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

April 28, 2022

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 050-00285/2022-002

Dear Mr. Via:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) decommissioning inspection conducted on March 29-30, 2022, at the Fort Calhoun Station near Blair, Nebraska. The NRC inspectors discussed the results of the decommissioning inspection with members of your staff during the final exit meeting on March 30, 2022. 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, occupational radiation exposure, and problem identification and resolution programs. No violations 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.

If you have any questions regarding this inspection report, please contact Dr. Robert Evans at 817-200-1234, or the undersigned at 817-200-1249.

Sincerely,

Signed by Warnick, Gregory
on 04/28/22

Gregory G. Warnick, Chief
Decommissioning, ISFSI, Operating Reactor Branch
Division of Radiological Safety and Security

Docket No.: 050-00285
License No.: DPR-40

Enclosure:
Inspection Report 050-00285/2022-002

FORT CALHOUN STATION – NRC INSPECTION REPORT 050-00285/2022-002
DATED – APRIL 28, 2022

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	050-00285
License No.:	DPR-40
Report No.:	050-00285/2022-002
Licensee:	Omaha Public Power District
Facility:	Fort Calhoun Station
Location:	9610 Power Lane Blair, Nebraska
Dates:	March 29-30, 2022
Inspectors:	Robert J. Evans, PhD, CHP, PE, Senior Health Physicist Decommissioning, ISFSI, Operating Reactor Branch Division of Radiological Safety and Security
	Linda M. Gersey, Health Physicist Decommissioning, ISFSI, Operating Reactor Branch Division of Radiological Safety and Security
Approved By:	Gregory G. Warnick, Chief Decommissioning, ISFSI, Operating Reactor Branch Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 050-00285/2022-002

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the Fort Calhoun Station. In summary, the licensee was conducting activities in accordance with site procedures, license requirements, and applicable NRC regulations.

Decommissioning Performance and Status Review at Permanently Shutdown Reactors

- The licensee conducted decommissioning activities in accordance with license and regulatory requirements. The radiation safety staff was adequately overseeing radiologically significant work activities. The inspectors discussed a work stand-down situation with the licensee and its contractors related to industrial safety, licensee expectations, and communication. Staffing levels and required training were commensurate with the current facility activities. (Section 1.2)

Occupational Radiation Exposure

- Occupational exposures for January 2021 through March 2022 were within regulatory limits. The licensee conducted a detailed review of an event that resulted in an assigned internal dose in 2021. The licensee implemented its As Low As is Reasonably Achievable planning program in accordance with regulatory and procedural requirements. The licensee conducted an annual program review that met the intent of regulations. Based on a limited review, the inspectors concluded that the licensee implemented an effective radiation work permit program. (Section 2.2).

Problem Identification and Resolution at Permanently Shutdown Reactors

- The licensee implemented a corrective action program in accordance with procedural and regulatory requirements. The licensee also implemented a quality assurance audit and oversight program in accordance with procedural and regulatory requirements.

Report Details

Summary of Plant Status

On June 24, 2016, Omaha Public Power District, the licensee, formally notified the NRC of its intent to permanently cease operations at Fort Calhoun Station (FCS) (Agencywide Documents Access and Management System [ADAMS] Accession No. ML16176A213). By letter dated November 13, 2016, the licensee notified the NRC that it had permanently ceased power operations at FCS on October 14, 2016, and certified pursuant to Title 10 *Code of Federal Regulations* (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).

The licensee submitted its Post-Shutdown Decommissioning Activities Report (PSDAR) on March 20, 2017 (ADAMS Accession No. ML17089A759). The PSDAR described the licensee's proposed decommissioning activities and schedule. At that time, the licensee selected the SAFSTOR decommissioning options as described in the PSDAR. SAFSTOR is a method of decommissioning in which a nuclear facility is placed and maintained in a condition that allows the facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use. The licensee planned to continue in SAFSTOR until the spent fuel was transferred to the U.S. Department of Energy in 2058.

