



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
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February 17, 2021

Ms. Mary J. Fisher, Vice President
Energy Production and Nuclear Decommissioning
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 050-00285/2021-001

Dear Ms. Fisher:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) decommissioning inspection conducted on January 25-28, 2021, at the Fort Calhoun Station, located near Blair, Nebraska. The NRC inspectors discussed the results of the decommissioning inspection with you and other members of your staff during a final exit meeting conducted on January 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, radioactive waste management and transportation program, and the implementation of your fire protection program. No violations of significance were noted and no response to this letter is required.

In accordance with Title 10 *Code of Federal Regulations* 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.

M. Fisher

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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 817-200-1249.

Sincerely,

Gregory G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Docket No.: 050-00285

License No.: DPR-40

Enclosure:

Inspection Report 050-00285/2021-001

FORT CALHOUN STATION – NRC INSPECTION REPORT 050-00285/2021-001
 DATED - February 17, 2021

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket No.: 050-00285

License No.: DPR-40

Report No.: 050-00285/2021-001

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane
Blair, Nebraska

Dates: January 25-28, 2021

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

Stephanie G. Anderson
Senior Health Physicist
Reactor Inspection Branch
Division of Nuclear Materials Safety

Approved By: Gregory G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Fort Calhoun Station NRC Inspection Report 050-00285/2021-001

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 050-00285/2021-001. 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)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee was packaging and shipping radioactive wastes in accordance with regulatory requirements and with the appropriate documentation and shipping papers. (Section 2.2)

Fire Protection Program at Permanently Shutdown Reactors

- The licensee's fire protection program was being implemented and maintained in accordance with regulatory requirements and licensee procedures. (Section 3.2)

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 Title 10 of the *Code of Federal Regulations* (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.

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; and
- 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, auxiliary building, 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 is in the process of de-tensioning the containment tendons to allow the development of the ingress/egress route while also removing structure and equipment

inside of containment which will allow the space necessary for the cutting equipment. 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 the maintenance and the radioactive waste management and transportation group. 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 Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

2.1 Inspection Scope

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

- Whether the licensee provided detailed instructions and operating procedures for transfer, packaging, and transport of low-level radioactive waste;
- Whether the material was properly classified, described, packaged, marked, and labeled for transportation;

- Effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material;
- Whether the licensee is identifying problems related to radioactive waste storage, processing, and transportation activities at an appropriate threshold and entering them into the corrective action program;
- Whether the licensee used updated and audited procedures when scaling factors or correlation factors are used to quantify the concentration of hard-to-detect radionuclides; and
- Whether shipments made by the licensee were in compliance with NRC and Department of Transportation regulations.

2.2 Observations and Findings

The inspectors reviewed the licensee's radioactive waste shipment log, which documented twelve shipments through all of 2020. All of the shipments were sent to a waste burial site. The inspectors selected three shipments from the log to review for compliance with the regulations under 10 CFR 71.2, "Transportation of Licensed Material," and the licensee's procedures. These shipment numbers were U201518, 1072-04-0001, and 1072-05-0003. U201518 was the last remaining legacy steam generator stored onsite (This steam generator was from the steam generator changeout several years ago and does not include the two steam generators still in place inside of containment). The other two shipments were a mixture of demolition rubble and trash and were classified as Dry Active Waste (DAW). All shipments were accurately characterized, packaged, and met applicable regulatory requirements. The inspectors discussed the characterization of the DAW with the licensee, including how dose rates were measured, and how the waste stream analysis was performed. Through these discussions and a review of pertinent records, the DAW was characterized and packaged appropriately, and the shipping papers were generated in accordance with NRC and Department of Transportation requirements and licensee procedures.

For the shipment of the legacy steam generator, the licensee used a contractor (Energy Solutions, Inc.) to prepare, package, and transport the steam generator for burial. The inspectors reviewed the shipping paperwork associated with the steam generator shipment and held discussions with both the licensee and Energy Solutions staff. Through these discussions and reviews, the inspectors determined that the steam generator was characterized and packaged in accordance with NRC and Department of Transportation requirements and was appropriately classified as required by 10 CFR Part 61.

The licensee had multiple individuals qualified in accordance with the requirements under 49 CFR Part 172, Subpart H. For all licensee staff involved in packaging preparation and transport, the inspectors verified that these staff had received the proper training, and that the training was appropriately documented in the training records.

Since the last inspection in this area, the licensee had completed a self-assessment of the radioactive waste program during the period of October 20-28, 2020. The licensee issued NOSMDA-FC-20-09, "Fort Calhoun Station Nuclear Oversight Management Directed Assessment Report," assessing radwaste management procedure review. The

inspectors reviewed this assessment and determined it to be appropriate and in keeping with regulatory requirements.

The inspectors also reviewed the licensee's condition reports associated with the radioactive waste management and transportation program. Specifically, the inspectors evaluated the licensee's threshold for entering corrective action items, documenting the process, implementing the resolution, and finally management review. The inspectors had good discussions with the licensee concerning observations and the management review process. The inspectors determined that the licensee was implementing the corrective action program, as it concerns radioactive waste management and transportation of radioactive materials, at the appropriate threshold, with proper managerial oversight and in accordance with licensee procedures and regulatory requirements.

