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

November 02, 2023

Troy Via, Chief Operations 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 05000285/2023-005

Dear Troy Via:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) decommissioning inspection conducted October 2-5, 2023, at the Fort Calhoun Station near Blair, Nebraska. The NRC inspectors discussed the results of this inspection with you and members of your staff on October 5, 2023. The inspection results are documented in the enclosure to this letter.

During this inspection, the NRC inspectors examined activities conducted under your licenses as they relate to public health and safety, the environment, and to confirm compliance with the Commission's rules and regulations, as well as with the conditions of your license. Within these areas, the inspection consisted of the examination of procedures and representative records, observation of activities, and interviews with personnel. Specifically, the inspectors reviewed your decommissioning performance and remedial and final status survey implementation. Within the scope of the inspection, no violations were identified and a response to this letter is not 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's Website 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 Troy Johnson at 817-200-1596, or the undersigned at 817-200-1249.

Sincerely,

Signed by Warnick, Gregory
on 11/02/23

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

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

Enclosure:
Inspection Report 050-00285/2023-005

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FORT CALHOUN STATION – NRC INSPECTION REPORT 05000285/2023-005
ADAMS ACCESSION NUMBER: **ML23300A092**

✈ SUNSI Review By: MTJ	ADAMS: ✈ Yes ☐ No	☐ Sensitive ✈ Non-Sensitive	☐ Non-Publicly Available ✈ Publicly Available	Keyword NRC-002

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.	050-00285
License No.	DPR-40
Report No.	050-00285/2023-005
Licensee:	Omaha Public Power District
Facility:	Fort Calhoun Station
Location:	9610 Power Lane Blair, Nebraska
Dates:	October 2-5, 2023
Inspectors:	M. Troy Johnson, Senior Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security
Accompanied By:	Christian R. Dennes, Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security
	Eric S. McManus, Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security
Approved By:	Gregory G. Warnick, Chief Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 050-00285/2023-005

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 inspectors concluded that 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 inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility. Staffing level and qualification were commensurate with the current facility activities evaluated. No significant findings were noted. (Section 1.2)

Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors

- The NRC verification surveys, review of licensee survey results, and evaluation of the licensee's procedures and methods determined the licensee implemented it's remedial action support surveys and final status survey program to effectively decontaminate to acceptable residual radioactivity levels as specified in Subpart E, "Radiological Criteria for License Termination," to 10 CFR Part 20, "Standards for Protection Against Radiation". (Section 2.2)

Report Details

Summary of Plant Status

Fort Calhoun Station (FCS) is a permanently shut down reactor site that is in active decommissioning and is operating in accordance with a Post-Shutdown Decommissioning Activities Report pursuant to approval of a license termination plan (LTP) to release the site for unrestricted use. Title 10 of the Code of Federal Regulations (10 CFR) 50.82(a)(9) specifies that an application for license termination must be accompanied or preceded by an LTP. The NRC accepted the licensee's LTP for a detailed technical review on February 10, 2022 (ML22038A675). At the time of the inspection, FCS was a Category 3 decommissioning site.

Since the previous NRC inspection in August 2023, the licensee and contractors have continued with active deconstruction and demolition around the site. The licensee was actively removing the reactor pressure vessel flange, preparing and performing remedial and final status surveys, and shipping radioactive waste to licensed disposal sites.

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

1.1 Inspection Scope

The inspectors performed observations of site activities and reviewed materials to:

(1) Maintain awareness of work activities to assess licensee control and conduct of decommissioning by identifying decommissioning activities in progress.
(2) Evaluate the licensee's remedial and final status survey 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 toured the reactor containment building. Material and structural condition inside the containment building was noted as adequate. Housekeeping was good with a focus on elimination of clutter and identification of trip hazards. The radiation safety staff was found to be knowledgeable about the radiological and industrial safety hazards and new radiation area monitoring technology was noted in use. The inspectors concluded that there was sufficient radiation safety oversight to keep the contractors informed of changing hazardous conditions.

The inspectors attended the pre-job brief for reactor vessel flange removal which was the activity with the highest level of risk being performed at the time of the inspection. The brief was adequate with a focus on both industrial safety and radiation protection practices and on keeping radiation dose as low as reasonably achievable (ALARA).

While touring containment, the inspectors observed the work preparation activities for reactor vessel flange removal. The work force was focused on safety, ALARA, and procedural compliance.

The inspectors evaluated staff levels and training for select final status survey staff. The

inspectors determined that staffing level for this group was commensurate with the survey activities in progress. Staff records reviewed indicated an appropriate level of qualification.

1.2 Conclusion

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. The inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility. Staffing level and qualifications were commensurate with the current facility activities evaluated. No significant findings were noted.

2 Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors (IP 83801)

2.1 Inspection Scope

The inspectors performed observations of site activities and reviewed materials to:

(1) Verify that the completed final status survey (FSS) portions of the permanently shut down power reactor site are decontaminated to acceptable residual radioactivity levels as specified in Subpart E, “Radiological Criteria for License Termination,” to 10 CFR Part 20, “Standards for Protection Against Radiation”.
(2) Verify that the licensee’s implementing procedures, radiological measurements, decommissioning surveys, and documentation of decommissioning surveys comply with the submitted License Termination Plan (LTP).
(3) Conduct sufficient verification surveys so that the NRC inspection program can conclude that the licensee’s decommissioning activities and survey program have been implemented in a manner that provides confidence in the results that the site does not pose an undue risk to public health and safety.

2.2 Observations and Findings

The inspectors reviewed the submitted LTP and the licensee’s procedures that govern performance of remedial action support surveys (RASS) and FSSs, chain of custody, access control to FSS areas, survey data collection and data management, survey quality assurance requirements, and records retention requirements. All procedures were written effectively to direct the performance of the intended function.

The inspectors reviewed the LTP and Radiation Safety & Control Services Technical Support Document No. 21-043 “Radionuclides of Concern in Support of the Fort Calhoun License Termination Plan” revision 01 and determined that the primary radionuclides of concern (ROC) for the surveys completed at the time of the inspection were Carbon 14, Cobalt 60, Cesium 137, and Europium 152. The inspectors verified that the instruments used in support of RASS and FSS were in calibration when the surveys were performed and appropriate to detect the ROC in the completed surveys reviewed. Additionally, the inspectors reviewed the determination of Derived Concentration Guideline Levels (DCGL) mentioned in Support Document No. 21-043 “Radionuclides of Concern in Support of the Fort Calhoun License Termination Plan” revision 01 and found the determination to be well developed. The inspectors reviewed procedures containing action levels and determination of an instrument’s Minimum Detectable Concentrations

(MDC) and scan MDC to reliably detect action level concentrations and determined the methodology to be effective.

The inspectors observed soil sample analysis. The soil samples were processed using FCSD-RA-LT-204 “Sample Media Preparation for Site Characterization and Final Status Survey” revision 1. The gamma spectroscopy analysis of the soil samples was completed using FCSD-RP-733 “Operation of the Canberra Apex Gamma Spectroscopy System” revision 0. The personnel performing the preparation and analysis were knowledgeable about the process and procedures they were performing, and the procedures were noted to be well written with the end user in mind. The inspectors interviewed the technician responsible for maintaining radiation measurement instrument status regarding the program and actions taken for degrading detector performance and found their level of knowledge to be adequate. The licensee uses Microbac Laboratories to analyze radiological environmental monitoring program samples. The inspectors reviewed the chain of custody, quality control program, and inter-laboratory comparison program for Microbac Laboratories and noted them to be sufficient.

