



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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ATLANTA, GEORGIA 30303-1200

July 25, 2024

Matt Snider
General Manager
American Centrifuge Operations, LLC (ACO)
P. O. Box 628
Mail Stop 7560
Piketon, OH 45661

SUBJECT: AMERICAN CENTRIFUGE PLANT (ACP) – CORE INSPECTION REPORT
07007004/2024002

Dear Matt Snider:

On June 28, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at American Centrifuge Plant (ACP). On May 9, 2024, the NRC inspector discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "R. Williams, Jr.", written over a horizontal line.

Signed by Williams, Robert
on 07/25/24

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

Docket No. 07007004
License No. SNM-2011

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: AMERICAN CENTRIFUGE PLANT (ACP) – CORE INSPECTION REPORT
07007004/2024002 DATED JULY 25, 2024

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NAME	J. Grice	R. Williams			
DATE	7/23/2024	7/25/2024			

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 07007004

License Number: SNM-2011

Report Number: 07007004/2024002

Enterprise Identifier: I-2024-002-0053

Licensee: American Centrifuge Operations, LLC (ACO)

Facility: American Centrifuge Plant (ACP)

Location: Piketon, Ohio

Inspection Dates: May 06, 2024 to May 10, 2024

Inspectors: J. Grice, Fuel Facility 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 American Centrifuge Plant (ACP), 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 inspector 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 inspector evaluated selected aspects of the licensee's Operational Safety program to verify compliance with selected portions of Title 10 of the Code of Federal Regulations. Part 70 (10 CFR 70), including 70.24, 70.61, 70.62, and Chapter 11, "Management Measures," of the facility's license application, and applicable licensee procedures.

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

The inspector 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 inspector selected a sample of accident sequences in nuclear criticality safety, fire safety, and chemical safety based on the information provided in the integrated safety analysis (ISA) summary and safety basis documentation. The inspector conducted a general plant tour of each major plant operating area. The process areas and accident sequences selected for review are listed below:

- Withdrawal Area
 - NCSE-FWS-002, Criticality Accidents
- Process Building
 - HD1-2, Large fire in the Process Building results in a release of Uranium Hexafluoride (UF₆) from damaged process equipment, centrifuges, cylinders, cold traps, chemical traps or headers
 - HD1-6, Large fire in the Process Building due to ongoing construction activities results in a release of UF₆ from damaged process equipment, centrifuges, cylinders, cold traps, chemical traps or headers
 - HD7-7, Heavy rains result in shallow flooding of Process Building/Interplant Transfer Corridor/Recycle/Assembly Building/CTTF with subsequent damage, as appropriate for a given facility, to the process equipment, centrifuges, cylinders, cold traps, chemical traps or headers and release of UF₆.

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

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

- IROFS 7.3.1.2, Combustible Material Control Program - Inside Buildings Administrative Control, (AC)
- IROFS 7.3.1.3, Limitations on Fossil Fueled Vehicles Used in ACP Buildings, AC
- IROFS 7.3.1.5, Non-flammable Refrigerant, Passive Engineered Control (PEC)
- IROFS 7.3.3.2, Vehicle Access Control, AC
- IROFS 7.3.6.4.1.4, Cold Box Design Features, PEC
- IROFS 7.3.6.4.1.5, Cold Box Configuration, PEC
- IROFS 7.3.6.4.1.6, Chemical Trap Design Features, PEC
- IROFS 7.3.6.10.1.9.2 Cascade Dump Chemical Traps, PEC
- IROFS 7.3.6.1.1.26, Cascade Dump Traps (NaF) and Withdrawal Outlet Traps (AL2O3), PEC
- IROFS 7.3.6.4.2.1, Tails Withdrawal Cold Trap Temperature, Active Engineered Control (AEC)
- IROFS 7.3.6.4.2.2, Tails Withdrawal Cold Trap Pressure, AEC
- IROFS 7.3.6.4.2.3, Cold Box Fan Disconnect, Active Engineered Control, AEC
- IROFS 7.3.6.4.2.4, Cold Box Temperature, AEC
- IROFS 7.3.6.11.2.4, Cold Box Fan Control, AEC
- IROFS 7.3.6.4.3.1, Cylinder Acceptance Criteria, Administrative Control, AC
- IROFS 7.3.6.4.3.2, Cylinder Inspection, AC
- IROFS 7.3.6.4.3.3, Cylinder Handling, AC
- IROFS 7.3.6.4.3.4, Pigtail Handling and Storage, AC
- IROFS 7.3.6.4.3.5, Pig Tail Leak Test, AC
- IROFS 7.3.6.4.3.6, Manual Isolation Valves for Tails Cold Trap Pressure Transmitters, AC
- IROFS 7.3.6.4.3.7, Bypass Prohibited in Tails Withdrawal Refrigeration Cycles, AC
- IROFS 7.3.7.5, Building Finished Floor Elevation Above Storm Drainage Swales, PEC

