



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

August 22, 2024

Ronald P. Worster
Project Director
Kewaunee Solutions
N490 Highway 42
Kewaunee, WI 54216

SUBJECT: KEWAUNEE POWER STATION - NRC INSPECTION REPORT
NO. 05000305/2024002

Dear Ronald Worster:

On July 15, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Kewaunee Power Station (KPS). On August 7, 2024, the NRC inspectors discussed the results of this inspection with Ronald Worster, Project Director, and other members of your staff. The results of this inspection are documented in the enclosed report.

During the inspection, the NRC inspectors reviewed the following aspects of onsite activities: problem identification and resolution; fire protection; decommissioning performance; occupational radiation exposure; radiological surveys; and waste management and transportation. The inspection consisted of an examination of activities at the site as they relate to safety and compliance with the Commission's rules and regulations.

No violations of more than minor safety significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Learn".

Learn, Matthew signing on behalf
of Hills, David
on 08/22/24

David E. Hills, Chief
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Docket No: 50-305
License No: DPR-43

Enclosure:
IR Nos. 05000305/2024002

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Letter to R. Worster from D. Hills dated August 22, 2024.

SUBJECT: KEWAUNEE POWER STATION - NRC INSPECTION REPORT
NO. 05000305/2024002

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OFFICIAL RECORD

**U.S. NUCLEAR REGULATORY COMMISSION
REGION III**

Docket No: 50-305

License No: DPR-43

Report No: 05000305/2024002

Licensee: Kewaunee Solutions

Facility: Kewaunee Power Station

Location: Kewaunee, Wisconsin

Inspection Dates: April 1, 2024, to July 15, 2024

Inspectors: Bill Lin, Health Physicist

Approved by: David E. Hills, Chief
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

Kewaunee Power Station NRC Inspection Report Nos. 05000305/2024002

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the facility. A brief summary of the areas reviewed are described below. Based on the results of the inspection no violations were identified.

Problem Identification and Resolution

- Issues were identified by the licensee at appropriate thresholds and entered into the Corrective Action Program (CAP). Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues and included appropriate remedial corrective actions.

Fire Protection Program

- An effective decommissioning Fire Protection Program was maintained and implemented that reasonably prevented fires; provided the capability to rapidly detect, control, and extinguish fires that could result in radiological hazards; and ensured the risk of fire-induced hazards to the public, environment, and plant personnel were minimized.

Decommissioning Performance and Status Review

- The inspectors determined that decommissioning activities were in accordance with the regulations and license requirements.

Occupational Radiation Exposure

- Adequate protection of worker health and safety from exposure to radiation and radioactive material was provided. Decommissioning activities were executed in general alignment with planning documents and as provided in Radiation Work Permits (RWP) and As Low As Is Reasonably Achievable (ALARA) reviews. Radiation surveys were performed adequately to identify the hazards present. Command and control of radiologically significant activities was executed in a manner that was safe and achieved the desired result.

Inspection of Remedial and Final Surveys

- Decommissioning activities were performed in accordance with the regulations and license requirements. Decommissioning staffing, qualifications, and training were appropriate to the requirements.

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee effectively processed, handled, stored, and transported radioactive material.

Report Details

Summary of Facility Status

The KPS is a permanently shut-down and defueled power reactor undergoing active decommissioning. During this inspection period, the licensee commenced modifications to the containment structure for installation of a containment building ventilation system and to enlarge the equipment hatch opening. During this inspection period, the licensee removed the pressurizer, shipped several reactor coolant pump (RCP) motors, and performed various characterization surveys of large components.

1.0 Problem Identification and Resolution at Permanently Shutdown Reactors (IP 40801)

1.1 Inspection Scope

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

- Effectiveness at preventing, detecting, and correcting issues;
- Audits and assessments evaluating the Corrective Action Program and Quality Assurance Program; and
- The licensee's safety culture

1.2 Observations and Findings

The inspectors reviewed several CAP entries for follow-up. For example, the inspectors followed up on Condition Report (CR) 0327. CR 0327 documented the licensee's process and evaluation for the unexpected dose rate alarm that a radiation worker received during his entry into a high radiation area. The inspectors reviewed the licensee's actions and after discussing with the licensee, the inspectors determined that the licensee had performed the appropriate follow-up actions. In addition, the inspectors also followed up with CR 0518 and CR 0527. In each of these CRs, the inspectors reviewed the licensee's corrective actions, interviewed the appropriate personnel, and determined the licensee's corrective actions were appropriate. The inspectors verified that self-assessments conducted during the inspection period were performed with technically qualified personnel; and when appropriate, utilized personnel independent of the audited organization. The inspectors interviewed station personnel during walkdowns and did not encounter any concerns with safety culture.

