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

February 20, 2018

Mr. Daniel G. Stoddard
Senior Vice 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. 05000305/2017002(DNMS) – KEWAUNEE POWER STATION

Dear Mr. Stoddard:

On January 24, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection 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. On January 24, the inspectors discussed the results of this inspection with Mr. S. Yuen and other members of your staff. The results of this inspection are documented in the enclosed report.

The inspection consisted of an examination of activities at the facility as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection were organization, management, and cost controls; decommissioning performance; emergency exercise scenario and exercise performance; occupational radiation exposure; radioactive waste treatment and effluent and environmental monitoring; and solid radioactive waste management and transportation of radioactive materials. 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, the NRC identified one Severity Level IV violation of NRC requirements. However, because of the very low safety significance and because the issue was entered into your Corrective Action Program, the NRC is treating this issue as a Non-Cited Violation (NCV) in accordance with Section 2.3.2 of the NRC's Enforcement Policy.

No response is required for the NCV. However, if you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555–0001, with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Michael A. Kunowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No: 050-305
License No: DPR-43

Enclosure:
IR 05000305/2017002(DNMS)

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Letter to Daniel G. Stoddard from Michael A. Kunowski dated February 20, 2018

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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket Nos:	050-305
License No:	DPR-43
Report No:	05000305/2017002(DNMS)
Licensee:	Dominion Energy Kewaunee, Inc., (DEK)
Facility:	Kewaunee Power Station (KPS)
Location:	Kewaunee, Wisconsin
Dates:	June 29, 2017, through January 24, 2018
Inspectors:	Rhex A. Edwards, Senior Health Physicist Michael LaFranzo, Senior Health Physicist James Beavers, Health Physicist
Approved by:	Michael A. Kunowski, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Kewaunee Power Station
NRC Inspection Report 05000305/2017002(DNMS)

Kewaunee Power Station (KPS) operated at full power until May 7, 2013, when KPS shutdown and permanently ceased power operation. On May 14, 2013, KPS 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 KPS 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).

During this inspection period, KPS performed decommissioning activities in support of abandoning the spent fuel pool. The last spent fuel storage cask was loaded and eventually placed at the on-site Independent Spent Fuel Storage Installation (ISFSI) on June 15, 2017.

Organization, Management, and Cost Controls

- The licensee implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the Technical Specifications (TSs). (Section 1.0)

Decommissioning Performance and Status Review

- One Severity Level IV Non-Cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR) 72.212(b)(7), "Conditions of General License Issued Under §72.210," for the licensee's failure to evaluate changes to a written evaluation required by paragraphs 10 CFR 72.212(b)(5) and (b)(6). (Section 2.0)

Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation

- During an emergency exercise, the licensee demonstrated the capability to protect public health and safety. (Section 3.0)

Occupational Radiation Exposure

- Decommissioning activities were executed in alignment with planning documents and as provided in Radiation Work Permits (RWPs) and As Low As Is Reasonably Achievable (ALARA) reviews. (Section 4.0)

Radioactive Waste Treatment, and Effluent and Environmental Monitoring

- The licensee controlled, monitored, and quantified releases of radioactive materials the environment to ensure offsite doses were within regulatory limits and were ALARA. (Section 5.0)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- Radioactive materials planned for shipment were classified and characterized appropriately and met NRC and U. S. Department of Transportation (DOT) requirements. (Section 6.0)

Report Details

Summary of Plant Activities

During the inspection period, the licensee continued to prepare for safe storage (SAFSTOR) conditions. During this inspection period, KPS performed decommissioning activities in support of abandoning the spent fuel pool. The last spent fuel storage cask was loaded and eventually placed at the on-site ISFSI on June 15, 2017.

1.0 Organization, Management, and Cost Controls at Permanently Shutdown Reactors (Inspection Procedure (IP) 36801)

1.1 Inspection Scope

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

- Implementation of Corrective Action Program (CAP) procedures;
- Implementation of a cost and personnel reduction strategy that did not adversely challenge public health and safety;
- Regulatory requirements were properly implemented with respect to the site organization, staffing, and staff qualifications;
- Future licensee plans for decommissioning organization and staffing would continue to meet regulatory requirements;
- Licensee appropriately implemented Technical Specifications (TSs), Technical Requirements Manual, and Post Shutdown Decommissioning Activities Report (PSDAR) requirements and commitments;
- Licensee continued implementation of regulatory requirements that remained applicable as described in NRC Bulletins, Generic Letters, and Orders; and
- Licensee decommissioning activities were initiated, sequenced, and performed in a manner consistent with the post-shutdown decommissioning activities report (PSDAR).

