



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

July 28, 2022

Mr. Doug Nay  
Facility Manager  
Global Nuclear Fuel – Americas, L.L.C.  
P.O. Box 780, Mail Code J20  
Wilmington, NC 28402

SUBJECT: GLOBAL NUCLEAR FUEL – AMERICAS, L.L.C. – CORE INSPECTION  
REPORT 07001113/2022002

Dear Mr. Nay:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection activities conducted from March 1 to June 30, 2022, for the Global Nuclear Fuel – Americas facility in Wilmington, NC. On May 19 and June 16, 2022, the NRC inspectors discussed the results of this inspection with you. 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,

A handwritten signature in dark ink, appearing to read "R. Williams", is placed over the signature line.

Signed by Williams, Robert  
on 07/28/22

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

Docket No. 07001113  
License No. SNM-1097

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: GLOBAL NUCLEAR FUEL – AMERICAS, L.L.C. – CORE INSPECTION  
REPORT 07001113/2022002

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

Docket Number: 07001113

License Number: SNM-1097

Report Number: 07001113/2022002

Enterprise Identifier: I-2022-002-0061

Licensee: Global Nuclear Fuel – Americas, L.L.C.

Facility: Global Nuclear Fuel – Americas, L.L.C.

Location: Wilmington, NC

Inspection Dates: May 16, 2022 to June 17, 2022

Inspectors: L. Pitts, Sr. Fuel Facility Projects Inspector  
M. Ruffin, Project Engineer  
T. Sippel, Fuel Facility Inspector  
P. Startz, Fuel Facilities Inspector  
T. Vukovsky, Sr. Fuel Facility Project Inspector  
R. Womack, Physical Security Inspector

Approved By: Robert E. Williams, Jr., 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 a core inspection at Global Nuclear Fuel – Americas, L.L.C. (GNF-A), 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**

None.

## 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

### 88020 - Operational Safety

The inspectors evaluated selected aspects of the licensee's Operational Safety program to verify compliance with applicable portions of 10 CFR 70, including 70.24, 70.61, and 70.62; 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 integrated safety analysis (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:

- Accident Sequence 5.1.5.1, Hot Cylinder Removed from Autoclave
- Accident Sequence 5.1.5.2, UF6 Cylinder Breach
- Accident Sequence 5.1.5.3, UF6 Cylinder Rupture due to Fire near Cylinder Receipt Area
- Accident Sequence 5.1.5.4, UF6 Cylinder Rupture due to Fire on/near Storage Pads
- Accident Sequence 5.1.5.5, UF6 Cylinder Rupture due to Fire near Dry Conversion Process (DCP) Staging Area
- Accident Sequence 5.1.5.6, UF6 Cylinder Rupture due to Fire near DCP Cylinder Hallway
- Accident Sequence 5.2.5.1, Cylinder High Temperature
- Accident Sequence 5.2.5.2, Heating an Overweight Cylinder
- Accident Sequence 5.2.5.3, Heating a Pressurized Cylinder
- Accident Sequence 5.2.5.4, Cold Trap Overfill
- Accident Sequence 5.2.5.5, Cold Trap High Temperature
- Accident Sequence 5.2.5.6, High Pressure in a Cold Trap Due to Nitrogen

- Accident Sequence 5.2.5.7, Loss of Containment During UF6 Feeding from Autoclave
- Accident Sequence 5.2.5.8, Loss of Containment Inside the Autoclave
- Accident Sequence 5.2.5.9, Maintenance Activity Leading to Release of UF6 or Reaction Products
- Accident Sequence 5.5.3.1, Moisture Enters Powder Outlet Cooling Hoppers
- Accident Sequence 5.5.3.2, Powder Outlet Loss of Containment
- Accident Sequence 5.5.3.3, Moderator Leaks onto Process Equipment – Powder Outlet
- Accident Sequence 5.6.3.1, External Oil Reservoir Leak
- Accident Sequence 5.6.3.3, Loss of Containment – Homogenizer Equipment
- Accident Sequence 5.6.3.4, Moderator Leaks onto Homogenizer Equipment
- Accident Sequence 5.8.3.1.3, Moderator Leaks onto Process Equipment
- Accident Sequence 5.8.3.1.5, Loss of Containment – Powder Pack (Un-controlled Area)
- Accident Sequence 5.8.3.2.2, Excess Moderator Leaks onto Process Equipment