2.3 Conclusion

The licensee was packaging and shipping radioactive wastes in accordance with regulatory requirements and with the appropriate documentation and shipping papers.

3 **Fire Protection Program at Permanently Shutdown Reactors (64704)**

3.1 Inspection Scope

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

- Assess whether the licensee has an effective decommissioning fire protection program that is maintained and implemented to address the potential for fires that could result in the release or spread of radioactive materials;
- Verify in the absence of spent fuel in the spent fuel storage pool the decommissioning fire protection program ensures adequate protection from the fire-induced release of radioactive material from contaminated plant areas and combustible waste products; and
- Performed plant tours to assess field conditions and the storage of combustible materials.

3.2 Observations and Findings

Title 10 CFR 50.48(f) states, in part, that the licensee shall maintain a fire protection program to address the potential for fires that could cause the release or spread of radioactive materials or result in a radiological hazard. The inspectors reviewed the licensee's fire protection program for compliance with regulatory and license requirements. The inspectors reviewed the fire protection program as defined by procedure CC-FC-211, "Fire Protection Program," Revision 9.

Regulatory Guide 1.191, "Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown," describes the methods acceptable to the NRC for complying with the NRC's regulations for fire protection programs for licensees in decommissioning. This regulatory guide is referenced in the licensee's implementing

procedures, and the inspectors compared the licensee's fire protection program to the guidance provided in the regulatory guide.

The licensee's fire protection program records included a fire hazards analysis. This document provided an analysis of the various plant areas and the fire protection requirements for those areas. The licensee also developed a detailed decommissioning fire plan document, as detailed by procedure FCSD-FP-100, "Decommissioning Fire Plan," Revision 1, that described onsite fire response staffing, onsite fire response organization responsibilities, pre-fire plans for the ISFSI Operating Facility and ISFSI Area, and fire report preparation after reportable fires.

According to 10 CFR 50.48(f), the objectives of the fire protection program are to: (1) reasonably prevent fires that could result in a radiological hazard from occurring; (2) rapidly detect, control, and extinguish those fires that do occur; and (3) ensure that the risk of fire-induced radiological hazards to the public, environment and plant personnel is minimized. The inspectors compared the licensee's fire protection program against the objectives provided in the regulations.

To prevent fires from occurring, the licensee established and implemented administrative procedures for fire prevention for hot work, control of temporary heat sources, control of transient combustible material, and impairments and compensatory measures. The inspectors conducted site tours to confirm that the procedure controls were being implemented. In particular, the inspectors toured the fire areas in the containment building and the auxiliary building. The inspectors concluded that the licensee was effectively controlling combustible materials around ignition sources and impairments in these areas, in accordance with procedure requirements.

The inspectors also reviewed the fire brigade staffing requirements, training records, and the memorandums of understanding with the offsite fire brigades. All staff training requirements were completed satisfactorily.

On September 23, 2020, a fire was started in the containment as a result of hot work. The licensee was performing torch cutting on the reactor head lift ring when a piece of slag from the cutting fell multiple elevations down into a High Radiation Area, which resulted in a piece of wood and insulation catching on fire. The fire was quickly extinguished by the onsite fire watch with a fire extinguisher and the Blair and Fort Calhoun offsite fire departments responded promptly to the site. The offsite fire departments overhauled the area and verified the fire was extinguished. The inspectors reviewed the fire event report, toured the containment to review the hazards in the field, and reviewed the corrective actions taken to prevent re-occurrence. The licensee has increased the use of fire blankets around the hot work activities. The inspectors did not identify a violation of NRC requirements, due to the fire at the site.

3.3 Conclusion

The licensee was effectively implementing the fire protection program in compliance with regulatory requirements. The inspectors conducted walkdowns of plant areas and observed control of combustible materials, housekeeping, and ignition sources.

4 Exit Meeting Summary

On January 28, 2021, the NRC inspectors presented the final inspection results to Ms. Mary Fisher, Vice President, Energy Production and Nuclear 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

M. Fisher, Vice President, Energy Production and Nuclear Decommissioning
K. Daughenbaugh, Shift Supervisor, ISFSI
D. Brehm, Supervisor, Radiation Protection
M. Wiskerchen, Executive Project Director, Waste Manager
A. Barker, Regulatory Assurance & Emergency Planning Manager
C. Cameron, Principal Regulatory Specialist
B. Blome, Director, Licensing and Regulatory Assurance
T. Uehling, Senior Director, Decommissioning
T. Maine, Plant Manager
A. Hansen, Principal Regulatory Specialist
D. Whisler, Manager, Radiation Protection

INSPECTION PROCEDURES USED

IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials
IP 64704	Fire Protection Program at Permanently Shutdown Reactors

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

None

Closed

None

Discussed

None

LIST OF ACROYMNS

ADAMS	Agencywide Documents Access and Management System
CFR	<i>Code of Federal Regulations</i>
DAW	Dry Active Waste
FCS	Fort Calhoun Station
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission
OPPD	Omaha Public Power District
PSDAR	Post Shutdown Decommissioning Activities Report