



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 23, 2014

Mr. Steven R. Penrod, Vice President
Enrichment Operations
USEC Inc.
3930 U.S. 23 South
P.O. Box 628
Piketon, OH 45661

**SUBJECT: USEC INC., LEAD CASCADE NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT NUMBER 70-7003/2013-005**

Dear Mr. Penrod:

This letter refers to the inspections conducted during the period from October 1 through December 31, 2013, at the USEC Inc., Lead Cascade Facility in Piketon, OH. The purpose of these inspections was to determine whether activities authorized under the license were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. The enclosed integrated report presents the results of these inspections. The findings were discussed with members of your staff at exit meetings held on October 28 and December 20, 2013.

During the inspections, the NRC staff examined activities conducted under your license as they related to public health and safety and to confirm compliance with the Commission's rules and regulations, and with the conditions of your license. Areas examined during the inspections are identified in the enclosed report. Within these areas, the inspections consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of the inspections, no violations of NRC requirements were identified.

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning this inspection, please contact Leonard Pitts at (404) 997-4708.

Sincerely,

/RA/

James A. Hickey, Chief
Projects Branch 1
Division of Fuel Facility Inspection

Docket No. 70-7003
License No. SNM-7003

Enclosure:
NRC Inspection Report Number 70-7003/2013-005
w/Attachment: Supplementary Information

cc: (See page 3)

Should you have any questions concerning this inspection, please contact Leonard Pitts at (404) 997-4708.

Sincerely,

/RA/

James A. Hickey, Chief
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S. Penrod

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-7003

Certificate No.: SNM-7003

Report No.: 70-7003/2013-005

Licensee: USEC Inc.

Facility: American Centrifuge Lead Cascade Facility

Location: Piketon, OH

Dates: October 1 through December 31, 2013

Inspectors: L. Pitts, Senior Fuel Facility Inspector, DFFI
N. Pitoniak, Fuel Facility Inspector, DFFI
T. Vukovinsky, Fuel Facility Inspector, DFFI
T. Goulding, Fuel Facility Inspector (Training), DFFI

Approved by: J. Hickey, Chief
Projects Branch 1
Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

United States Enrichment Corp., Lead Cascade
NRC Inspection Report 70-7003/2013-005
October 1 – December 31, 2013

Inspections were conducted by region-based inspectors during normal shifts in the areas of Radiological Controls and Facility Support. The inspectors performed a selective examination of licensee activities which were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records.

Radiological Controls

- The Environmental Protection program was implemented in accordance with the license application and regulatory requirements. (Paragraph A.1)

Facility Support

- The graded biennial emergency drill was implemented in accordance with the Emergency Plan and regulatory requirements. (Paragraph B.1)
- The training program was implemented in accordance with the license application and regulatory requirements. (Paragraph B.2)
- The Plant Modifications program was implemented in accordance with the license application and regulatory requirements. (Paragraph B.3)
- The Management Organization and Controls programs were implemented in accordance with the license application and regulatory requirements. (Paragraph B.4)

Other Areas

- Temporary Instruction 2600/017, Review of the Implementation of the Decommissioning Planning Rule was completed. (Paragraph C.1)

Attachment

Key Points of Contact

List of Items Opened, Closed, and Discussed

Inspection Procedures Used

REPORT DETAILS

Summary of Plant Status

The licensee continued the planned installation and evaluation of the research, development and demonstration phase of the American Centrifuge Plant.

A. Radiological Controls

1. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors reviewed program changes and procedures revised since the last inspection and verified that the program and procedures were in accordance with license requirements. The inspectors reviewed self-assessments and audits and verified that identified corrective actions were adequately implemented.

The inspectors reviewed quality control (QC) program requirements and determined that the QC programs of laboratory services measurements were implemented in accordance with the license application.

The inspectors reviewed the 2012 annual effluent reports and determined that the licensee was in compliance with the license application. The inspectors reviewed records and performed a safety walk-down of the only radiological airborne effluent source. This source, identified as the vacuum pump filtered discharge, exhausted from X-3001, North Purge Vacuum Vent. The inspectors also performed safety walk-downs of the two storm water runoff streams and sampling systems for National Pollutant Discharge Elimination System (NPDES) outfalls located at the X-2230M southwest holding pond, and X2230N west holding pond. The inspectors reviewed records of storm water runoff through the NPDES outfalls and inspected the sampling equipment at the remote sites. The inspectors verified compliance with the license application and approved procedures. The inspectors reviewed records of airborne effluents and determined that the licensee was in compliance with the license application and approved procedures. The inspectors reviewed records of liquid effluents and verified compliance with the license application approved procedures. The inspectors verified that liquid and gaseous effluent monitors were calibrated and functional checks were performed in accordance with license conditions and procedures.

