. The licensee re-evaluated the hazard of the three vehicles of concern for the event and retracted the event notification on April 25, 2022, based on the event no longer being considered credible, and therefore not requiring controls to mitigate. An unresolved item is being opened to assess the adequacy of the licensee's initial corrective actions and the licensee's re-evaluation of the event and the applicability of controls based on plant operating conditions.

Planned Closure Actions: The NRC will assess the licensee's re-evaluation of the event and the applicability of controls based on plant operating conditions to determine if a violation exists.

Licensee Actions: The licensee implemented a Stop Work Memorandum to prohibit entry of all vehicles until evaluated and approved and formal training was conducted.

Corrective Action References: EV149740

Unresolved Item (Open)	Timeliness of reporting to the NRC under 10CFR70 Appendix A URI 07003103/2022-006-04	88003
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Description: The licensee submitted a one-hour event notification to the NRC under 10 CFR 70 Appendix A (a)(4) based on an event or condition such that no items relied on for safety, as documented in the Integrated Safety Analysis summary, remain available and reliable, in an accident sequence evaluated in the Integrated Safety Analysis, to perform their function. The licensee subsequently re-evaluated the condition based on plant status and condition at the time of the event and retracted the event notification on April 25, 2022. An unresolved item is being opened to evaluate the applicability of the safety controls and associated reporting/notification requirements.

Planned Closure Actions: The NRC will assess the re-evaluation conducted by the licensee and determine applicability to the plant operating status and license conditions as documented in the Integrated Safety Analysis and determine adequacy of the NRC notification to determine if a violation exists.

Licensee Actions: The licensee implemented a Stop Work Memorandum to prohibit entry of all vehicles until evaluated and approved and formal training of Shift Managers was conducted.

Corrective Action References: EV149740

EXIT MEETINGS AND DEBRIEFS

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

- On March 24 and April 27, 2022, the inspectors presented the special inspection results to Karen Fili and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88003	Corrective Action Documents	EV 149740	BCI UUSA Construction Eqpmnt Moved into CAA Prior to IROFS50 Boundary In-Place	03/07/2022
88003	Corrective Action Documents Resulting from Inspection	EV 149972	Incorrect time utilized for log entry.	03/24/2022
88003	Miscellaneous		Hazard of Vehicles	
88003	Miscellaneous		Timeline of the Event	03/21/2022
88003	Miscellaneous		Quality Assurance Program Description	Revision 44
88003	Miscellaneous		Photo - Site Preparation Vehicles	
88003	Miscellaneous		Photos : DSCN1617-DSCN1627	
88003	Miscellaneous		Excel Spreadsheet of Completed Root Cause Training	
88003	Miscellaneous		Photo - Equipment Off Load Schematic	
88003	Miscellaneous		Root Cause Evaluation Charter	Revision 0
88003	Miscellaneous	E-mail - from Eric Kobaly to Terry Armstrong & Shift Managers	IROFS50b/c barriers	03/05/2022
88003	Miscellaneous	E-mail from Wyatt Padgett to Barry Love and Paul Lorskulsint	RE: IROFS50b/c EN	03/07/2022
88003	Miscellaneous	E-mail from Wyatt Padgett to Barry Love, Noel Pitoniak, and Gregory Goff	Urenco Discovery Timeline	03/24/2022
88003	Miscellaneous	Memorandum	Stop Work for Site Preparation Construction Vehicles in the CAA	03/07/2022
88003	Miscellaneous	Memorandum	Stop Work for Vehicles in the CAA (revision due to extent of condition)	03/25/2022
88003	Miscellaneous	Memorandum	IROFS50	03/29/2022
88003	Miscellaneous	NEF-BD-50b	Administratively Control Proximity of Vehicles by Use of Barriers (Bounding Document)	Revision 9
88003	Miscellaneous	NEF-BD-50c	Administratively Control Proximity of Vehicles by Use of Barrier (Bounding	Revision 9

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Document)	
88003	Miscellaneous	ORM 50b-50c	Administratively Control Site Construction Vehicles Near the Areas of Concern	Revision 5
88003	Miscellaneous	OSIROFSQC00100	Items Relied On For Safety (IROFS) and Operating Requirements Manual (ORM)	Revision 9
88003	Procedures	AD-3-1000-08	Stop Work	Revision 17
88003	Procedures	CA-3-1000-01	Performance Improvement Program	Revision 48
88003	Procedures	CA-3-1000-03	Root Cause Evaluation Guidelines	Revision 12
88003	Procedures	EG-3-3100-06-F-7	Hazard and Risk Determination Analysis ISA Record Cover Form (IROFS 50 Series - ISA Meeting Minutes)	Revision 17
88003	Procedures	LS-3-1000-05	Notifications and Event Reporting	Revision 19
88003	Procedures	OP-3-1000-16	IROFS50b External Boundary Control	Revision 10
88003	Procedures	OP-3-1000-17	IROFS50c External Boundary Control	Revision 11
88003	Procedures	OP-3-1000-24	Managing IROFS50 Series Areas of Concern	Revision 4
88003	Procedures	OP-3-3300-01	Operations Surveillance Procedure	Revision 40
88003	Procedures	WC-3-1000-02	Work Package - Initiation through Closure (SAP Order Types PM1/PM3/PM5-6)	Revision 42
88003	Procedures	WC-3-1000-06	Control of Vendor/Contractor Supported Work	Revision 6
88003	Work Orders	1000526309	CUB1600 CHILLER PRJ: MECH#1	12/06/2021
88003	Work Orders	1000537772	SITE: SMB1001 CHILL WATER PRJ IROFS50	02/16/2022