On April 29, 2019, the licensee changed its decommissioning approach from SAFSTOR to DECON by contracting with Energy Solutions. DECON is a method of decommissioning in which structures, systems, and components that contain radioactive contamination are removed from the site and safely disposed at a commercially operated low-level waste disposal facility or decontaminated to a level that permits the site to be released for unrestricted use shortly after it ceases operation. By letter dated December 16, 2019, FCS submitted an updated 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 (ADAMS Accession No. ML20139A138). Accordingly, FCS entered the 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.

Regulation 10 CFR 50.82(a)(9) specifies that an application for license termination must be accompanied or preceded by a license termination plan (LTP), which is subject to NRC review and approval. On August 3, 2021, FCS submitted their LTP to the NRC (ADAMS Accession No. ML21271A178). According to 10 CFR 50.82(a)(9), the licensee must submit an LTP at least two years before termination of the license, and the NRC must hold a public meeting near the site. At the time of this inspection, the NRC planned to hold a public meeting in the vicinity of the site in the spring of 2022.

In the December 2019 revision of the PSDAR, the licensee committed to notify the NRC of the final disposition of the reactor closure vessel head (RCVH). In November 2021, the RCVH was removed from the reactor vessel and was segmented into 10 pieces. In late January 2022, the segmented RCVH and cutting slag material were loaded into railcars for offsite disposal. The railcars left the site in early February 2022. The RCVH material was placed in the disposal cell on February 11, 2022. The licensee notified the NRC of the final disposition of the RCVH by letter dated March 17, 2022 (ADAMS Accession No. ML22080A234), fulfilling the commitment provided in the PSDAR.

The licensee started to segment the reactor vessel internals in November 2021. Since the previous inspection in January 2022, the licensee continued to segment the reactor vessel internals. The licensee previously removed Class A wastes from the reactor vessel internals and shipped the material offsite for disposal. At the time of the inspection, the licensee was removing Class B and C wastes from the reactor vessel internals. The licensee plans to remove the greater-than-class C wastes from the vessel internals at a later date.

The licensee commenced with Auxiliary Building and Radwaste Building demolition on February 1, 2022. During this inspection, the licensee continued to conduct open-air demolition of plant structures. The wastes were classified as Class A wastes and were being shipped offsite for disposal by rail or trucks. In addition, the licensee was removing titanium tubes from the Turbine Building for recycling. In the near future, the licensee plans to seal the intake columns of the intake structure for further decommissioning of the structure.

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

1.1 Inspection Scope

The inspectors conducted interviews, attended licensee meetings, reviewed procedures, and conducted site tours to: (1) evaluate the status of decommissioning and verify whether the licensee is conducting decommissioning and maintenance activities in accordance with regulatory and license requirements; (2) maintain awareness of work activities to assess licensee control and conduct of decommissioning; and (3) evaluate 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.

1.2 Observations and Findings

The inspectors attended several routine meetings during the inspection, including the weekly senior leadership Performance Challenge Meeting, Plan of the Day meeting, daily Radiation Safety Staff meeting, and management review of the corrective action program. The licensee’s conversations were detailed, and management facilitated knowledgeable, wide-ranging discussions to evaluate risk, schedule, and resource needs, with a focus on safety. Staff attending the daily meetings were encouraged to voice any concerns and ask for clarification regarding the day’s work.

An inspector toured the facility, including the containment, Containment Waste Structure, deconstruction areas, and Intake Structure. While touring containment, the inspector had conversations with radiation safety staff who were overseeing contractor’s work to ensure safe radiation practices were being followed. The radiation safety staff was found to be knowledgeable about the most significant radiological and industrial safety hazards. The inspector noted that there was a significant amount of activity by different contractors in containment which could cause changing radiological and industrial safety conditions. The inspector concluded that there was sufficient radiation safety oversight to keep the contractors informed of changing hazardous conditions.

During the inspection, the licensee requested a work stand-down from a subcontractor to address several negative observations that were identified over three consecutive days.

The inspectors attended a meeting with management from the licensee, contractor, and subcontractor to clarify the events leading up to the stand-down. The subcontractor was involved with the demolition of non-radiologically impacted structures, and the negative observations were related to industrial safety hazards. One negative observation was related to a small fire on a piece of compact loading equipment being used by the subcontractor for internal demolition of the Auxiliary Building. A piece of hot slag apparently dripped onto a greasy spot of the loading equipment which sparked a small fire. The subcontractor immediately used a fire extinguisher to put the fire out.