No findings were identified.

1.3 Conclusion

Issues were identified by the licensee at appropriate thresholds and entered into the CAP. Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues and included appropriate remedial corrective actions.

2.0 Fire Protection Program at Permanently Shutdown Reactors (IP 64704)

2.1 Inspection Scope

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

- Fire protection detection and suppression systems were effectively maintained, surveillances were performed, and systems were capable of performing their intended function;
- Firefighting equipment was properly inventoried, inspected, tested, and maintained;
- Administrative controls were in place to minimize the occurrence of a fire; and
- Staffing and training requirements were consistent with the Fire Protection Program and Emergency Plan.

The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

2.2 Observations and Findings

On June 12, 2024, the inspectors walked down the plant and the inspectors confirmed that the detection and suppression equipment was located where required, was being properly maintained and could perform its intended function. The inspectors also verified that the fire barriers were effectively maintained. The inspectors also verified that firefighting equipment was properly inventoried, inspected, tested, and maintained. The inspectors also reviewed the licensee's current hot work permits, procedures, and observed that the licensee implement the hot work permit procedures as described by the on-site Fire Marshall. The inspector in addition interviewed the staff and reviewed the staff training. Training requirements were consistent with the Fire Protection Program and Emergency Plan.

No findings were identified.

2.3 Conclusions

An effective decommissioning Fire Protection Program was maintained and implemented that reasonably prevented fires; provided the capability to rapidly detect, control, and extinguish fires that could result in radiological hazards; and ensured the risk of fire-induced hazards to the public, environment, and plant personnel were minimized.

3.0 Decommissioning Performance and Status Review (IP 71801)

3.1 Inspection Scope

The purpose of this portion of the inspection was to evaluate the status of decommissioning and to verify the decommissioning activities are in accordance with regulatory and license requirements. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

3.2 Observations and Findings

The inspectors performed general walkdowns of the facilities, which include inside the containment and the south parking lot where the pressurizer was placed for transportation. The inspectors did not identify concerns with general material condition and housekeeping. During these walkdowns, the inspectors discussed the ongoing and planned decommissioning activities at the facility. During the walkdown, the inspectors observed licensee personnel properly certified all scaffoldings that were in use. The inspectors attended several daily status meetings and found, in general, observations and discussions focused on personnel physical and radiological safety and key decommissioning operations. The inspectors interviewed radiation safety and plant security to determine whether adequate knowledge existed in the areas of radiation safety, personnel safety and physical security, as appropriate. The inspectors worked with NRC Financial Assurance Branch in reviewing the licensee's annual financial report. The licensee's annual financial report was reviewed and deemed appropriately reported to the NRC. The inspectors found that the individuals interviewed had adequate knowledge in the areas above to maintain safety and security of personnel and security at the site in accordance with NRC requirements.

No findings were identified.

3.3 Conclusion

Decommissioning activities were in accordance with the regulations and license requirements.

4.0 **Occupational Radiation Exposure at Permanently Shutdown Reactors (IP 83750)**

4.1 Inspection Scope

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

- Changes made to organization, personnel, facilities, instrumentation, equipment, and programs that impact occupational radiation protection;
- Training and qualifications of members of the radiation protection organization;
- Radiological hazards and worker protection in work activities;
- Radiological controls, postings, and material conditions inside the radiological control area;
- External exposure dosimetry;
- Contamination monitoring including release of radioactive materials from controlled areas;
- Accuracy and functionality of radiation monitoring instruments;
- Area radiation monitors and continuous air monitors were appropriately positioned; and
- The characterization of the radiation type and energies were appropriate to the surveys and work practices.

The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

4.2 Observations and Findings

The inspectors reviewed the licensee's training records for other RP staff that was on site and determined that all personnel were appropriately trained, and everything was documented in accordance with the approved procedures. The inspectors also performed a walkdown of the plant and observed that general housekeeping was maintained and that all signs within the plant were appropriately posted and legible. The inspectors also observed that all radioactive material was properly bagged, tagged, and controlled.

The inspectors also reviewed the licensee's radiation and contamination surveys, air samples, and source inventory. The inspectors verified that for each type of surveys the licensee performed, used the appropriate survey instrument to perform these surveys and verified that the licensee was updating its source term that was currently onsite due to source decay. The inspectors reviewed the licensee's dosimetry records, ALARA Plans, and RWPs. All personnel were appropriately monitored during the inspection period and the RWPs were followed by licensee personnel during the performance of the assigned tasks.

No findings were identified.

4.3 Conclusions

Adequate protection of worker health and safety from exposure to radiation and radioactive material was provided. Decommissioning activities were executed in general alignment with planning documents and as provided in RWPs and ALARA reviews. Radiation surveys were performed adequately to identify the hazards present. Command and control of radiologically significant activities was executed in a manner that was safe and achieved the desired result.

