



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

November 18, 2021

Mr. Troy Via, Chief Operation Officer
and Vice President Utility Operations
Omaha Public Power District
Fort Calhoun Station
Mail Stop FC-2-4
9610 Power Lane
Blair, NE 68008

SUBJECT: FORT CALHOUN STATION – NRC INSPECTION REPORT 050-00285/2021-004

Dear Mr. Via:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) decommissioning inspection conducted on October 25-28, 2021, at the Fort Calhoun Station, located near Blair, Nebraska. The NRC inspector discussed the results of the decommissioning inspection with other members of your staff during a final exit meeting conducted on October 28, 2021. The inspection results are documented in the enclosure to this letter.

The NRC inspection examined activities conducted under your license as they relate to public health and safety, the common defense and security, and confirmed compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas the inspection consisted of selected examination of procedures and representative records, observation of activities, and interviews with personnel. Specifically, the inspectors reviewed your decommissioning performance and radiation safety program. No violations of significance were noted and no response to this letter is required.

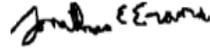
In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, if you choose to provide one, should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

T. Via

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If you have any questions regarding this inspection report, please contact Mr. Chris Steely at 817-200-1432 or the undersigned at 301-415-4024.

Sincerely,



Signed by Evans, Jonathan
on 11/18/21

Jonathan E. Evans, Acting Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Docket No.: 050-00285

License No.: DPR-40

Enclosure:

Inspection Report 050-00285/2021-004

FORT CALHOUN STATION – NRC INSPECTION REPORT 050-00285/2021-004
 DATED – NOVEMBER 18, 2021

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket No.: 050-00285

License No.: DPR-40

Report No.: 050-00285/2021-004

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane
Blair, Nebraska

Dates: October 25-28, 2021

Inspectors: Chris D. Steely
Health Physicist
Reactor Inspection Branch
Division of Nuclear Materials Safety

Linda M. Gersey
Health Physicist
Materials Licensing and Decommissioning Branch
Division of Nuclear Materials Safety

Approved By: Jonathan E. Evans, Acting Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 050-00285/2021-004

The U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the Fort Calhoun Station (FCS) under inspection report 050-00285/2021-004. In summary, the licensee was conducting these activities in accordance with site procedures, license requirements, and applicable NRC regulations.

Decommissioning Performance and Status Review at Permanently Shutdown Reactors

- The licensee was implementing the decommissioning activities in accordance with the regulations and license requirements. The inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility. (Section 1.2)

Occupational Radiation Exposure

- The licensee effectively implemented its As Low as Reasonably Achievable (ALARA) program in accordance with the procedures and regulatory requirements. The licensee demonstrated methods and practices to maintain doses ALARA. Based on a review of exposure records, RWPs and ALARA planning documentation, the inspectors concluded that there was adequate management support for and cooperation with radiation protection planning for radiological work activities. (Section 2.2)

Report Details

Summary of Plant Status

On June 24, 2016, Omaha Public Power District (OPPD), the licensee, formally notified the Nuclear Regulatory Commission (NRC) by letter of its intent to permanently cease operations of Fort Calhoun Station (FCS) (ADAMS Accession No. ML16176A213). By letter dated November 13, 2016, OPPD notified NRC that it had permanently ceased power operations at FCS on October 14, 2016, and certified pursuant to 10 CFR 50.82(a)(1)(ii), that as of November 13, 2016, all fuel had been permanently removed from the FCS reactor vessel and placed in the FCS Spent Fuel Pool (ADAMS Accession No. ML16319A254). On December 28, 2016, the NRC informed the licensee that it was no longer under NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," IMC 0608, "Performance Indicator Program," and IMC 2515, "Light-Water Reactor Inspection Program," when conducting oversight activities and assessing site performance (ADAMS Accession No. ML1636A449). The licensee was informed that the NRC's oversight of licensed activities under decommissioning would be conducted under the provisions of IMC 2561, "Decommissioning Power Reactor Inspection Program."