As part of the inspection, the inspectors verified that the licensee's programs and procedures were appropriately implemented. Additionally, the inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

1.2 Observations and Findings

The inspectors determined through direct licensee observation, sampling of corrective action documents, and interviews with licensee personnel that the appropriate regulatory requirements and commitments were followed. Following completion of the dry cask storage campaign, staffing levels were reduced at the site; however, the staffing levels

remained adequate to meet regulatory requirements and site specific needs. During walkdowns, the inspectors concluded that the licensee maintained good housekeeping practices

No findings were identified.

1.3 Conclusions

The licensee implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the TSs.

2.0 Decommissioning Performance and Status Reviews (IP 71801)

2.1 Inspection Scope

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

- Status of ongoing decommissioning activities and planning for future activities;
- Licensee activities were in accordance with license conditions and docketed commitments as well as within the bounds of the docketed PSDAR;
- Systems necessary for safe decommissioning, including radioactive effluent monitoring and radiation protection monitors and alarms, were functional during control room and plant walkdowns;
- Appropriate plant staffing was maintained and that appropriate management oversight of licensee and supplemental activities were performed;
- In-plant conditions and decommissioning abandonment activities; and
- The storage of combustibles and flammables were in accordance with plant procedures and the fire plan.

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

2.2 Observations and Findings

The inspectors determined through plant tours and activities observed that the licensee maintained the site in a manner that was consistent with good housekeeping practices and controls were in place to limit the quantity of combustibles. Now that the spent fuel pool no longer contained spent fuel, the licensee began emptying the spent fuel pool of its remaining contents during this inspection period. This involved removing material that was stored in the spent fuel pool, including the spent fuel racks, and shipping it for disposal. The inspectors observed this work and concluded the activities were performed in accordance with license conditions and the PSDAR. Additionally, radiation monitors in the vicinity of the spent fuel pool and effluent monitors used for monitoring

liquid and gaseous releases were walked down and found to be in good condition and appropriately calibrated.

The inspectors identified a Severity Level IV NCV of 10 CFR 72.212, "Conditions of general license issued Under §72.210," for the licensee's failure to evaluate a change to a written evaluation required by paragraphs 10 CFR 72.212(b)(5) and (b)(6) which establish that the cask, once loaded with spent fuel, will conform to the Certificate of Compliance (CoC), and that the reactor site parameters are enveloped by the cask design bases.

On June 22, 2017, the licensee approved Fire Protection Engineering Evaluation (FPEE) 072, Revision 3, "Elimination of Incipient Fire Brigade for Decommissioning." The purpose of the evaluation was to provide a technical basis for eliminating the site 3-member incipient fire brigade and rely on the offsite Town of Kewaunee Fire Department to respond to onsite fires. The site correctly determined that this change did not fall within the applicability of 10 CFR 50.59, "Changes, tests, and experiments." However, the site failed to recognize that the change required an evaluation per 10 CFR 72.212(b)(7). Specifically, 10 CFR 72.212(b)(7) requires that a licensee "Evaluate any changes to the written evaluations required by paragraphs (b)(5) and (b)(6) of this section using the requirements of §72.48(c)." The KPS ISFSI Fire Hazards Analysis (FHA), SL-009169, Revision 3, was prepared to satisfy the written evaluation requirements of 72.212(b)(5) and (b)(6) to assure that the loaded cask will conform to the CoC and that the reactor site parameters are enveloped by the cask design bases with respect to site specific fire hazards. Section 7.1.4 of the FHA states, in part, that "the [ISFSI] facility is located such that the plant fire brigade can respond to any fire emergency using portable fire suppression equipment." The changes made under FPEE 72 impacted the ISFSI FHA because it eliminated the plant incipient fire brigade. This change was required to be evaluated under 10 CFR 72.212(b)(7) and failing to perform this evaluation was determined to be a performance deficiency and subsequent violation of NRC requirements.

The licensee's failure to perform an evaluation required by 10 CFR 72.212(b)(7) was found by the inspectors to be of more than minor significance because it impacted the ability of the NRC to perform its regulatory oversight function. Additionally, the inspectors concluded that the site's administrative procedures for controlling changes to the fire protection program was inadequate in that it failed to assess the impact on the ISFSI for changes to the fire protection program. As such, if left uncorrected, the inspectors could not reasonably conclude that the licensee's program would appropriately screen changes for determining whether prior NRC approval was required for fire protection changes as they relate to the ISFSI.

Consistent with the guidance in Section 1.2.6.D of the NRC Enforcement Manual, if a violation does not fit an example in the Enforcement Policy Violation Examples, it should be assigned a severity level: (1) commensurate with its safety significance; and (2) informed by similar violations addressed in the Violation Examples. The issue was not found to match any of the Enforcement Policy Violation Examples; however, the issue was screened as having very low safety significance, Severity Level IV, since the site maintained an agreement with the Kewaunee Fire Department and administrative controls to limit combustibles near the ISFSI.

