



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

May 12, 2015

Mr. David A. Heacock  
President and Chief Nuclear Officer  
Dominion Energy Kewaunee, Inc.  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

**SUBJECT: NRC INSPECTION REPORT NO. 05000305/2015001(DNMS) – KEWAUNEE  
POWER STATION**

Dear Mr. Heacock:

On March 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed onsite inspection activities for January through March 2015, at the permanently shut down Kewaunee Power Station (KPS) in Kewaunee, Wisconsin. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of this inspection, which were discussed with Mr. S. Yuen and other members of your staff on April 22, 2015.

During the inspection period, the NRC inspectors reviewed the following aspects of onsite activities: spent fuel pool safety, maintenance and surveillance activities, and environmental monitoring. 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. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observation of work activities, and interviews with personnel.

Based on the results of this inspection, no violations of NRC requirements were identified.

D. Heacock

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In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

***/RA Wayne J. Slawinski Acting for/***

Robert J. Orlikowski, Chief  
Materials Control, ISFSI, and  
Decommissioning Branch  
Division of Nuclear Materials Safety

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

Enclosure:  
IR 05000305/2015001(DNMS)

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D. Heacock

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION III

Docket No: 050-00305

License No: DPR-43

Report No: 05000305/2015001(DNMS)

Licensee: Dominion Energy Kewaunee, Inc., (DEK)

Facility: Kewaunee Power Station (KPS)

Location: Kewaunee, WI

Dates: January 1, 2015 through March 31, 2015

Inspectors: Rhex A. Edwards, Reactor Inspector (DNMS)  
Navid N. Tehrani, Health Physicist (DNMS)  
Daniel C. Strohmeyer, Health Physicist (Observer, DNMS)

Approved by: Robert J. Orlikowski, Chief  
Materials Control, ISFSI, and  
Decommissioning Branch  
Division of Nuclear Materials Safety

Enclosure

## **EXECUTIVE SUMMARY**

### **Kewaunee Power Station NRC Inspection Report 05000305/2015001**

Kewaunee Power Station (KPS) operated at full power until May 7, 2013, when Kewaunee shutdown and permanently ceased power operation. On May 14, 2013, Kewaunee certified the permanent removal of fuel from the reactor vessel (ADAMS Accession No. ML13135A209). On May 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) notified Kewaunee that the Operating Reactor Assessment Program had ceased and that implementation of the Decommissioning Power Reactor Inspection Program would begin on June 1, 2013 (ADAMS Accession No. ML13151A375).

Currently, KPS is a permanently shut-down and defueled power reactor facility that was maintained in a Safe Storage of Spent Fuel (SAFSTOR) condition with spent fuel in wet storage and at an Independent Spent Fuel Storage Installation.

#### **Spent Fuel Pool Safety**

The licensee maintained spent fuel pool (SFP) equipment utilized to maintain SFP water level and cooling in a safe manner. (Section 1.0)

#### **Maintenance and Surveillance**

Maintenance and surveillances for structures, systems, and components were adequate and resulted in the safe storage of spent fuel and proper operation of radiation monitoring and effluent control equipment. Workers followed work plans, surveillance procedures, and industrial safety protocols; and were aware of job controls specified in work instructions. (Section 2.0)

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

The licensee maintained environmental monitoring as stated in the Radiological Environmental Monitoring Manual (REMM). The inspectors concluded the site was effectively monitoring for environmental releases and monitoring for potential release path ways. (Section 3.0)

## Report Details

### Summary of Plant Activities

During the inspection period, the licensee maintained the unit in a SAFSTOR condition. No major onsite decommissioning activities occurred during the inspection period.

#### 1.0 Spent Fuel Pool Safety (IP 60801)

##### 1.1 Inspection Scope

The inspectors verified the safe wet storage of spent fuel in the auxiliary building. The review included: SFP siphon and draindown protection; SFP chemistry and cleanliness controls; SFP criticality controls; and SFP system operation and electrical power supply adequacy.

##### 1.2 Observations and Findings

The inspectors performed walk downs of the SFP, accessible SFP cooling system piping, and areas of SFP makeup water piping to evaluate the current conditions of the SFP.

The inspectors observed the licensee sample and analyze the SFP water. The results of the analyses indicated that all parameters were within procedural and technical specification limits. The inspectors also confirmed that the general housekeeping practices, foreign material exclusion, combustible material control, and SFP chemistry procedures adequately protect the integrity and cooling of the spent fuel.

The inspectors verified that redundant power supplies were available and capable of supporting spent fuel cooling should they be needed. The inspectors also reviewed SFP procedures and operational strategies and confirmed that no significant changes occurred since the plant permanently shutdown.

No findings of significance were identified.

##### 1.3 Conclusions

The inspectors determined that the licensee was safely storing spent fuel in wet storage. Specifically, the SFP was adequately protected from a siphon or drain down event; the SFP chemistry and cleanliness controls were implemented and adequate; the SFP cooling system electrical power supplies were reliable; and licensee SFP operational strategies were consistent with those used during reactor power operations.

#### 2.0 Maintenance and Surveillance (IP 62801)

##### 2.1 Inspection Scope

The inspectors conducted plant tours, interviews, and directly observed maintenance to evaluate the effectiveness of the licensee in maintaining structures, systems, and components important to the safe storage of spent fuel and proper operation of radiation monitoring and effluent control equipment.

During walkdowns, the inspectors evaluated material condition and housekeeping, assessed area radiological conditions, radiological access control and associated posting/labeling, and reviewed the overall condition of systems, structures, and components that support decommissioning. Independent radiation measurements were periodically made by the inspectors in areas toured to determine if those areas were controlled properly and posted as prescribed in 10 CFR Part 20.