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

The inspectors reviewed information related to administrative, engineered, and passive safety controls or items relied on for safety (IROFS) for the accident sequences selected in Section 02.01 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:

- IROFS 101-01, UF6 Cylinder Skin Temperature, Administrative Control (AC) for Chemical Safety
- IROFS 101-02, UF6 Cylinder, Passive Engineered Control (PEC) for Chemical Safety
- IROFS 101-08, UF6 Cylinder Handling Combustible Control Program, AC for Criticality Safety/Radiation Safety/Chemical Safety
- IROFS 201-01, Vaporization Cylinder Temperature and Pressure Control System, Active Engineered Control (AEC) for Chemical Safety
- IROFS 201-02, Vaporization Autoclave Pressure Vessel, PEC for Chemical Safety
- IROFS 201-05, Autoclave Leak Detection System, Augmented Administrative Control (AAC) for Chemical Safety
- IROFS 201-06, Vaporization Sense and Flee, AC for Chemical Safety
- IROFS 201-07, Vaporization Room HF Alarm and Automatic Shutdown System, AEC for Chemical Safety
- IROFS 201-19, Portable Wet Scrubber System, AC for Chemical Safety
- IROFS 201-20, UF6 Feed Piping, PEC for Chemical Safety
- IROFS 201-21, Cold Trap Vessel - Containment, PEC for Chemical Safety
- IROFS 201-22, Cold Trap High Pressure Interlock, AEC for Chemical Safety

- IROFS 201-23, Cold Trap High Temperature Interlock, AEC for Chemical Safety
- IROFS 201-24, Cold Trap Weight Interlock A, AEC for Chemical Safety
- IROFS 201-25, Cold Trap Weight Interlock B, AEC for Chemical Safety
- IROFS 201-26, Valve Sequencing Interlocks, AEC for Chemical Safety
- IROFS 900-02, Personnel Protective Equipment, AC for Chemical Safety
- IROFS 204-01, Kiln Hatch & Nitrogen Purge Pressure, AAC for Criticality Safety
- IROFS 204-02, Cooling Hopper Moisture Detection System, AEC for Criticality Safety
- IROFS 204-04, Process Equipment Barrier – Powder Outlet, PEC for Criticality Safety
- IROFS 205-02, Homogenizer External Oil Volume, AC for Criticality Safety
- IROFS 205-03, Homogenizer Lid Design, PEC for Criticality Safety
- IROFS 205-08, Process Equipment Barrier – Homogenizer, PEC for Criticality Safety
- IROFS 207-02, Safe Geometry – Powder Pack Process, PEC for Criticality Safety
- IROFS 207-03, Process Equipment Barrier – Powder Pack Equipment, PEC for Criticality Safety
- IROFS 207-09, Process Equipment Barrier – Receipt Transfer Hood, PEC for Criticality Safety
- IROFS 207-10, Safe Geometry – Receipt Transfer Hood and Conveyor, PEC for Criticality Safety
- IROFS 900-04, Spill Identification and Cleanup, AC for Criticality Safety
- IROFS 900-03, GNF-A Facility MRA, AC for Criticality Safety
- IROFS 900-06, Safe Geometry – Transportable Containers, PEC for Criticality Safety
- IROFS 900-07, Process Equipment Barrier - Transportable Container, PEC for Criticality Safety

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

For the selected safety controls listed Section 02.02 above, the inspectors reviewed management measures to verify proper implementation in accordance with 10 CFR 70.62(d). 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:

- performed a walkdown of the UF6 cylinder pads to verify implementation of IROFS 101-08 and IROFS 101-02
- reviewed the postings for IROFS 101-08
- performed a walkdown of vaporization process equipment
- reviewed the implementation of IROFS 201-07
- reviewed the performance of management measure to verify required training associated with IROFS 201-6
- reviewed the performance of visual inspections as part of the management measures to verify operability of IROFS 201-24 and 201-25

- reviewed the performance of management measure to verify operability of IROFS 201-05
- reviewed the performance of management measure to verify operability of IROFS 201-01
- performed a walkdown of powder outlet process equipment and interviewed staff to verify operability of the following IROFS
  - 204-01
  - 204-02
- performed a walkdown of homogenization process equipment and interviewed staff to verify implementation of the following IROFS
  - 205-02
  - 205-03
  - 205-08
- performed a walkdown of powder pack and powder receipt processing areas to verify the use and implementation of the following IROFS
  - 207-02
  - 207-03
  - 207-09
  - 207-10
  - 900-06
  - 900-07

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

The inspectors assessed additional management 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 the following condition reports (CRs) entered in the corrective action program (CAP) for IROFS-related issues
  - CR38402 and associated documents for IROFS 101-02
  - CR38304 and associated documents for IROFS 201-24 and 201-25
  - CR39187 and associated documents for IROFS 201-06
  - CR39100 and associated documents for IROFS 204-02
  - CR38621 and associated documents for Line 3 homogenizer
- interviewed the control room operators regarding implementation of IROFS 101-01
- reviewed the training records for the control room operators
- reviewed training records for operators in powder pack and receipt
- reviewed training records for operators of the DCP powder outlet and homogenization systems
- reviewed the Functional Test Instruction (FTI) 201-07 for Lines 1, 2, and 3
- reviewed FTI 201-01A and -01B for Lines 1, 2, and 3
- reviewed FTI 204-01A for IROFS 204-01
- reviewed FTI 204-02 for IROFS 204-02
- reviewed surveillance records to verify management measure implementation for the following IROFS
  - 204-04
  - 900-03



- 205-02
- 205-03
- 205-08
- 207-02
- 207-03
- 207-09
- 207-10

## **RADIOLOGICAL CONTROLS**

### 88045 - Effluent Control and Environmental Protection

The inspectors evaluated selected aspects of the licensee's environmental protection program to verify compliance with selected portions of 10 CFR 20, Part 40, Part 61, and Part 70, and the facility's license application.

#### Program Implementation (IP Section 02.01)

The inspectors reviewed any significant changes to the effluent control and environmental protection program, discussed with the licensee any new unplanned releases or contamination identified, and screened the CAP in order to verify the environmental protection program was being implemented in compliance with license requirements. Specifically, the inspectors completed the following activities:

- performed walkdowns of the waste water treatment systems including process area wastewater pre-treatment equipment, two treatment tanks outside the process buildings, and the final settling/aeration basins
- reviewed corrective actions and notifications related to CR 37708

#### Procedures (IP Section 02.02)

The inspectors selected a sample set of procedures changed since the last inspection and, if possible, observed the procedures in use to verify that safety-significant changes to procedures in the area of environmental protection were in compliance with license requirements and 10 CFR 20. Specifically, the inspectors completed the following activities:

- reviewed document 2021 COMPLY: V1.7, "Report on Compliance with The Clean Air Act Limits For Radionuclide Emissions," dated January 25, 2022
- reviewed procedure WI-27-102-11, "Public Exposure To Airborne Releases"
- reviewed significant programmatic changes and procedure revisions that occurred over the past year
- conducted walkdowns of the UF6 cylinder storage yards and various radiological waste storage areas on the facility grounds
- reviewed procedure WI-27-102-05, "Waste Control and Disposal"

#### Audits and Quality Assurance (IP Section 02.03)

The inspectors reviewed procedures associated with the conduct of audits and assessments of the environmental protection program, along with completed third-party and self-assessed audits and resulting corrective action entries since the last NRC inspection in this area to

verify compliance with license application requirements. Specifically, the inspectors reviewed the following documents:

- "First Quarter Environmental Audit 2021," dated March 30, 2021
- "Second Quarter Environmental Audit 2021," dated June 11, 2021
- "Fourth Quarter Environmental Audit 2021," dated December 7, 2021
- "2021 ALARA Environmental Monitoring and Effluent Review," dated March 4, 2022

#### Event Review (IP Section 02.04)

The inspectors reviewed the licensee's evaluation of safety-significant events in the area of environmental protection to verify compliance with 10 CFR 20 and license application requirements. Specifically, the inspectors completed the following:

- reviewed CAP entries and corrective actions for items related to environmental protection: CRs 36601, 36655, 37785, 38769, 39187, and 39330
- reviewed Controlled Access Area (CAA) Temporary Operating Procedure 50199, Revision 02, "Demolition of Equipment in the UCON Skid Area/Chemical Safe-store Areas", effective beginning 4/4/2022 – ending 4/4/2023; to verify that activities under this procedure did not affect the production process wastewater treatment systems next to the UCON area

#### Training (IP Section 02.05)

The inspectors reviewed the licensee's training program in the area of environmental protection to verify compliance with license application requirements. Specifically, the inspectors reviewed the following:

- a sample of personnel training and qualification records of the environmental protection staff

#### Radioactive Liquid Effluents (IP Section 02.06)

The inspectors observed operations, reviewed sample collection and analysis procedures, reviewed radiological effluent monitoring reports and monitoring records, and discussed the radioactive effluent results with licensee staff to verify compliance with aspects of 10 CFR 20.2103 and the license application. Specifically, the inspectors completed the following activities:

- performed walkdowns of the wastewater treatment system including the production area receipt tanks, the first stage of treatment processes (UCON Skid Area/Chemical Safe-store), the lime treatment process, and the neutralization/settling/aeration basins/final process lagoons
- accompanied personnel conducting sampling of treated water from the final process lagoons
- reviewed operating procedure EPI-O-2, "Environmental Sampling of the Final Process Lagoon System, Aeration Basin, and Site Dam"

- reviewed a sample of liquid effluent data to verify consistency of the data samples with the related "Semiannual Effluent Report"

#### Municipal Sanitary Sewer (IP Section 02.07)

This section is not applicable as GNF-A does not discharge effluents to a municipal sanitary sewer.

#### Radioactive Airborne Effluents (IP Section 02.08)

The inspectors observed operations, reviewed sample collection and analysis procedures, reviewed radiological effluent monitoring reports and monitoring records, and discussed the radioactive airborne effluent results with licensee staff to verify compliance with aspects of 10 CFR 20.1101, 10 CFR 20.2103, and the license application. Specifically, the inspectors completed the following activities:

- accompanied a radiological technician during an exhaust stack sample change-out for the production areas
- reviewed operating procedure EPI-O-6, "Stack Sampling Program"
- reviewed a sample of raw stack sample data and compared it to the COMPLY V1.7 modeling data input

#### Effluent Monitoring (IP Section 02.09)

The inspectors observed operations, reviewed IROFS and associated surveillance packages, and discussed the results with the licensee to verify compliance with Subpart H of 10 CFR 70 and the license application, and consistency with the ISA Summary. Specifically, the inspectors completed the following activities:

- reviewed surveillance records for IROFS 702-07, 702-10, 702-11
  - Task Details 3120156, Annual, "Rad Waste Favorable Geometry Annular Tanks V-262, 264, 9010, 9011, 9500," completed on August 25, 2021
- reviewed surveillance records for IROFS 702-09
  - Task Details 3120419, "Annual Rad Waste Favorable Geometry Tank V9010/nozzle functionality," completed on April 7, 2022
- reviewed surveillance records for IROFS 702-12
  - Task Details 3120422, "Annual Rad Waste Favorable Geometry Tank V9011/V9500/nozzle functionality," completed on April 5, 2022

#### Semiannual Effluent Reports (IP Section 02.10)

The inspectors reviewed the licensee's effluent monitoring report to verify compliance with the requirements of 10 CFR 70.59. Specifically, the inspectors reviewed the following documents:

- licensee report SPM 20-029, M200118, "GNFA Semi-Annual Effluent Monitoring Report January to June 2020," dated August 25, 2020
- licensee report SPM 21-007, M210019, "GNFA Semi-Annual Effluent Monitoring Report July 2020 to December 2020," dated February 23, 2021

- procedure EPI-O-5.0, "Generation of Semi-annual Effluent Report"
- Quality Control of Analytical Measurements (IP Section 02.11)

The inspectors observed analytical laboratory operations and reviewed records of sample methods to verify compliance with the quality control requirements in the license application. Specifically, the inspectors completed the following activities:

- observed the preparation and Inductively Coupled Plasma (ICP) analysis of an environmental sample in the licensee's chemical laboratory
- discussed ICP calibration, sample blanks, sample standards, data acquisition and transfer to the Laboratory Information Management System

Public Dose Analysis (IP Section 02.12)

The inspectors reviewed dose assessment records and associated reports to verify compliance with 10 CFR 20.1301, 10 CFR 20.1302, and the reporting requirements of 10 CFR 20.2107. Specifically, the inspectors completed the following activities:

- reviewed the "2021 ALARA Environmental Monitoring and Effluent Review," dated March 4, 2022
- interviewed the data analyst about the data and techniques used to populate the COMPLY dose assessment modeling software

Environmental Sampling (IP Section 02.13)

The inspectors reviewed environmental sampling records of surface water, sediment, soil, vegetation, ambient air, groundwater, direct radiation, and/ or sanitary sewer sludge, if applicable, to verify compliance with 10 CFR 20.1501 and the license application. Specifically, the inspectors completed the following activities:

- accompanied a radiological technician during sample filter paper change-out activities associated with air samplers that were located around the perimeter of the GNF-A facility, and exhaust stack samples located at each exhaust stack
- discussed filter paper handling techniques, air volume settings using a rotameter or electronic automated controller, and calibration of the equipment
- assessed the material condition, functionality, calibration, and sample filter paper change-out processes
- reviewed operating procedures EPI-O-9 "Environmental Ambient Air Sampling Stations" and EPI-O-6, "Stack Sampling Program"

Minimizing Facility and Environmental Contamination and Facilitating Decommissioning (IP Section 02.14)

The inspectors reviewed decommissioning records to verify compliance with 10 CFR 70.25(g) and 10 CFR 20.1406. Specifically, the inspectors completed the following:

- conducted walkdowns of plant areas around the processing buildings, including UF6 cylinder storage yard, material storage boxes awaiting

incineration and material recovery, and the previous wastewater treatment facility to verify radiological materials were properly stored  
Radioactive Waste Classification, Characterization, and Storage (IP Section 02.15)

The inspectors reviewed documentation and records of facility activities and observed posting and labeling of storage areas and containers to verify compliance with the requirements of 10 CFR 61.55 and the license application. Specifically, the inspectors reviewed the following records:

- posting and labeling of four drums of radiologically contaminated machine lubricating oil, labeled "Used Oil"
  - Drum #000GW03222/Batch #44
  - Drum #000GW03219/Batch #41
  - Drum #000GW03220/Batch #42
  - Drum #000GW03221/Batch #43

#### Waste Burial (IP Section 02.16)

This section is not applicable as there is no known history of buried radioactive waste at GNF-A.

#### Effluent Treatment (IP Section 02.17)

The inspectors conducted walkdowns and observations and reviewed records of on-site waste treatment facilities and airborne effluent scrubbers and filters to verify compliance with the license application. Specifically, the inspectors completed the following activities:

- performed walkdowns of the following waste water treatment systems
  - process area wastewater pre-treatment equipment
  - two treatment tanks outside the process buildings
  - final settling/aeration basins

### **FACILITY SUPPORT**

#### 88051 - Evaluation of Exercises and Drills

The inspectors observed and evaluated the licensee's graded biennial exercise conducted on June 16, 2022, as well as briefings and critiques involving both on-site and off-site participants, to verify compliance with 10 CFR 70.22(i)(3)(xii) and the GNF-A Radiological Contingency and Emergency Plan. The scenario involved a simulated natural gas explosion in the incinerator building resulting in a breach of building containment, dispersal of low-level radioactive material in the immediate area North of the building, residual fire impacts, and a contaminated injured person.