Title 10 CFR 72.212(b)(7) requires, in part, that licensees "Evaluate any changes to the written evaluations required by paragraphs (b)(5) and (b)(6) of this section using the requirements of § 72.48(c)."

Contrary to the above, on June 22, 2017, the licensee failed to evaluate a change to a written evaluation required by 10 CFR 72.212 paragraphs (b)(5) and (b)(6). Specifically, the licensee eliminated the onsite fire brigade but did not evaluate this change on the ISFSI Fire Hazards Analysis, a written evaluation that had previously been completed to satisfy 10 CFR 72.212(b)(5) and (b)(6).

Upon identification, the licensee entered the issue into its CAP as CR-1389, dated September 25, 2017, and performed the required evaluation per 10 CFR 72.212(b)(7). Additionally, the licensee revised its administrative procedures so that future fire protection program changes are appropriately reviewed to determine whether prior NRC approval is necessary to implement the change. This violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000305/2017002-01, Failure to Evaluate Fire Protection Program Change).

2.3 Conclusions

One Severity Level IV NCV of 10 CFR 72.212(b)(7), for the licensee's failure to evaluate changes to a written evaluation required by paragraphs 10 CFR 72.212(b)(5) and (b)(6).

3.0 Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation (IP 82401)

3.1 Inspection Scope

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

- Whether the exercise scenario provided sufficient opportunities to demonstrate the licensee's capability to perform key skills in principal functional areas to protect public health and safety, and

- The adequacy of the licensee's conduct of an exercise and ability to assess performance via a formal critique to identify and correct weaknesses.

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

3.2 Observations and Findings

On August 8, 2017, the inspectors observed the licensee perform a required bi-annual exercise. The inspectors reviewed and determined that the exercise scenario provided sufficient opportunities to demonstrate key skills in principal functional areas to protect public health and safety. Additionally, through direct observation of the emergency response organization, the inspectors confirmed the scenario provided sufficient opportunities to demonstrate the licensee's emergency response capability. Following the exercise, the inspectors observed portions of the licensee's critique and concluded

that the licensee adequately assessed performance and entered identified weaknesses into the CAP as appropriate.

No findings were identified.

3.3 Conclusions

The licensee demonstrated, during an emergency exercise, the capability to protect public health and safety.

4.0 Occupational Radiation Exposure (IP 83750)

4.1 Inspection Scope

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

- Planning and preparation for radiation work and management support of radiation protection planning;
- Management and administrative controls of external radiation exposure;
- Survey and monitoring activities;
- Control of radioactive materials and contamination; and
- Implementation of the ALARA program, initiatives to implement operational methods and practices maintained doses ALARA.

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

4.2 Observations and Findings

During the week of September 18, 2017, the inspectors observed the licensee consolidate and package irradiated hardware located in the spent fuel pool for ultimate disposal. Specifically, the inspectors verified proper radiation planning and work practices were used during the project and the licensee's management provided adequate oversight of contractors performing the work. Radiation protection workers were observed performing radiological surveys and demonstrated effective implementation of the ALARA program.

No findings were identified.

4.3 Conclusions

Decommissioning activities were executed in alignment with planning documents and as provided in RWPs and ALARA reviews.

5.0 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (IP 84750)

5.1 Inspection Scope

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

- Radioactive waste treatment systems were maintained and operated to keep offsite doses ALARA;
- The licensee effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment; and
- 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 CAP and adequate corrective actions were taken.

5.2 Observations and Findings

While onsite during the week of September 18, 2017, the inspectors performed walkdowns of the liquid effluent discharge pathway and verified the release pathway was configured as described in the Offsite Dose Calculation Manual and was in good material condition. The inspectors observed a liquid discharge in progress and verified that the liquid was appropriately sampled and analyzed, and that the discharge met the ODCM and Wisconsin Pollutant Discharge Elimination System Permit, WI-0001571-08-1, requirements.

No findings were identified.

5.3 Conclusions

The licensee controlled, monitored, and quantified releases of radioactive materials released to the environment to ensure offsite doses were within regulatory limits and ALARA.

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

6.1 Inspection Scope

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

- Material was properly classified, described, packaged, marked, and labeled for transportation; and

- Shipments made by the licensee were in compliance with NRC and DOT regulations.

6.2 Observations and Findings

Procedures for the preparation and shipping of radioactive waste were provided by the licensee and followed by the licensee's staff. The inspectors reviewed the characterization and waste manifests generated for the transport and disposal of irradiated hardware that was located in the spent fuel pool. This waste was characterized, prepared, packaged, and shipped for disposal at the Waste Control Specialists facility in Andrews County, Texas. Additionally, during the week of December 18, 2017, inspectors observed the removal of a spent fuel rack as part of the spent fuel pool abandonment project.