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

March 16, 2022

MEMORANDUM TO: Noel Pitoniak, Senior Fuel Facility Project Inspector
Projects Branch 2
Division of Fuel Facility Inspection

Gregory Goff, Fuel Facility Inspector
Projects Branch 2
Division of Fuel Facility Inspection

FROM: Laura A. Dudes
Regional Administrator

Digitally signed by
Laura A. Dudes
Date: 2022.03.16
12:47:38 -04'00'

SUBJECT: SPECIAL INSPECTION CHARTER TO EVALUATE LOSS OF
ALL ITEMS RELIED ON FOR SAFETY (IROFS) FOR ACCIDENT
SEQUENCE OC2-1 (EXTERNAL CONSTRUCTION) AT
URENCO USA (UUSA)

You have been selected to conduct a Special Inspection (SI) to assess the circumstances surrounding the event that resulted in the failure of items relied on for safety (IROFS 50b & 50c) at Urenco USA (UUSA). The event was identified and reported to the NRC as a one-hour notification on March 7, 2022.

A. Basis

On Wednesday March 2, three construction vehicles were allowed within the controlled access area (CAA) without first placing operable physical barriers around a building of concern. These barriers are required by two separate IROFS – IROFS 50b and 50c. The IROFS are identical such that IROFS 50b is the first barrier and IROFS 50c is the second barrier. Accident sequence OC 2-1 (External Construction) states that IROFS are designed to mitigate a construction vehicle impacting an area of concern which results in damage to the facility and subsequent UF6 release with high consequences to the public and/or worker. The barriers are of sufficient strength (example: concrete jersey barriers and water or sand ballasted barriers) to alert vehicle operators of construction site preparations vehicles of the proximity to area(s) of concern. In this particular case, the area of concern was the UF6 Handling Area in the Separations Building Module (SBM)-1001.

Regional Office Instruction (ROI) No. 0704, Revision 5, "Documenting Management Directive 8.3, NRC Incident Investigation Program, Reactive Team Inspection Decisions in the Division of Fuel Facility Inspection," was used to evaluate the level of NRC response to this incident.

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Enclosure 2

The inspectors reviewed the event against the acute chemical exposure criteria in ROI-0704, Enclosure 4A, "OPERATIONAL SAFETY – Threat and Uncertainty Matrix" due to the potential for significant exposure to UF₆ and hydrogen fluoride (HF). Due to the actions taken by the licensee and the NRC's understanding of the issue, the inspection staff recommended that a special inspection (SI) be performed coincident with the Operational Safety inspection scheduled for the week of March 21, 2022.

B. Scope

The SI should focus on the licensee's operational safety performance and response to the event. The scope of the SI shall include:

1. Develop a clear understanding of circumstances leading to a loss of all safety controls to mitigate the event including, but not limited to:
 - a. Develop a clear timeline of the event.
 - b. Conduct a walkdown of the affected area to gain a better understanding of the event/specific accident of concern. The walkdown should include the SBM-1001/UF₆ Handling Area, physical barriers, construction vehicles, and the location/placement of physical barriers.
 - c. Conduct interviews with personnel involved in the event including the Shift Manager, operators, contractors/subcontractors, and security personnel.
2. Review and evaluate the licensee's completed and planned corrective actions, extent of condition evaluation (if completed), and implementation of any compensatory measures. Additionally, assess the adequacy of licensee's initial response to the event, including removing the construction equipment prior to qualified barriers being in-place.
3. Review and evaluate the adequacy of the licensee's implementing procedures and Boundary Definition Documents (BDDs) for IROFS 50b and 50c (including reviewing the adequacy of common cause failures for this set of IROFS).
4. Review and evaluate licensee processes (site access, work control, etc.) for ensuring required controls are in place and available/reliable prior to commencement of work activities.
5. Determine if personnel involved in the implementation of the IROFS 50b and 50c were properly trained.
6. Review the timeliness and adequacy of the licensee's one-hour event notification to the NRC.
7. Conduct an entrance and exit meeting and routine briefings with NRC and licensee management.

C. Guidance

Inspection Procedure 93812 provides guidance for conducting a special inspection. Inspection Procedure (IP) 88003 (Reactive Inspection for Events at Fuel Cycle Facilities Program), provides additional guidance to be used during the conduct of the inspection. Your duties will be as described in IP 88003 and should emphasize fact-finding in the review of the circumstances surrounding the security incident. Safety or security concerns identified that are not directly related to the event should be reported to the Region II office for appropriate action. You will report to the site, conduct an entrance, and begin inspection no later than March 21, 2022. It is anticipated that the on-site portion of the inspection will be completed during the same week. An initial briefing to Region II management will be provided at approximately 4:00 p.m., March 21, 2022. In accordance with IP 88003, you should promptly recommend a change in inspection scope or escalation if information indicates that the assumptions used in the MD 8.3 and MC 2601 analysis were not accurate. At the completion of the inspection, you should provide recommendations for improving the Reactive Inspection (RI) process for Events at Fuels Facilities Program based on any lessons learned.

This charter may be modified should you develop significant new information that warrants review. Should you have any questions concerning this charter, contact Robert Williams at (404) 997-4664.

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