#### Exercise Planning (IP Section 02.01)

The inspectors reviewed the emergency exercise scenario, discussed the exercise objectives with licensee personnel, observed controller, evaluator, and player briefings, and walked down the plant areas before the exercise to verify compliance with the Emergency Plan, Emergency Plan Implementing Procedures, and 10 CFR 70.22(i)(3)(xii). 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 in preparation for the exercise
- duties and responsibilities for exercise personnel including controllers, evaluators, and observers
- confidentiality of the scenario and objectives

#### Exercise Execution and Emergency Plan Implementation (IP Section 02.02)

The inspectors observed the initiation of the emergency exercise, the activation of the Emergency Control Center (ECC), site Emergency Organization (EO), and the site Emergency Response Organization (ERO), and reviewed the off-site dose assessments to verify compliance with the Emergency Plan, Emergency Plan Implementing Procedures, and 10 CFR 70.22(i)(3)(xii). The inspectors observed or reviewed the following:

- the licensee's analysis of plant conditions including assessment and classification of the accident scenario
- staffing for all ECC positions
- protective action recommendations implemented by the ECC
- drafting of off-site notifications including a review of content and time of issuance
- on-site communication to occupational workers as it related to protective action recommendations
- occupational workers participation in protective actions (shelter-in-place) and the process to conduct personnel accountability
- press release approval and issuance
- the Emergency Director and Incident Commander (IC) command and control of the ECC, ERO, and EO
- use of applicable Radiological Assessment System for Consequence Analysis software and use of the dose assessment, radiation survey results, and environmental monitoring results during assessment of the accident scenario
- response coordinators' recommendations regarding conditions for terminating the event and restarting normal operations
- recovery and re-entry recommendations implemented by the ECC and IC
- establishing the incident command post up wind of the accident
- members of the licensee's emergency response team assembly at designated assembly areas and the arrival of off-site emergency responders including fire and rescue services
- emergency response team's actions including search and rescue activities for casualties, assessment of the affected area, fire fighting, and contamination control
- prioritization of the severity of medical injuries versus decontamination of the victim
- 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 off-site 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 Radiological Contingency and Emergency Plan, Emergency Plan Implementing Procedures, and 10 CFR 70.22(i)(3)(xii). The inspectors reviewed the following:

- critiques conducted by the licensee; which included input from off-site participants
- discussion regarding whether drill objectives were satisfied
- documented deficiencies identified during critiques including items planned for entry into the licensee's CAP

### **INSPECTION RESULTS**

No issues were identified.