The licensee submitted its Post-Shutdown Decommissioning Activities Report (PSDAR) on March 20, 2017 (ADAMS Accession No. ML17089A759). The PSDAR is not a licensing action and therefore is not approved by the NRC; however, the NRC reviewed the report. The licensee's PSDAR described the decommissioning activities and schedule to support SAFSTOR strategy for the facility which is one of the options allowed by the NRC for decommissioning. The NRC subsequently held a public meeting in Omaha, Nebraska on May 31, 2017, to discuss comments regarding the FCS PSDAR. The transcript of the public meeting is available on the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>, under (ADAMS Accession No. ML17160A394).

The licensee selected the SAFSTOR decommissioning options as described in the PSDAR. The licensee had planned to continue in SAFSTOR until the spent fuel was transferred to the U.S. Department of Energy in 2058. On April 29, 2019, however, OPPD voted to change its decommissioning approach from SAFSTOR to DECON by contracting with Energy Solutions. DECON will consist of decontamination and destruction of the site in a process that will begin much sooner on a date to be determined by OPPD. FCS submitted a new PSDAR to reflect the change from SAFSTOR to DECON (ADAMS Accession No. ML19351E355).

On May 13, 2020, FCS removed the last canister of fuel and all Special Nuclear Material from the spent fuel pool. The licensee documented this event with a letter to the NRC dated May 18, 2020 (ADAMS Accession No. ML20139A138). Accordingly, FCS has entered Independent Spent Fuel Storage Installation (ISFSI)-only Technical Specifications and Emergency Plan on May 18, 2020, and ISFSI-only Security Plan on June 24, 2020.

On August 3, 2021, FCS submitted their License Termination Plan to the NRC. This document will be reviewed in order to ensure that the final status of the site meets all regulatory requirements and upon approval will be documented in future inspection reports.

1 Decommissioning Performance and Status Review at Permanently Shutdown Reactors (71801)

1.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to assess the licensee's performance in the following areas:

- Status of decommissioning and verify whether the licensee is conducting decommissioning and maintenance activities in accordance with regulatory and license requirements.
- Licensee awareness of work activities to assess their control and conduct of decommissioning.
- Status of the licensee's decommissioning staffing, personnel qualifications, and training requirements, including that of the contracted workforce, to ensure that license requirements are met, as applicable to the current decommissioning status.
- Progress and changes that potentially impact decommissioning financial assurance, to supplement information for the Financial Assurance Branch to support and ensure a thorough financial analysis review of the annual decommissioning trust fund reported by the licensee.
- Whether the licensee is identifying problems related to decommissioning and maintenance activities at an appropriate threshold and entering them into the corrective action program.
- Performed plant tours to assess field conditions and decommissioning activities.
- Observed and assessed the status of facility housekeeping.

1.2 Observations and Findings

The inspectors listened to the weekly senior leadership project review team meeting, which focused on the overall status of the plant and the upcoming major work activities. The licensee's conversations were detailed, and management facilitated knowledgeable, wide ranging discussions to discern risk, schedule, resource needs, and how to improve the process controls and oversight. The licensee management discussions demonstrated a focus on safety in addition to efficiency and budget. The inspectors also met with the Senior Director for Decommissioning to discuss plans for decommissioning activities, current and projected staffing levels as site activities progress, and the decommissioning milestones.

Inspectors toured the facility, deconstruction areas, Waste Processing Structure and containment. Through observations and plant tours, discussions with staff, and records reviews, the inspectors determined that the licensee was appropriately controlling and conducting facility operations in a safe manner. General observations by the inspectors identified good housekeeping practices, and appropriate radiological postings and labeling. The inspectors did not identify any radiation area that was not already identified and posted by the licensee.

Fort Calhoun Station is currently preparing the containment building and immediately adjacent area for the reactor vessel internals segmentation project. This will be a several months long project in which an ingress/egress route is developed through the containment building in order to allow large cutting equipment to be brought in to facilitate the segmentation and disposal offsite of the reactor vessel internal structure.