The inspectors inquired if use of a fire extinguisher required notification of the licensee's designated on-site fire marshal. The licensee had expectations that use of a fire extinguisher should require a conversation with the on-site fire marshal, although this action was not proceduralized, nor was the subcontractor informed. The inspectors determined that a lack of communications regarding expectations existed between the licensee, contractor, and subcontractor. Although there were no radiologically significant issues identified in this situation, the inspectors stressed the importance of licensee oversite of its contractors and subcontractors and making expectations clear.

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 the radiologically restricted areas 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.

The inspectors 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 facility activities. Staff in both groups were qualified in their applicable positions with initial and annual refresher training being up-to-date as required by licensee procedures.

1.3 Conclusion

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. The radiation safety staff was adequately overseeing radiologically significant work activities. The inspectors discussed a work stand-down situation with the licensee and its contractors related to industrial safety, licensee expectations, and communication. Staffing levels and required training were commensurate with the current facility activities.

2 Occupational Radiation Exposure (37801)

2.1 Inspection Scope

The inspectors reviewed documents, interviewed plant personnel, and conducted site tours to ensure adequate protection of worker health and safety from exposure to radiation or radioactive material and to evaluate whether the licensee adequately identified problems and implemented appropriate and timely corrective actions related to occupational radiation safety.

2.2 Observations and Findings

The inspectors reviewed the licensee's occupational exposure records for 2021 to ensure compliance with procedural and regulatory requirements. Based on the licensee's records, 851 individuals were monitored in 2021. Of this number, 162 individuals received a total effective dose equivalent exposure greater than 100 millirem. External whole-body doses were the primary radiological hazard for occupational exposures at FCS. The highest occupational exposure for 2021 was 1.584 rem of external exposure with a regulatory limit of 5 rem as provided in 10 CFR 20.1201(a). This total effective dose equivalent exposure was assigned to a project manager/supervisor who was responsible for work involving spent fuel pool cleaning, decontamination work, and shipment preparation.

In accordance with the licensee's Procedure FSCS-RP-220, Revision 1, "Bioassay Program," any internal intakes of radioactive material greater than or equal to 10 millirem (0.01 rem) requires a follow up investigation and dose assignment. During 2021, one individual received an intake that exceeded the action level. During September 2021, a worker was identified with contamination on their face and pants while exiting the radiological controlled area. An investigation (Condition Report 2021-0291) was conducted in accordance with Procedure FSCS-RP-220. The individual was subsequently assigned an internal dose of 0.035 rem, a dose well below the regulatory limit of 5 rem. No other individual was assigned an internal dose in 2021.

The inspectors also reviewed the licensee's occupational exposure records available for 2022. The licensee maintained up-to-date exposure records using self-reading dosimeters. Based on these interim records, the highest exposure was 0.414 rem with a regulatory limit of 5 rem. This individual was an iron worker who had moved equipment in the containment sump area. At the time of the inspection, no individual was assigned an internal exposure.

Regulation 10 CFR 20.1101(b) states that the licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA). The licensee's program is described in Attachment 6, ALARA Program Description, to Procedure FCSD-RP-100, Revision 0, "Radiation Protection Program Description." The program includes tracking and appraisals of occupational exposures on an ongoing basis.

The inspectors reviewed the licensee's implementation of its ALARA program. The licensee's ALARA goals were updated continuously based on work in progress. The program was discussed at least quarterly during internal meetings. For 2021, the licensee established a site-wide goal of 97 rem for all work activities. Actual doses totaled 95 rem for the 851 monitored workers. The original business plan goal (120 rem) was adjusted as needed due to work in progress or work not originally planned for that time period. During 2021, the project with the highest dose was the reactor coolant system loop work.

