



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

May 2, 2024

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

SUBJECT: KEWAUNEE POWER STATION - NRC INSPECTION REPORT  
NO. 05000305/2024001

Dear Ronald Worster:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Kewaunee Power Station. On April 03, 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: safety reviews, design changes and modifications; decommissioning performance; radioactive waste treatment, effluent, and environmental monitoring; 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 cursive script that reads "David E. Hills".

Signed by Hills, David  
on 05/02/24

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. 05000305/2024001

cc w/encl: Distribution via LISTSERV®

Letter to Ronald Worster from David Hills dated May 2, 2024.

SUBJECT: KEWAUNEE POWER STATION - NRC INSPECTION REPORT  
NO. 05000305/2024001

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket No: 50-305

License No: DPR-43

Report No: 05000305/2024001

Licensee: Kewaunee Solutions

Facility: Kewaunee Power Station

Location: Kewaunee, Wisconsin

Inspection Dates: January 01, 2024, to March 31, 2024

Inspectors: M. LaFranzo, Senior Health Physicist  
V. Myers, Senior Health Physicist

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

## **EXECUTIVE SUMMARY**

### **Kewaunee Power Station NRC Inspection Report Nos. 05000305/2024001(DRSS)**

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 of more than minor safety significance were identified.

#### **Safety Reviews, Design Changes, and Modifications**

- The licensee performed adequate safety evaluations or screenings, completed design change evaluations, and properly assessed decommissioning impacts of various work activities as required by 10 CFR 50.59 and its safety review process.

#### **Decommissioning Performance and Status Review**

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

#### **Radioactive Waste Treatment, and Effluent and Environmental Monitoring**

- The gaseous effluent sampling program was effective at quantifying radioactive effluent releases from the newly installed containment ventilation system exhaust.

#### **Solid Radioactive Waste Management and Transportation of Radioactive Materials**

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

## Report Details

### Summary of Facility Status

The Kewaunee Power Station 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.

### 1.0 Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors (IP 37801)

#### 1.1 Inspection Scope

The purpose of this portion of the inspection was to verify that the licensee's safety review process was in accordance with the requirements of 10 CFR 50.59, "Changes, tests, and experiments" such that license amendments were obtained when required.

#### 1.2 Observations and Findings

This inspection focused on two major modifications being performed at the facility. One modification included enlargement of the containment building equipment hatch opening. The other modification consisted of a new containment ventilation system designed to ensure that the containment is maintained at a negative pressure so airborne radioactive material generated during decommissioning activities is directed through a dust collector, filters, and monitored release point.

At the time of the inspection, the equipment hatch enlargement modification was actively being performed. The inspectors reviewed the applicable engineering design package, 10 CFR 50.59 screening, and corrective action documents related to this modification. The inspectors observed portions of the containment surrounding the original equipment hatch being removed and observed the roll-up door that had been installed to provide a closure mechanism in place of the original equipment hatch.

At the time of the inspection, the new containment ventilation system had been installed, initial testing had been completed, and the system was in operation at the time of the inspection. The inspectors reviewed the applicable engineering design package, 10 CFR 50.59 screening, and corrective action documents associated with this modification. The inspectors also performed walkdowns of the system to verify that the installed system aligned with details provided in the engineering design package. Post installation testing of the equipment indicated that acceptable flow rates had been achieved but were lower than what had been desired and anticipated. At the time of the inspection, the licensee was continuing to adjust the ventilation system to increase flow rates. The licensee plans to perform rebalancing and additional testing once the equipment hatch enlargement modification is completed. The licensee demonstrated the ability to identify issues and effectively utilized the corrective action program to drive resolution to issues.

No findings of significance were identified.

### 1.3 Conclusions

The licensee performed adequate safety evaluations or screenings, completed design change evaluations, and properly assessed decommissioning impacts of various work activities as required by 10 CFR 50.59 and its safety review process.

## 2.0 **Decommissioning Performance and Status Review (IP 71801)**

### 2.1 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.

### 2.2 Observations and Findings

The inspectors performed general walkdowns of the facility, including advanced liquid processing area, spent fuel pool area, containment, and the new chemistry laboratory. 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 observations of the equipment hatch enlargement modification, the inspectors observed various environmental air sampling stations in operation in the vicinity, as well as daily qualitative scan surveys being performed of the ground in the vicinity.

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 noted a number of self-identified safety items for which the licensee management was addressing both immediately and long-term impacts.

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 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.