The inspectors reviewed the public dose assessment and determined that the most recent total annual average effluent concentrations for 2012 did not exceed the values specified in Appendix B of 10 CFR Part 20. The maximum total dose to a postulated individual likely to receive the highest dose from the licensed operation did not exceed the regulatory limit in 2012. The most recent annual radiological data for 2012 indicated that the most exposed member of the public received only 0.031 millirem, relative to the national average annual background of 360 millirem. The inspectors reviewed the public dose assessment and verified that result was in compliance with the As Low As Reasonably Achievable (ALARA) constraint required by 10 CFR 20.1101(d).

b. Conclusion

No violations of NRC requirements were identified.

B. Facility Support

1. Evaluation of Exercises and Drills (IP 88051)

a. Inspection Scope and Observations

The inspectors reviewed the emergency drill scenario and discussed the exercise objectives with licensee personnel before the exercise. The inspectors walked down the plant to assess the effectiveness of the visual aids used in the drill and verified that the licensee had not pre-staged equipment in anticipation of the exercise.

The inspectors observed and evaluated the licensee's graded biennial exercise conducted on October 26, 2013. The scenario included a ruptured uranium hexafluoride (UF₆) cylinder that resulted in numerous injured personnel. Protective actions were required and offsite assistance was utilized.

At the initiation of the emergency drill, the inspectors verified that the licensee assessed the accident scenario, analyzed the plant condition, and properly classified the event. The event was classified as a site area emergency in accordance with the Emergency Plan. The inspectors observed the activation of the Emergency Operations Center and noted that all required positions were fully staffed in accordance with the Emergency Plan. The inspectors verified that the protective action recommendations implemented by the emergency organization were appropriate for the accident scenario and in accordance with the Emergency Plan.

The inspectors verified that the initial offsite notifications were completed within the time periods specified in the Emergency Plan and were adequate in content. The inspectors verified that the onsite communications to the occupational workers were consistent with the protective action recommendations implemented by the emergency organization. The occupational workers participated in the evacuation/shelter-in-place protective actions and personnel accountability in accordance with approved procedures. The inspectors reviewed the emergency organization communicators' press releases. The inspectors determined that the press releases were reviewed by the Crisis Manager prior to issuance and were in accordance with the Emergency Plan.

The inspectors determined that the Crisis Manager maintained adequate command and control of the emergency organization. The inspectors reviewed the offsite dose assessment conducted by the site dose assessor. The inspectors verified that the Crisis Manager utilized the dose assessment, radiation survey results, and environmental monitoring results during the assessment of the accident scenario.

The inspectors observed members of the licensee's emergency response team assemble at the designated assembly area and the arrival of the off-site emergency responders including fire, emergency medical, and police. The inspectors observed the emergency response team's search and rescue activities for casualties, assessment of the affected area and response to additional emerging situations. The Incident Commander adequately coordinated action with the off-site emergency responders. The inspectors verified that the emergency response team activities were appropriate for the exercise scenario and were adequate in meeting the drill objectives.

The inspectors observed the staff critiques of the emergency exercise. The inspectors verified that the licensee initiated documentation of critique items discussed in the corrective actions program.

b. Conclusion

No violations of NRC requirements were identified.

2. Operator Training (IP 88010)

a. Inspection Scope and Observations

The inspectors reviewed the Operator Training program and evaluated the program against the license application. The inspectors interviewed the licensee on changes to the training program in the past year and reviewed applicable procedure revisions. The inspectors determined that changes made were in accordance with the license application. The inspectors reviewed ACD2-TP-002, Training Program procedure, and determined that operator training was implemented in accordance with requirements and commitments in the license application.

The inspectors discussed training with selected staff in a variety of positions. The inspectors interviewed class participants on the content of the training material and the frequency and effectiveness of operator continuing training. The inspectors also reviewed the Training Requirements Matrices (TRMs) and Training Development and Administrative Guides (TDAGs) for operations technicians and shift supervisors. The inspectors determined that operations continuing training was performed in accordance with license application requirements as implemented by licensee procedures.

The inspectors reviewed the status of training modules revised to support operation of the Commercial Demonstration Cascade (CDC) and performed a detailed review of the needs/task analysis and training development for Training Module U00914 (CDC Machine Cooling Water 300 Level Operations).

The inspectors reviewed training and qualification records for three operations technicians and three operations shift supervisors. All documentation was found to be complete and accurate.

b. Conclusion

No violations of NRC requirements were identified.

3. Permanent Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors interviewed the Design Engineering Manager to verify that the licensee has established an effective configuration management system to evaluate, implement, and track permanent plant modifications (PPMs) to the site which could affect safety.

The inspectors verified that the licensee's work control program had provisions to ensure the adequate pre-job planning and preparation of permanent plant modification design packages. The configuration management system had adequate provisions to ensure that permanent plant modifications did not degrade the performance capabilities of items relied on for safety or other safety controls that are part of the safety design basis.

The inspectors reviewed the plant modification design package associated with the CDC for accuracy. This included the parent and child change packages associated with CDC. The inspectors verified that the field modifications were in accordance with the design package. The inspectors verified that applicable post maintenance installation and testing requirements were adequately identified and performed prior to implementation of PPM design packages. Completed modifications were adequately reviewed prior to implementation and before returning affected equipment to service.

The inspectors verified that the licensee addressed baseline design criteria stipulated in 10 CFR 70.64 in the designs of PPMs. The inspectors verified that the licensee addressed the impacts of modifications to the Integrated Safety Analysis (ISA), ISA Summary, and other safety program information developed in accordance with 10 CFR 70.62.

The inspectors reviewed the licensee's problem identification and resolution (PI&R) program to verify that issues relating to the preparation and installation of PPMs were entered into the corrective action program and adequate corrective actions were implemented.

b. Conclusion

No violations of NRC requirements were identified.

4. Management Organization and Controls (IP 88005)

a. Inspection Scope and Observations

The inspectors evaluated samples of the facility management organization for the required personnel qualifications, responsibilities, and functions required to adequately implement the safety programs as defined by the license application and regulatory requirements. The inspectors determined that the licensee had been adequately implementing the organizational structure, policies, and approved operating procedures required to maintain the facility in a safe condition. The inspectors verified samples of internal reviews, external vendor audits, self-assessments, and other audits that identified, prioritized, and corrected deficiencies related to regulated activities. The inspectors reviewed samples of the licensee's PI&R program and determined that the program was being adequately implemented.

The inspectors reviewed selected Safety Review Committee minutes and determined that those minutes clearly identified the staff and management that were present and that the quorum requirements of ACD2-MP-001 were met. The inspectors performed safety evaluation walk downs of most interior and exterior areas of the production complex and determined that these areas were being adequately maintained.

The inspectors reviewed ACD2-TP-001, "Procedure Process" and determined that the requirements specified in ACD2-TP-001 complied with those established in Section 11.4 of the License Application. The inspectors reviewed five procedures currently being used in the field and specifically reviewed TP-2201-0087, Power Outage Testing, Cascade System Response, and found that the process used for approving those procedures complied with ACD2-TP-001 and the requirements of Section 11.4 of the License Application. Additionally, the inspectors found that all procedures reviewed were properly approved and the current revision. The inspectors observed performance

of TP-2201-0087, Power Outage Testing, Cascade System Response, and noted that the staff performing this test consistently displayed a focus on safety, precise communications and procedure adherence.

b. Conclusion

No violations of NRC requirements were identified.

C. Other Areas

1. Temporary Instruction (TI) 2600/017, Review of the Implementation of the Decommissioning Planning Rule (DPR)

- a. Based on the results of the environmental inspection documented in Section A.1, the inspectors verified that the licensee maintained adequate radiological control programs to minimize the introduction of radiological contamination into the site environment, and had a program to ensure that releases of radioactivity to the environment are promptly identified and characterized using procedure ACD4-EC-002, Tracking of Radiological Releases to the Environment, Revision 6, dated January 30, 2013. In addition, the inspectors verified that the licensee recorded radiological survey data to identify the location and concentrations or quantities of contamination that may require remediation at the time of license termination, and was reporting updated financial assurance as required by the DPR.

D. Exit Meeting

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized at the exit meetings conducted on October 28 and December 20, 2013. No dissenting comments were received from the licensee. Proprietary information was discussed but not included in the report.

SUPPLEMENTARY INFORMATION

1. KEY POINTS OF CONTACT

<u>Name</u>	<u>Title</u>
S. Arnold	FBP Emergency Manager
C. Bauer	FBP Emergency Management
J. Corrado	Regulatory Manager
T. Coulter	Training Manager
F. Dawkins	Training Assistant Manager
D. Fosson	Operations Manager
S. Fout	Technical Services Manager
D. Ghearing	Design Engineer
G. Goslow	Environmental Technician
C. Hamilton	Industrial Safety Manager
R. Jacobs	Maintenance Manager
J. Kammer	Shift Supervisor
J. Lewis	Deputy General Manager
M. MacCrae	Quality Assurance Manager
T. Martin	Regulatory Engineer
J. Milo	Regulatory Engineer
M. Redden	Emergency Management Director
D. Rogers	General Manager
B. Teeters	Design Engineer
D. Weber	Engineering Manager
G. Workman	Plant Services Manager

2. ITEMS OPENED, CLOSED, AND DISCUSSED

None

3. INSPECTION PROCEDURES USED

88005	Management Organization and Controls
88010	Operator Training
88045	Effluent Control and Environmental Protection
88051	Evaluation of Emergency Exercise
88070	Permanent Plant Modifications