At the time of the inspection there were no RASS or FSS units prepared for survey or in progress. The inspectors reviewed the associated procedures, survey plans, and results for a selection of the completed RASS and FSS survey units based on risk significance. The inspectors noted a high level of detail and diligence in the planning, preparation, and implementation of the surveys. A selection of the personnel who planned and conducted the RASS and FSS surveys were interviewed by the inspectors and were noted to have a high level of knowledge and extensive experience in the subject matter. Additionally, the inspectors observed the preparation of the deconstruction area and noted that appropriate isolation and control processes were in place for units being prepared for survey. The inspectors interviewed staff preparing upcoming units for FSS from Manafort Brothers Incorporated. In the interview and later through direct observation, the inspectors noted that even though the work was outside of a radiologically controlled area, and the staff were not required to be on a radiological work permit, the staff performing work in the deconstruction area were required to be wearing dosimetry as enforced by a guard that validated all personnel entering the area. Also, all personnel were required to pass through a portal radiation monitor after leaving the area. This method of area control was noted as effective at monitoring personnel for possible low level radiation exposure as well as mitigating the possibility of unintentional migration of radioactivity through ready detection via the portal radiation monitor. The inspectors found all personnel involved with the preparation of the survey unit to be knowledgeable and dedicated to the task at hand.

The inspectors developed a comprehensive plan to perform an independent verification survey to assess the adequacy of the licensee’s FSS results performed in the discharge tunnel complex. The discharge tunnel complex is designated as a Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) class 2 survey unit. Class 2 survey units in MARSSIM are recommended to have 10% -100% of the total area surveyed. The licensee surveyed 25% of the discharge tunnel complex using an in-situ object counting system which produces more detailed results compared to more traditional survey methods with handheld instruments. The inspectors’ survey plan was designed to replicate the survey plan implemented by the licensee using more traditional handheld survey meters. The survey unit was representatively surveyed for gamma radiation and the inspectors judgmentally reproduced roughly 10% of the licensee’s 68 beta radiation survey results for direct comparison. All surveys taken by the inspectors

were comparable to the licensee's results and significantly below the licensees calculated DCGLs validating that the licensee's remediation, decontamination, and survey methodology was adequate to protect public health and safety.

The inspectors performed a review of the problem identification and corrective actions associated with RASS and FSS. There were four total condition reports created since January 2022 each involved finding areas of elevated radiation levels relative to the survey unit being evaluated. In all cases, the immediate and surrounding areas had a detailed scan for additional elevated levels of radioactivity performed, the soil with the elevated radiation along with additional soil samples in the area were collected for analysis, and the area was remediated and resurveyed to validate the elevated area of radiation was removed. The MARSSIM classification of the survey units was changed as applicable. The inspectors noted that the corrective actions taken were appropriate to protect public health and safety.

2.3 Conclusion

The NRC verification surveys, review of licensee survey results, and evaluation of the licensee's procedures and methods determined that the licensee implemented it's RASS and FSS program to effectively decontaminate to acceptable residual radioactivity levels as specified in Subpart E, "Radiological Criteria for License Termination," to 10 CFR Part 20, "Standards for Protection Against Radiation."

3 Exit Meeting Summary

On October 5, 2023, the inspectors presented the final inspection results to Tim Uehling, Senior Director, FCS Decommissioning, and the licensee's staff. All proprietary information was returned by the NRiC inspection team.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee and Contractor Personnel

A. Barker, Regulatory Assurance & Emergency Planning Manager
A. Hanson, Principle Regulatory Specialist
A. Kodra, LTP/FSS Project Manager
E. Breault, Supervisor Radiation Protection
K. Daughenbaugh, Supervisor ISFSI Shift
J. Nowak, Project Manager, Decommissioning
M. Lanni, FSS Manager
S. Zoller, LT/ FSS Manager
T. Maine, Plant Manager, Decommissioning
T. Uehling, Senior Director, FCS Decommissioning

INSPECTION PROCEDURES USED

IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83801	Inspection of Remedial and Final Surveys 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
DCGL	Derived Concentration Guideline Levels
FCS	Fort Calhoun Station
FSS	Final Status Survey
LTP	License Termination Plan
NRC	Nuclear Regulatory Commission
MARSSIM	Multi-Agency Radiation Survey and Stie Investigation Manual
MDC	Minimum Detectable Concentrations
RASS	Remedial Action Support Surveys
ROC	Radionuclides of Concern