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

5.1 Inspection Scope

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

- Whether radiological instruments used in support of Remedial Action Support Surveys or final status survey (FSS) were calibrated to detect the radionuclides of concern (ROC), appropriate for the ROC action levels and Derived Concentration Guideline Level (DCGL), and sufficient to detect Minimum Detectable Concentrations (MDCs), action level concentrations, and scan MDCs;

- Whether the licensee performed FSSs with qualified individuals and was conducted in accordance with the survey plan under required quality controls.

The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

5.2 Observations and Findings

During the week of June 10, 2024, the NRC inspectors performed a walkdown of the plant and reviewed the licensee's decommissioning procedures for the performance of the FSS and radiation and contamination surveys. The inspectors also reviewed the licensee's Technical Support Documents for DCGLs and interviewed the licensee on the generation of these levels. The licensee personnel were knowledgeable and knew the technical basis for these levels. The inspectors also observed, the licensee calibration of their survey instruments to detect the ROC and performance of final status surveys.

No findings were identified.

5.3 Conclusions

The inspectors determined that decommissioning activities were performed in accordance with the regulations and license requirements. Decommissioning staffing, qualifications, and training were appropriate to the requirements.

6.0 **Solid Radioactive Waste Management and Transportation of Radioactive Materials (IP 86750)**

6.1 Inspection Scope

The purpose of this portion of the inspection was to evaluate the effectiveness of the licensee's programs for handling, storage, and transportation of radioactive material. The inspectors performed walkdowns, reviewed documents, and interviewed plant personnel to assess the licensee's performance in the following areas:

- Radioactive waste storage areas were appropriately controlled, labelled, posted and secured against unauthorized removal;
- Sealed sources are accounted for and were appropriately leak tested;
- Shippers of radioactive material were adequately trained and met 10 CFR 71.5; and
- Shipments of radioactive material were appropriately surveyed as well as marked.

6.2 Observations and Findings

The inspectors observed the licensee's transportation shipping surveys of the pressurizer and observed the bracing, securing, and labelling of the pressurizer for shipment. The inspectors also reviewed the shippers training records and all shippers that were performing tasks for the shipment of the pressurizers were appropriately trained in accordance with regulatory requirements. The inspectors also performed walkdown of the plant and observed that all radioactive materials storage areas were appropriately secured and posted.

No findings were identified

6.3 Conclusions

The licensee effectively handled, stored, and transported radioactive material.

7.0 **Exit Meeting**

The inspectors presented the results of the inspection to Ronald Worster and other members of the KPS staff at an exit meeting on August 7, 2024. The licensee acknowledged the results presented and did not identify any of the information discussed as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

R. Worster Project Director
J. Lynch Licensing Manager
D. Peterson Radiation Protection Manager

INSPECTION PROCEDURES (IPs) USED

IP 40801 Problem Identification and Resolution at Permanently Shutdown Reactors
IP 64704 Fire Protection Program at Permanently Shutdown Reactors
IP 71801 Decommissioning Performance and Status Reviews at Permanently Shutdown
Plants
IP 83750 Occupational Radiation Exposure
IP 83801 Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors
IP 86750 Solid Radioactive Waste Management and Transportation of Radioactive
Materials

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened Type Summary
None

Closed Type Summary
None

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

- ACE 2024-0327; Dose Rate Alarm; June 13, 2024
- RP-KW 232-Radioactive Material Controls; Rev 5
- Kewaunee Memo 22-361-001-KPS Pressurizer Receive Surveys
- Kewaunee ALARA Plan 24005-Pressurizer
- Kewaunee ALARA Plan 24005-Reactor Collant Pumps
- Kewaunee Monthly Radiation Surveys
- Kewaunee Hot Work Permits 2024
- Kewaunee ALARA Plan 24005-RCP Removal
- KS-WM1-PR-003 - Waste Characterization and Classification
- GEL Laboratory Report and Chain of Custody Report
- Alpha Level 2 Surveys
- SI-22B Cut Surveys
- CR 2024-0068 Electronic Dosimeter Rate Alarm in Radiation Area
- CR 2024-0685-Safety Concerns for Asbestos
- Final Status Surveys of Cut Pipes-June 13, 2024

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DCGL	Derived Concentration Guideline Level
DRSS	Division of Radiological Safety and Security
FSS	Final Status Survey
IP	Inspection Procedure
KPS	Kewaunee Power Station
MDCs	Minimal Detectable Concentrations
NRC	U.S. Nuclear Regulatory Commission
RCP	Reactor Coolant Pump
RP	Radiation Protection
ROC	Radionuclides of Concern
RWP	Radiation Work Permit