### **EXIT MEETINGS AND DEBRIEFS**

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

- On May 19, 2022, the inspectors presented the operational safety (IP 88020) and environmental protection (IP 88045) inspection results to Doug Nay and other members of the licensee staff.
- On June 16, 2022, the inspectors presented the emergency preparedness exercise (IP 88051) inspection results to Doug Nay and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88020	ALARA Plans	2021 ALARA Environmental Monitoring and Effluent Review		03/04/2021
	Calculations	CALC 900-006	SNM Powder Spill Frequency	Rev. 6
		COMPLY: V1.7	Report on Compliance with The Clean Air Act Limits For Radionuclide Emissions	01/25/2022
	Corrective Action Documents	38304	Cold Trap Load Cell Visual Verification	
		38402	Visible UO2F2 on 30B Cylinder UREU103096	
		38621	Ripped Boot on Line 3 Homogenizer	1/11/2022
		39100	Line 2 Powder Outlet Moisture Probes Relay	3/15/2022
		39187	1st Quarter 2022 Environmental Audit Finding on Vaporization and Conversion	
	Corrective Action Documents Resulting from Inspection	39594	Line 3 low flow level relays FAL33224 and FAL33205 malfunction for IROFS 204-02	5/19/2022
		CR 39566	WO4449760 Annual Inspections for 2021 and 2022 (IROFS 803-08)	05/14/2022
	Engineering Evaluations	IROFS Requirements Specification (IRS) IRS-201-01	IROFS 201-01 Vaporization Cylinder Temperature and Pressure Control	Rev. 2
		IRS-201-05	Vaporization Autoclave Leak Detection System	Rev. 2
		IRS-201-07	Vaporization Room HF Alarm and Automatic Shutdown System	Rev. 2
		IRS-201-22	IROFS 201-22 Cold Trap Pressure Interlock	Rev. 2
		IRS-201-23	IROFS 201-23 Cold Trap Pressure Interlock	Rev. 2
		IRS-201-25	IROFS 201-25, Cold Trap Weight Interlock	Rev. 4
		IRS-201-26	IROFS 201-26, Cold Trap Feed Valve Interlock	Rev. 2
		IRS-204-01	IROFS 204-01 Kiln Hatch Nitrogen Purge Pressure Alarm	Rev. 1
		IRS-204-02	IROFS 204-02 Cooling Hopper Moisture Detection System	Rev. 2
		Process Hazard Analysis (PHA)-101	ISA Reference Report for the UF6 Cylinder Handling Node Group	Rev. 6