FCS has completed the process of detensioning the containment tendons to allow the development of the ingress/egress route through the containment wall. This cutting area has been significantly enlarged since the last inspection in July 2021. FCS continues to develop the opening to provide adequate room for personnel and equipment necessary to the removal of the reactor and its' supporting systems. The inspectors walked through the work area and evaluated that site personnel were focusing on safety, adherence to procedure and radiological precautions as directed by regulatory and procedural requirements.

The inspectors conducted a review of maintenance procedures, condition reports, and the prioritization schedule for preventative maintenance. The licensee's work prioritization schedule is consistent with the current status of the plant. The equipment selected for prioritization are of risk significance and are being maintained in accordance with the licensee's maintenance program with the appropriate amount of managerial oversight.

The inspectors also evaluated staff levels and training for both maintenance and the onsite contractors. Staffing levels are expected to change as the licensee progresses through the deconstruction and decommissioning process. The inspectors determined that staffing levels for these groups were commensurate with the current plant condition. Staff in both groups were qualified in their applicable positions with annual refresher training up to date as required by licensee procedures.

Licensee decommissioning cost planning and assessment, being an important part of the decommissioning process, were evaluated by the inspection team in a meeting with senior licensee management. Attending this meeting was also a project manager from the NRC Financial Assurance Branch. The inspectors determined that the licensee's cost planning and assessment were inclusive of current and planned major decommissioning activities as identified in the PSDAR. The inspectors also determined that licensee funding and expenditures were tracking as planned by the licensee with no significant deviations to expenditures up to current date nor major deviations from the decommissioning schedule.

1.3 Conclusion

The licensee was implementing the decommissioning activities in accordance with the regulations and license requirements. The inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility.

2 Occupational Radiation Exposure at Permanently Shutdown Reactors (83750)

2.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to assess the licensee's performance in the following areas:

- Planning and preparation for radiation work is adequate and licensee management supported radiological protection planning.
- Personal dosimetry for external exposure meets requirements.

- Management and administrative controls of external radiation exposure will meet requirement and is designed to maintain exposures “As Low As is Reasonably Achievable” (ALARA).
- Processes or other engineering controls are used to the extent possible to limit concentrations of airborne radioactive materials.
- Survey and monitoring activities are performed as required.
- Control of radioactive materials and contamination meets requirements.
- Effective implementation of the ALARA program.

2.2 Observations and Findings

a. Radiation Work Permits

The inspectors reviewed the following radiation work permits (RWPs) and their associated ALARA planning documents regarding radiological conditions, personnel protective equipment, engineered features or activities to reduce personnel dose and other controls for maintaining doses ALARA:

- 20-0302 – Auxiliary Building Filter Changes (AC-6 Filters) and Associated Tasks
- 20-0341 – Spent Fuel Pool Greater than Class “C” Clean-up, Processing, and Disposal
- 21-0326 – Reactor Vessel Internal Segmentation
- 21-0333 – Rad Waste Building Demolition
- 21-0340 - Spent Fuel Pool and Transfer Canal Cleanout and Decontamination and Associated Tasks

The inspectors determined that the RWPs contained sufficient detail to inform workers of the radiological hazards present, and included radiological oversight by radiation protection personnel for specific activities, hold points and stop work criteria, personnel protective equipment or other engineering features required for the work activities, alarm setpoints for dose and dose rates for anticipated work, and an assessment of dose information to be collected for the activity.

The licensee noted that one employee received an intake of radioactive material while working under RWP 21-0340, “Spent Fuel Pool and Transfer Canal Cleanout and Decontamination and Associated Tasks.” On August 27, 2021, four workers exited the Spent Fuel Pool area and one of those workers was found to have facial contamination. All four workers were given whole body counts as an investigative measure. One of the workers was assigned a whole body dose from internal nuclides of 34.8 millirem, based on particulate inhalation. The dose will be added to the worker’s annual dose assignment for 2021. The inspectors reviewed the licensee’s dose assessment report and concluded that the methods and calculations were appropriate.