The inspectors also reviewed the maintenance history, work prioritization, and surveillance activities for the spent fuel pool cooling system. Specifically, the inspectors reviewed and observed: preventative maintenance on Spent Fuel Pool cooling pump - A; operation of the beyond design basis portable diesel driven water pump; and quarterly preventative maintenance on station battery BRB-101. These activities included reviews of work plans, schedules, procedures, safety committee reviews, temporary modifications, and risk management plans.

## 2.2 Observations and Findings

The inspectors noted that throughout the inspection period housekeeping remained satisfactory.

The inspectors noted that the licensee appropriately prioritized corrective maintenance on the remaining systems required for SAFSTOR. The inspectors also verified that equipment, which remained available following the shutdown, had the appropriate preventive maintenance schedules established with input from equipment vendors. Finally, the inspectors verified that when equipment issues occurred, the licensee staff implemented the appropriate troubleshooting procedures to identify and correct the equipment deficiency identified.

All radiological instrumentation observed during walk downs was checked for proper calibration and operation.

No findings of significance were identified.

## 2.3 Conclusions

Plant material condition and housekeeping were adequate and had not adversely impacted SAFSTOR conditions. Workers followed work plans, surveillance procedures, and industrial safety protocols and were aware of job controls specified in work instructions.

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

### 3.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Whether the licensee effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment;

- Whether the radiological environmental monitoring programs were effectively implemented to ensure effluent releases were being adequately performed as required to minimize public dose;

As part of the inspection, the inspectors verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspectors verified that when issues were identified, licensee personnel appropriately documented the issues in the corrective action program and adequate corrective actions were taken. The inspectors specifically reviewed: corrective actions related to effluent and environmental monitoring; monitoring for SFP leakage; and sampling of ground water intrusion into the Auxiliary Building.

### 3.2 Observations and Findings

The inspectors noted during walk downs and document reviews, that the environmental monitoring equipment and programs were configured as described in the REMM and were in good material condition.

The inspectors found that the licensee maintains their ground water monitoring program and confirmed procedure use and adherence while observing the licensee obtain samples from sample locations. Additionally the inspectors conducted walk downs of the SFP structure and leak detection equipment. The inspectors noted that the licensee maintains a SFP leak detection program and conducts monthly walk downs of the structure to identify any leakage.

No findings of significance were identified.

### 3.3 Conclusions

The licensee maintained environmental monitoring as stated in the REMM. The inspectors concluded the site was effectively monitoring for environmental releases and monitoring for potential release path ways.

### 4.0 **Exit Meeting**

The inspectors presented the results of the inspection to Mr. S. Yuen and other members of your staff at an exit meeting on April 22, 2015. 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

S. Yuen, Plant Manager  
T. Olson, Technical Support Manager  
B. McMahon, Operations Manager  
M. Hale, Radiation Protection Manager  
J. Helbing, Maintenance Manager  
P. Simon, Chemistry  
B. Koehler, Project Manager  
B. Kleiman, Engineer  
R. Repshas, Engineer  
J. Gadzala, Engineer

### INSPECTION PROCEDURES (IPs) USED

IP 60801 Spent Fuel Pool Safety at Permanently Shutdown Reactors  
IP 62801 Maintenance and Surveillance at Permanently Shutdown Reactors  
IP 84750 Radioactive Waste Treatment, and Effluent and Environmental Monitoring

### ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</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.

SP-21-073; Spent Fuel Pool Sample; September 17, 2013

SP-38-101B; EDC-BRB-101 Station Battery Monthly with Quarterly Test; Revision 26

GMP-251; Common Electrical Preventive Maintenance Tasks; February 14, 2013

MA-KW-MPM-BDB-040; Annual Preventative Maintenance of Godwin Dri-Prime Portable Pump and John Deere Diesel Engine; January 29, 2014

CY-KW-009-006; Settling Plug Water Sampling; Revision 3

CR572506; Objective Evidence is Not Available to Demonstrate LOAs are Reviewed Biennially; February 24, 2015

Attachment

CR568288; Cardox Tank Level Shows Faster Rate of Decrease Than Normal;  
December 28, 2014

CR568319; R-20 Functional Test did not Respond; December 29, 2014

CR569065; TAT Deluge Inspection and Wet Test PM Not Performed Within Required Interval;  
January 8, 2015

CR569972; Support System Needed to Transfer Fuel from ISFSI to DOE Uncertain;  
January 21, 2015

CR570382; Identified Difference Between TVR8.7.9.12 of TRM 8.7.9 and OSP-FP-002;  
January 27, 2015

CR570453; TVR 8.7.9.12 Not Performed Within Frequency Following Revision;  
January 28, 2015

CR570700; Reserve Auxiliary Transformer N2 Bottle Pressure Low; January 30, 2015

CR570765; Cardox Level Has Slowly Lowered to 70%; February 1, 2015

CR571857; Level 1 PCE Identified on Employee Exiting RCA; February 16, 2015

CR571893; Fire Door 151 Not Securing; February 17, 2015

CR573818; ATC Project #66845 Impact on KPS; March 11, 2015

## **LIST OF ACRONYMS USED**

ADAMS	Agencywide Document Access and Management System
CFR	Code of Federal Regulations
DEK	Dominion Energy Kewaunee
DNMS	Division of Nuclear Materials Safety
KPS	Kewaunee Power Station
NRC	U.S. Nuclear Regulatory Commission
REMM	Radiological Environmental Monitoring Manual
SAFSTOR	Safe Storage of Spent Fuel
SFP	Spent Fuel Pool