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		QRA-803/804	QRA-803/804, sections 3.2.6.3.4 and 3.3.1.3.3 DSR Baghouse Filters (IROFS 803-08)	Revision 20A
	Miscellaneous	CP-20-107-F18	DCP Powder Outlet Qualification Card	
		DCP BPG and Second Floor Additive Make-Up Qualification Card		7/29/2015
		DCP Conversion Area Complete Qualification Card		10/14/2019
		IROFS Surveillance 204-04, 207-03, 207-09	Powder Outlet and Powder Pack Equipment Barriers Visual Inspection	2/1/2021
		IROFS Surveillance 204-04, 207-03, 207-09	Powder Outlet and Powder Pack Equipment Barriers Visual Inspection	1/3/2022
		IROFS Surveillance 205-02, 206-01	Weekly Homogenizer and Blender External Oil Reservoir Checks	4/19/2022
		IROFS Surveillance 205-02, 206-01	Weekly Homogenizer and Blender External Oil Reservoir Checks	4/25/2022
		IROFS Surveillance 205-02, 206-01	Weekly Homogenizer and Blender External Oil Reservoir Checks	5/18/2022
		IROFS Surveillance 205-02, 206-01	Weekly Homogenizer and Blender External Oil Reservoir Checks	5/10/2022
		IROFS Surveillance 205-03, 205-08, 206-02, 206-10	Homogenizer and Blender Equipment Barriers	2/22/2021
		IROFS Surveillance 205-03, 205-08, 206-02, 206-10	Homogenizer and Blender Equipment Barriers	2/22/2022
		IROFS Surveillance 207-02, 207-10	Receipt Hood and Conveyor and Powder Pack Conveyor Favorable Geometry	1/28/2021
		IROFS Surveillance 207-02, 207-10	Receipt Hood and Conveyor and Powder Pack Conveyor Favorable Geometry	1/11/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		IROFS Surveillance 900-003	MRA Facilities (DCP/DSR/Gad-MRA)	12/21/2021
		IROFS Verification: IROFS 900-03	GNF-A MRA AC	11/24/2020
		ISA Team Meeting form for eCR 50597	QRA-207: CSA Implementation for Pack and Receipt	12/15/2021
		Powder Transfer Processes Qualification Card		Rev. 0
		QRA-201	DCP Vaporization	Rev. 16
		QRA-204A	Dry Conversion Process: Powder Outlet	Rev. 4
		QRA-205A	Dry Conversion Process: Homogenization	Rev. 6
		QRA-207	Powder Pack/Receipt	Rev. 14
		Quantitative Risk Assessment (QRA) -101	UF6 Cylinder Handling	Rev. 11
	Operability Evaluations	Test No.: 204-01A	Kiln Hatch N2 Purge Pressure Alarm PT#2115	2/24/2022
		Test No.: 204-01A	Kiln Hatch N2 Purge Pressure Alarm PT#2115	12/16/2021
		Test No.: 204-02	Cooling Hopper Moisture Detection System	9/23/2021
		Test No.: 204-02	Cooling Hopper Moisture Detection System	10/7/2021
	Procedures	2022 Environmental/NRC Audit Schedule		1/10/2022
		CP-27-114	Integrated Safety Analysis	Rev. 11
		EPI-E-5.0	Generation of Semi-Annual Effluent Report	
		EPI-O-2.0	Environmental Sampling of the Final Process Lagoon System, Aeration Basin, and Site Dam	
		EPI-O-6	Stack Sampling Program	
		EPI-O-9	Environmental Ambient Air Sampling Stations	
		FMO HVAC Maintenance Operation		Revision per CR 50862
		OP 201.00.209	DCP Vaporization - Abnormal Operations	Rev. 2
		OP-201.00.202	DCP Vaporization - UF6 Cylinder Handling	Rev. 1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OP-201.00.206	DCP Vaporization - Autoclave Unloading	Rev. 07
		OP-201.00.210	DCP Vaporization - Alarm Response and Emergency Operations	Rev. 2A
		TOP 50199	CAA Temporary Operating Procedure/TOP 50199, Demolition of Equipment in the UCON Skid Area/Chemical Safe-store Areas. Start 4/4/2022 – end 4/4/2023	Rev. 02
		WI-18-104-01	Internal Environmental Protection (EP) Audits	Rev. 1.0
		WI-27-102-05	Waste Control and Disposal	Rev. 2.2
		WI-27-102-11	Public Exposure To Airborne Releases (COMPLY tool)	Rev. 0.1
		WI-27-105-20	Radioactive Shipment Surveys	Rev. 8.0
	Self-Assessments	First Quarter Environmental Audit 2021		3/30/2021
		Fourth Quarter Environmental Audit 2021		12/7/2021
		Second Quarter Environmental Audit 2021		6/11/2021
	Work Orders	3120156	IROFS Surveillance (IROFS) 702-07, 702-10, 702-11, Task Details 3120156, Annual, Rad Waste Favorable Geometry Annular Tanks V-262, 264, 9010, 9011, 9500	08/25/2021
		3120419	IROFS Surveillance (IROFS) 702-09, Task Details 3120419, Annual Rad Waste Favorable Geometry Tank V9010, nozzle functionality	04/07/2022
		3120422	IROFS Surveillance (IROFS) 702-12, Task Details 3120422, Annual Rad Waste Favorable Geometry Tank V9011/V9500, nozzle functionality	04/05/2022
		4449760	Annual Inspection of CSR Bag House Filter, Baghouse for dry scrap recycle transfer, (IROFS 803-08), start date 06-JAN-2021	N/A
		WO 4690416	Calibration Inspection; Old Screener Room Accountability Scale	5/20/2021
		WO 5118090	Quarterly Weight Audit SN 774 Power Pack Hot	2/1/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		WO 5148824	Calibration Inspection Non-ACC Scale Powder Pack Hot	4/5/2022
		WO5026211	Check Operation of Line #3 Powder Outlet Moisture Pump/Shut off While Changing 3b Container	10/21/2021
88045	Miscellaneous	QRA 803/804	HVAC	Rev. 20A
88051	Miscellaneous		2022 Biennial Evaluated Exercise, Scenario Package	
			Radiological Contingency and Emergency Plan	Rev. 30
	Procedures	WI-28-114-01	Emergency Director	Rev. 1.0
		WI-28-114-05	Environmental, Health, and Safety (EHS) Advisor	Rev. 2.1
		WI-28-114-08	Building Manager	Rev. 1.0
		WI-28-114-09	Field Monitoring Team Management	Rev. 3.0
		WI-28-114-10	Emergency Response Organization (ERO) Operations	Rev. 1.0
		WI-28-114-14	Protective Actions	Rev. 2.1