b. Maintaining Occupational Exposures ALARA

When reviewing the RWPs and associated ALARA planning documents, the inspectors also assessed the document quality against the program described in RP-401, “ALARA Planning and Control,” Revision 2, issued March 3, 2021. The exposure estimates and job scopes were well documented and approved in accordance with the licensee’s

procedure. The associated total effective dose equivalent ALARA reviews for the work packages were written to ensure appropriate consideration and controls were implemented to keep worker doses ALARA. The inspectors determined that the ALARA planning packages, work scope, and dose estimates, including hold points and exposure measurement, were well thought out and provided conservative controls for maintaining exposures ALARA.

c. Personnel Exposures

Occupational exposure was measured onsite by optically stimulated laser dosimeters exchanged annually. Personnel monitored were also provided with self-reading dosimeters when entering the radiation controlled area. Data from the self-reading dosimeters is entered into the system as individuals exit the controlled area. These results are used to track dose and determine if whole body counting for internal exposure is needed. The licensee has established an administrative level of 2000 mrem/year for all monitored individuals. The inspectors reviewed the external monitoring results for the employees monitored in calendar year 2020. Six hundred seventy-eight individuals were monitored in 2020, with fifty individuals receiving greater than 100 millirem. The highest dose reported for 2020 was 559 millirem reported for an individual in the maintenance group. There were no planned special exposures or embryo/fetus doses monitored in calendar year 2020.

d. Control of Radioactive Materials and Contamination

The inspectors toured the facility, conducted in plant work activity observations, and interviewed personnel regarding the storage and handling of radioactive materials, control of contamination, and the conduct of radiological surveys and monitoring of radiological hazards. The inspectors had discussions with workers who were changing out the filters for the SFP water. The workers indicated how they maintained their occupation dose ALARA while working in High Radiation Areas. The workers were found to be knowledgeable of the procedures and had a positive safety conscience attitude.

The inspectors verified radioactive materials were properly used, labeled, and stored; contaminated and radiation areas were appropriately posted and controlled; and appropriate radiation surveys were being conducted in a timely fashion. Instruments used for surveys were calibrated and were the appropriate type for the radiation measured.

e. Annual Audit of the Radiation Protection Program

The inspectors reviewed the licensee's August 18, 2020, audit entitled "Radiation Protection 2020 Pre-NRC Inspection for Occupational Radiation Exposure and Radioactive Waste Treatment and Effluent Monitoring." The audit indicated that deficiencies and weaknesses related to the radiation protection program continued to be identified, documented, and corrected. This audit met the requirements of 10 CFR 20.1101(c).

2.3 Conclusion

The licensee effectively implemented its ALARA program in accordance with the procedures and regulatory requirements. The licensee demonstrated methods and practices to maintain doses ALARA. Based on a review of exposure records, RWPs and ALARA planning documentation, the inspectors concluded that there was adequate management support for and cooperation with radiation protection planning for radiological work activities.

3 Exit Meeting Summary

On October 28, 2021, the NRC inspectors presented the final inspection results to Mr. Tim Uehling, Senior Director, Decommissioning, and other members of the licensee's staff. All proprietary information was returned by the NRC inspection team.

SUPPLEMENTAL INSPECTION INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

T. Via, Chief Operation Officer and Vice President Utility Operations
A. Barker, Regulatory Assurance & Emergency Planning Manager
C. Cameron, Principal Regulatory Specialist
T. Uehling, Senior Director, Decommissioning
T. Maine, Plant Manager
A. Hansen, Principal Regulatory Specialist

INSPECTION PROCEDURES (IPs) USED

IP 71801	Decommissioning Performance and Status Reviews at Permanently Shutdown Reactors
IP 83750	Occupational Radiation Exposure at Permanently Shutdown Reactors

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low as Reasonably Achievable
CAP	corrective action program
CFR	<i>Code of Federal Regulations</i>
FCS	Fort Calhoun Station
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission
OPPD	Omaha Public Power District
PSDAR	Post-Shutdown Decommissioning Activities Report
RCA	Radiological Controlled Area
RWP	Radiation Work Permit
TS	Technical Specifications
FSARU	Final Safety Analysis Report (as updated)