The inspectors also reviewed the licensee's ALARA goals for 2022. Based on the planned work activities, the annual goal was set at 37 rem. At the time of the inspection, actual doses were approximately 5 rem. The work projects with the highest potential for external exposures in 2022 were the reactor vessel internal segmentation project and

related preparation work. The licensee's staff indicated that the projected dose goal may change depending on changes in the planned and actual work projects in 2022.

Regulation 10 CFR 20.1101(c) states that the licensee shall periodically (at least annually) review the radiation protection program content and implementation. The inspectors confirmed that the licensee conducted annual programmatic assessments and reviews during 2021. The licensee's internal memorandum dated December 9, 2021, documented the completion of the annual review and concluded that the review met the intent of this regulatory requirement. The annual review consisted of various assessments that were conducted throughout 2021. Assessment findings were entered into the licensee's corrective action program.

Finally, the inspectors conducted a limited review of the licensee's radiation work permit (RWP) program. During 2021, the licensee issued 38 RWPs for both routine and non-routine work activities. At the time of the inspection, the licensee had issued 15 RWPs in 2022. The inspectors reviewed one RWP in detail. RWP 21-0326 was issued to support the reactor vessel internals segmentation project. The inspectors also conducted a walk-down of this RWP in the facility. In summary, the RWP provided sufficient detail to support the work being performed.

2.3 Conclusions

Occupational exposures for January 2021 through March 2022 were within regulatory limits. The licensee conducted a detailed review of an event that resulted in an assigned internal dose in 2021. The licensee implemented its ALARA planning program in accordance with regulatory and procedural requirements. The licensee conducted an annual program review that met the intent of regulations. Based on a limited review, the inspectors concluded that the licensee implemented an effective radiation work permit program.

3 Problem Identification and Resolution at Permanently Shutdown Reactors (40801)

3.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to: (1) evaluate the effectiveness of licensee controls in identifying, resolving, and correcting issues in accordance with the quality assurance (QA) program and 10 CFR Part 50, Appendix B, Criterion XVI; and (2) determine whether the audits and assessments were conducted in accordance with the requirements of the QA program and 10 CFR Part 50, Appendix B, Criterion XVIII.

3.2 Observations and Findings

a. Review of Corrective Action Program

The corrective action program (CAP) requirements are provided in 10 CFR Part 50, Appendix B, Criterion XVI and Section 16, Corrective Action, of Procedure NO-FC-10, Revision 16, "Quality Assurance Topical Report." The details for program implementation are provided in Procedure FCSI-RA-301, Revision 3, "Decommissioning Corrective Action Program." A CAP condition is an issue that warrants entry into and resolution in the CAP. The issue of concern can fall into one of several categories

based on significance. The licensee's staff tracks and trends these issues through closure.

Items that enter the CAP are first screened by the CAP owner who classifies the condition. The ISFSI Shift Supervisor conducts a review of the issue, in part, to determine impacts on operations and reportability. The Management Review Committee (MRC) conducts a high-level screen of all condition reports to ensure that program requirements are being met. If the criteria are met, the issue is assigned a corrective action to resolve the condition.

The inspectors reviewed the licensee's implementation of the CAP. Since the last inspection of this program area in April 2021, the licensee received 329 condition reports, of which 71 were corrective action condition reports. Most corrective action condition reports were related to security followed by radiation protection-related issues. Two human performance reviews were conducted for events involving a maintenance issue and an operator contamination.

The inspectors reviewed the condition reports related to the radiation protection program. The condition reports included the September 2021 intake event, discussed in Section 2.2 of this inspection report. The licensee's records indicate that it was receiving and resolving issues involving the radiation protection program.

At the time of the inspection, there was only one recent condition report of significance requiring an investigation. This item of significance was the January 2022 fire at the intake structure. This incident was reviewed during the previous inspection (NRC Inspection Report 050-00285/2022-001, ADAMS Accession No. ML22055A979). Although deemed to be significant, this incident was subsequently determined to be primarily related to industrial safety.