Implementation of Safety Controls (IP Section 02.03)

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

- performed walkdown of the processing building to verify the implementation the related IROFS
 - 7.3.7.5
 - 7.3.1.3
 - 7.3.1.5
 - 7.3.3.2
- performed walkdown of the withdrawal area to verify the implementation the related IROFS
 - 7.3.6.4.2.1
 - 7.3.6.4.2.2
 - 7.3.6.4.2.3
 - 7.3.6.4.2.4
 - 7.3.6.11.2.4
 - 7.3.6.4.3.6
 - 7.3.6.4.1.4
 - 7.3.6.4.1.5
 - 7.3.6.4.1.6
 - 7.3.6.10.1.9.2
 - 7.3.6.1.1.26
- reviewed procedures that implement the IROFS in the X-3001 Process Building and the Withdrawal Area.
- reviewed the Boundary Definition Documents for the IROFS inside the Process Building and the Withdrawal Area.
- interviewed one (1) Cascade Operator on applicable IROFS and IROFS training in the Process Building and the Withdrawal Area
- interviewed two (2) maintenance support techs on applicable IROFs and IROFS training in the Withdrawal Area
- interviewed one (1) Nuclear Safety (NS) Manager, one (1) NS Consultant, and one (1) NS Trainer on applicable IROFS in the Withdrawal Area and training
- interviewed Quality Control (QC) supervisor on applicable IROFS implementation

Safety Control Support Programs (IP Section 02.04)

The inspector 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 inspector conducted the following:

- reviewed preventative maintenance work orders for active engineered IROFS in the Withdrawal Area
 - PM-2200001129, PM for Cold Trap Tails
 - PM-2300000166, PM for Cold Trap Tails
 - PM-2300001600, PM for Cold Trap Product, Product Cold Box #2
 - PM2200001146, Preventative Maintenance for Cold Trap Tails
- reviewed ACP-2023-A05, Independent Audit of Chemical Process Safety Program
- reviewed ACP-MA-2023-16, management Assessment of the Change Evaluation Program

- reviewed Condition Notifications (CNs) associated with degraded IROFS and IROFS related equipment in the inspection focus areas:
 - CN# 11817
 - CN# 11819
 - CN# 11818
 - CN# 11369
- reviewed training records to verify IROFS training for the following positions:
 - One Plant Shift Superintendent
 - One QC Supervisor
 - One Cascade Operator
 - One Maintenance Support Tech
- observed Corrective Action Review Team Meeting
- interviewed Engineering Manager on Corrective action process.