No findings were identified.

6.3 Conclusions

Radioactive materials planned for shipment were classified and characterized appropriately and met NRC and DOT requirements.

7.0 Exit Meeting

The inspectors presented the results of the inspection to Mr. S. Yuen and other members of the KPS staff during a teleconference exit meeting on January 24, 2018. 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, Kewaunee Site Director
T. Olson, Nuclear Engineering and Technical Support Manager
D. Shannon, Radiation Protection Manager
W. Zipp, Nuclear Decommissioning Coordinator

INSPECTION PROCEDURES (IPs) USED

IP 36801	Organization and Management Controls at Permanently Shutdown Reactors
IP 71801	Decommissioning Performance and Status Reviews at Permanently Shutdown Plants
IP 82401	Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation
IP 83750	Occupational Radiation Exposure
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

Opened	Type	Summary
05000305/2017002-01	NCV	Failure to Evaluate Fire Protection Program Change

Closed	Type	Summary
05000305/2017002-01	NCV	Failure to Evaluate Fire Protection Program Change

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.

- Report 15-061-RE-204; Kewaunee Fuel Pool Project Results Report; June 2016
- Report 16-206-RE-224; Kewaunee Fuel Project Shipment Documentation Report; October 2017
- 2016 Kewaunee Power Station Annual Radioactive Effluent Release Report; April 24, 2017
- FPEE-072; Elimination of Incipient Fire Brigade for Decommissioning; Revision 2
- FPEE-072; Elimination of Incipient Fire Brigade for Decommissioning; Revision 3
- L-20170915-084-B; Radiological Liquid Waste Discharge Permit; September 16, 2017
- WPDES Permit No. WI-0001571-08-1; October 1, 2013

- WPDES Permit No. WI-0001571-08-1; Plans and Specification for Chlorination/De-chlorination System; February 3, 2014
- WPDES Permit No. WI-0001571-08-1; Kewaunee Power Station Permit Application for Reissuance; February 24, 2017
- WPDES Permit No. WI-0001571-08-1; Planned Changes – Borated Water Discharge; October 16, 2014
- WO-KW101025384; Remove Irradiated hardware from SFP and dispose offsite; Revision 0
- WO-KW101025385; Spent Fuel Pool; Revision 0
- Rigging Lift Plan; Small Fuel Rack; November 2, 2017
- MRCOP-01; Mobile Rod Cutter Operating Procedure at Kewaunee Power Station; Revision 0
- PP-01; Operation of the Parallel Pliers at Kewaunee Power Station; Revision 0
- ASXOPK; Activated Services Equipment Operating Procedure at Kewaunee Power Station; Revision 0
- Dominion Generation Kewaunee Power Station August 8, 2017 Annual Exercise Objectives
- Final Maintenance Rule Periodic Report; June 23, 2017
- CR 1337; NRC Question Regarding Plant Evacuation During EP Event; August 9, 2017
- CR 1338; NRC Question Regarding Controls for Non RP Staff During EP Event; August 9, 2017
- CR 1383; NRC Question Concerning Calibration Sticker on WD-19; September 21, 2017
- CR 1480; Water Drained Into Shipping Bag; November 10, 2017
- Kewaunee ISFSI Only Emergency Plan; Revision 0
- EP-KW-100; Cyclic and Prompted Emergency Preparedness Tasks; Revision 0
- EP-KW-EIP-001; Emergency Response; Revision 3
- EP-KW-EIP-002; Emergency Notifications; Revision 3
- EP-KW-EIP-SEC-001; Security Force Emergency Response; Revision 2
- EP-KW-EIP-005; Emergency Radiation Controls; Revision 1
- OP-KW-AOP-RM-001; Abnormal Radiation Monitoring System; Revision 11
- TR-KW-TPG-2400; Emergency Preparedness Training Program; June 29, 2017
- Radiation Work Permit 17-0900; Revision 0
- ISFSI Shift Supervisor Job Task Evaluation 087D; Perform a Radiation Survey; June 13, 2017
- Offsite Dose Calculation Manual; Revision 17
- Shipment ID No. 2017-10-20-01 Waste Manifest; October 20, 2017
- SL-009169; KPS ISFSI Fire Hazards Analysis; Revision 3
- Radioactive Material Packaging Form; January 2, 2018

LIST OF ACRONYMS USED

ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
DEK	Dominion Energy Kewaunee
DNMS	Division of Nuclear Materials Safety
DOT	U.S. Department of Transportation
FHA	Fire Hazards Analysis
FPEE	Fire Protection Engineering Evaluation
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
KPS	Kewaunee Power Station
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PSDAR	Post-Shutdown Decommissioning Activities Report
RWP	Radiation Work Permit
SAFSTOR	Safe Storage
TS	Technical Specification