Section 16.4 of the QA Topical Report indicates that the licensee is not required to conduct negative performance trend analysis except for significant conditions adverse to quality. However, the licensee's staff conducts routine reviews to trend the conditions that have been entered into the CAP. This trending includes number of items open, number generated per month, and oldest issue open. The licensee's staff indicated that the overall number of condition reports have been generally consistent in the past few years.

b. Review of QA Program

The inspectors reviewed the status of the licensee's oversight program including the QA audit and assessment program. The licensee's oversight program is described in Procedure NO-FC-00, Revision 3, "Governance, Oversight, Support, and Performance Model of Fort Calhoun Station." Per Section 7.0 of this procedure, the oversight function includes the analysis of performance indicators, trends, data, action plan, and performance information that provide assurance that functional outcomes are achieved.

Oversight functions are provided at the corporate, plant, and external levels. At the corporate level, nuclear program audits are provided by the Nuclear Oversight department. Plant oversight includes departmental self-assessments, MRC meetings, Independent Safety Reviews, and Nuclear Oversight. External oversight includes the Decommissioning Oversight Committee and Independent Management Assessments.

The inspectors reviewed several recently completed high-level assessments. The Nuclear Oversight Committee conducted a review in October 2021. This review included the corrective action program and Nuclear Oversight program including QA audit program. The Independent Management Assessment was conducted in September 2021 and included the QA program elements. Further, Nuclear Oversight conducted a management-directed Assessment Report in the first quarter of 2022 that identified several deficiencies in the implementation of the licensee's radiation protection program. The inspectors concluded that the licensee had established and implemented multiple levels of internal, external, and independent oversight programs that provided useful information to proactively identify gaps in programs and performance.

The inspectors reviewed the licensee's implementation of its QA audit program. Details of this program are provided in Section 18, Audits, of the QA Topical Report. The licensee maintained an audit schedule by program areas to track both completed and scheduled audits. Selected programs are audited on an annual basis. The licensee conducted the annual audits in September 2021. All other program areas were scheduled to be audited in September 2022 including the CAP.

The inspectors reviewed the September 2021 audit during the inspection. The audit included the emergency preparedness, lockout/tagout program, and security programs. The audit did not identify any findings but identified 11 deficiencies and eight enhancements. The audit team did not identify any issues adversely impacting these three programs or the effectiveness of the QA program. The inspectors concluded that the audit was of sufficient scope and depth to identify potential problems in the audited areas.

3.3 Conclusion

The licensee implemented a corrective action program in accordance with procedural and regulatory requirements. The licensee also implemented a QA audit and oversight program in accordance with procedural and regulatory requirements.

4 Exit Meeting Summary

On March 30, 2022, the inspectors presented the final inspection results to the licensee's staff. All proprietary information was returned by the NRC inspection team.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

A. Barker, Regulatory Assurance & Emergency Planning Manager
C. Cameron, Principal Regulatory Specialist
B. Chapin, Maintenance Services Director
A. Hansen, Principal Regulatory Specialist
C. Heimes, ISFSI Site Security Manager
R. Hugenroth, Nuclear Oversight Manager
B. Kramer, Senior Director, Utility Operations, Construction and Maintenance
C. Longua, Assistant Plant Manager, Operations
J. Layton, Nuclear Decommissioning Scheduling and Planning Supervisor
T. Maine, Plant Manager, Decommissioning
J. Shuck, System Engineering Manager
A. Staebell, Maintenance Services Manager
J. Stivers, Shift Security Supervisor
T. Uehling, Senior Director, FCS Decommissioning
T. Via, Chief Operation Officer and Vice President Utility Operations
D. Weaver, Project Controls Manager
D. Whisler, Radiation Protection and Chemistry Manager

INSPECTION PROCEDURES (IPs) USED

IP 40801	Problem Identification and Resolution at Permanently Shutdown Reactors
IP 71801	Decommissioning Performance and Status Review 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 is Reasonably Achievable
CAP	Corrective Action Program
CFR	*Code of Federal Regulations*
FCS	Fort Calhoun Station
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LTP	License Termination Plan
MRC	Management Review Committee
NRC	U.S. Nuclear Regulatory Commission
PSDAR	Post-Shutdown Decommissioning Activities Report
QA	Quality Assurance
RCVH	reactor closure vessel head
RWP	radiation work permit