INSPECTION RESULTS

No issues were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On May 9, 2024, the inspector presented the core inspection results to Matt Snider and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88020	Corrective Action Documents	AC Condition Notification #11817	MTE-LC-160 MKS Vacuum Calibrator found to be outside of tolerance	05/06/2024
		AC Condition Notification #11819	Procedure improvements identified for ACD4-OP-035, "Operating of the Adventurer Balance Sample Scale AX2022."	05/06/2024
		AC Condition Notification (CN) #11369	Identification of a freezer, potentially containing flammable refrigerant, that was introduced into the X-3001 Process Building	8/17/2023
		AC Condition Notification Action #17888	Corrective Actions assigned for CN #11817	05/07/2024
		AC Condition Notification SubTask #36629	Subtask to perform the corrective actions described in CN Action #17888	5/7/2024
		AC Condition Notification SubTask #36640	Subtask to remove administrative controls based on the results of the extent of condition report from Subtask #36629	05/08/2024
		AC Condition Report #11818	Discovery of gulper flexible intake in degraded condition	05/06/2024
		AC Required Reading #17623	Required Reading for Plant Shift Superintendent (PSS) Desk Guide	02/13/2024
	Drawings	07-555-0204	Chemical Trap Assembly	Rev. 1
		07-555-0205	Chemical Trap Assembly	Rev. 1
		07-555-0206	Chemical Trap Assembly	Rev. 1
		07-555-0207	Chemical Trap Assembly	Rev. 1
	Engineering Evaluations	BDD-104-1d	Active Design Features for Product Tails Withdrawal	Rev. 4
		BDD-H-001	Building and Equipment Constructed of Noncombustible Materials	Rev. 1
		BDD-H-002	Control of Combustibles Inside Building	Rev. 0
		BDD-H-003	Limitations on Fossil Fueled Vehicles	Rev. 0
		BDD-H-005	Non-Flammable Refrigerant	Rev. 0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		BDD-H-006	Fire Suppression	Rev. 4
		BDD-H-008	Vehicle Access Control	Rev. 1
		BDD-H-010	Building Structural Components	Rev. 0
		BDD-H-012	Structure Design	Rev. 1
		BDD-H-013	Structure Located Above Flood	Rev. 0
		BDD-H-014	Building Elevation	Rev. 0
		BDD-H-104-1a	Passive Design Features for Withdrawal Operations	Rev. 3
		BDD-H-104-1b	Active Design Features for Tails Withdrawal	Rev. 2
		BDD-H-104-1c	Active Design Features for Tails Withdrawal	Rev. 3
		BDD-H-104-2	Administrative IROFS	Rev. 1
		ESDS-AC-0255	ESDS Cover Sheet for Chemical Traps for HALEU Cascade	Rev. 1
		LA-3605-0003	Integrated Safety Analysis Summary for the American Centrifuge Plant in Piketon, Ohio	Rev. 45
		LA-3605-0003A	Addendum 1 of the Integrated Safety Analysis Summary for the American Centrifuge Plant - HALEU Demonstration in Piketon, Ohio	Rev. 33
		NCSE-FWS-002	Nuclear Criticality Safety Evaluation for Withdrawal Operations	Rev. 5
	Miscellaneous		CART Review Agenda	05/09/2024
		AC-488	M&TE Use Log Cover Sheet for MTE-LC-160 Portable Vacuum Calibrator System	3/14/2024
		AC-617 ACD2-RG-007	Operating Experience Lessons Learned, Flammable Refrigerant Screening	01/22/2024
		AC-708	Request for Fossil Fueled Vehicle Within ACP Facilities	04/08/2024
		ACP04.02.74-U01039	NCSE Training Module for the Feed System and Withdrawal Operations (NCSE-FWS-009, NCSE-FWS-002)	Rev. 1
		ACP12.01.08 - U01092	Screening Manager Training	Rev. 0B
		ACP12.01.09 - U01095	Plant Shift Superintendent (PSS) Training Module	Rev. 0B
		LA-3605-0001	License Application for the American Centrifuge Plant in Piketon, Ohio Docket No. 70-7004	Rev.71
		PM-2200001129	Preventative Maintenance (PM) for the Cold Trap Product,	12/05/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Product Cold Box #3	
		PM-2300000166	PM for Cold Trap Tails	07/26/2023
		PM-2300000172	PM for Cold Trap Tails	6/7/2023
		PM-2300001600	PM for Cold Trap Product, Product Cold Box #2	12/23/2023
		PM2200001146	Preventative Maintenance for Cold Trap Tails	01/31/2023
		PM2300000167	PM for Cold Trap Tails	01/03/2024
		Training Record	Training Record for Maintenance Support Tech	05/09/2024
		Training Record	Plant Shift Superintendent (PSS) Training Records	05/08/2024
		Training Record	Training Record for Quality Control Supervisor	05/08/2024
		Training Record	Training Record for Cascade Operator	05/08/2024
	Procedures	ACD2-FO-003	Vehicle Control Within ACP Facilities	Rev. 6
		ACD2-MA-002	Work Control Process	Rev. 35
		ACD2-PM-001	Preventative Maintenance Program	Rev. 13
		ACD2-QM-101	Inspection Program	Rev. 23
		ACD2-RG-004	Corrective Action Process	Rev.26
		ACD2-RG-044	Regulatory and Security Event Notification and Reporting	Rev. 26
		ACD3-EO-064	Valve Positioning Controls	Rev. 7
		ACD3-FO-002	Operability Determinations and IROFS Systems, Structure, and Component Tracking	Rev. 3
		ACP2-EG-017	IROFS Surveillance Program	Rev. 6
		ACP3-FO-004	Initial Operability Of IROFS For HALEU Operation	Rev. 0
		ACP3-ST-002	HALEU Tails Cold Box IROFS Surveillance Testing and Calibration	Rev. 14
		ACP3-ST-004	HALEU Product Cold Box IROFS Surveillance Testing and Calibration	Rev. 8
	Self-Assessments	ACP-2023-A05	Independent Audit of Chemical Process Safety Program	03/06/2024
		ACP-MA-2023-16	Management Assessment of the Change Evaluation (CE) Program	12/14/2023