### 2.3 Conclusions

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

### **3.0 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (IP 84750)**

#### **3.1 Inspection Scope**

The purpose of this portion of the inspection was to evaluate the effectiveness of the licensee's gaseous effluent sampling program to quantify radioactive effluent releases for the newly installed containment ventilation system.

#### **3.2 Observations and Findings**

The newly installed containment ventilation system creates a new gaseous effluent release path that the inspectors evaluated. The inspectors reviewed the updates to the offsite dose calculation manual (ODCM) and the technical evaluation that was performed to serve as the basis for the controls established in the ODCM. This new effluent release path utilizes a continuous particulate sampler located in the exhaust of the containment ventilation system. The inspectors reviewed testing that was performed to determine exhaust characteristics. During observation of a routine sample collection, the inspectors verified that the effluent sampler was positioned appropriately based on the previous testing, and that the sampling process ensured that the sampler would be placed back into the appropriate position post sampling. The inspectors reviewed analysis results from recent routine sampling activities and reviewed calibration records for laboratory instrumentation used for this analysis.

During walkdowns and observations around the equipment hatch enlargement modification, the inspectors noted that airflow was going into containment through the equipment hatch, not out, which is the expected state. Although airflow was being maintained in this state, the inspectors did observe that the licensee was utilizing various air samplers both inside and outside of the containment near the equipment hatch. This would allow for evaluation of any potential airborne releases through the open equipment hatch if negative pressure were lost inside containment. When work is not being performed, the equipment hatch is covered via the roll up door.

No findings were identified.

#### **3.3 Conclusions**

The gaseous effluent sampling program was effective at quantifying radioactive effluent releases from the newly installed containment ventilation system exhaust.

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

#### **4.1 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.

#### 4.2 Observations and Findings

The licensee had recently installed a radiation detector for use with some trucks leaving the site. The inspectors reviewed records associated with calibration and testing of the monitor and observed functional tests and use of the monitor. The inspectors reviewed records and interviewed staff in regard to Part 37 controls at the site. The inspectors also walked down recent changes to the Part 37 controls to verify alignment with program requirements.

No findings were identified.

#### 4.3 Conclusions

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

#### 5.0 **Exit Meeting**

The inspectors presented the results of the inspection to Ronald Worster and other members of the Kewaunee Power Station staff at an exit meeting on April 04, 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 37801 Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors  
IP 71801 Decommissioning Performance and Status Reviews at Permanently Shutdown Plants  
IP 84750 Radioactive Waste Treatment, and Effluent and Environmental Monitoring  
IP 86750 Solid Radioactive Waste Management and Transportation of Radioactive Materials

**ITEMS OPENED, CLOSED, AND DISCUSSED**

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Closed</u>	<u>Type</u>	<u>Summary</u>
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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.

- RP-KW-003-005-H;
- RP-KW-005-004; KPS CTMT or WHF Sample Worksheet; 02/13/2024
- RP-KW-005-004; KPS CTMT or WHF Sample Worksheet; 02/20/2024
- RP-KW-232; KPS Radioactive Materials Control; 11/07/2022
- KS-FS-PR-307; Kewaunee Solutions Unconditional Release Surveys; Revision 1
- HPF-220; KPS Radiac Calibration Worksheet; 01/23/2024
- MCA Detector 3 Calibration; 01/16/2024
- KS-EN-EDP-015; Containment Vent Upgrades Design Plan; Revision 0
- CR-2690; Test results lower than expected on new containment ventilation system;  
01/17/2024
- KS-EN-ECN-0024; Containment Vent Partial Turnover; Revision 0
- KS-EN-EDR-0002; Containment Vent Design Release; Revision 0
- KS-EN-EDP-015; Containment Ventilation Upgrades; Revision 0
- KS-EN-EDP-0026; Shield Building Ventilation Opening and Containment Hatch Enlargement;  
Revision 0
- Ludlum Measurements functional checks for truck monitor installation; 11/20/2023
- KS-RP8-PR-007; Operation of the Ludlum Model 4525 Truck Monitor; Revision 1  
KPS Offsite Dose Calculation Manual (ODCM); Revision 21
- Package Characterization Report (waste) Thimble Springs
- Radiation Portal Monitor Installation Manual; 09/01/2022
- Ludlum Model 4525 Radiation Portal Monitor Operator's Manual; 02/01/2023; Version 3.9.2
- Certificate of Calibration Model 4525-14000; 03/01/2023

## **LIST OF ACRONYMS USED**

ADAMS	Agencywide Document Access and Management System
CFR	Code of Federal Regulations
DRSS	Division of Radiological Safety and Security
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installations
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual