



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 10, 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: KEWAUNEE POWER STATION – POST-SHUTDOWN DECOMMISSIONING  
ACTIVITIES REPORT (TAC MF1045)

Dear Mr. Heacock:

By letter dated February 25, 2013 (ADAMS Accession No. ML13058A065), Dominion Energy Kewaunee, Inc. (DEK or the licensee) submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) indicating it would permanently cease power operations at the Kewaunee Power Station (KPS) on May 7, 2013. On May 7, 2013, DEK permanently shut down the KPS reactor. On May 14, 2013, DEK certified that it had permanently defueled the KPS reactor vessel (ADAMS Accession No. ML13135A209). As a permanently shutdown and defueled facility, and in accordance with 10 CFR 50.82(a)(2) of Title 10 of the *Code of Federal Regulations* (10 CFR), KPS is no longer authorized to operate the reactor or emplace nuclear fuel into the reactor vessel. Kewaunee Power Station is still authorized to possess and store irradiated nuclear fuel. Irradiated fuel is currently being stored onsite in a spent fuel pool (SFP) and in Independent Spent Fuel Storage Installation (ISFSI) dry casks.

On February 26, 2013, DEK submitted to the NRC the Post-Shutdown Decommissioning Activities Report (PSDAR), including the Site-Specific Decommissioning Cost Estimate (DCE), for KPS (ADAMS Accession No. ML13063A248) pursuant to 10 CFR Section 50.82(a)(4). The public receipt of the original PSDAR was noticed in the *Federal Register* on April 1, 2013 (78 FR 19540). The PSDAR was subsequently updated by letters dated April 25, 2014 (ADAMS Accession No. ML14118A382), and October 1, 2014 (ADAMS Accession No. ML14279A023).

The purposes of the PSDAR are to: (1) inform the public of the licensee's planned decommissioning activities, (2) assist in the scheduling of NRC resources necessary for the appropriate oversight activities, (3) ensure that the licensee has considered all the costs of the planned decommissioning activities and has considered the funding for the decommissioning process, and (4) ensure that the environmental impacts of the planned decommissioning activities are bounded by those considered in existing environmental impact statements.

Pursuant to 10 CFR 50.82(a)(4)(i), the PSDAR must contain a description of the planned decommissioning activities along with a schedule for their accomplishment, a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements, and a site-specific DCE, including the projected cost of managing irradiated fuel. Additionally, pursuant to 10 CFR 50.82(a)(3), decommissioning will be completed within 60

years of permanent cessation of operations. The regulations do not require the NRC to approve a licensee's submitted PSDAR before decommissioning activities can take place.

The NRC staff held a public meeting in the vicinity of KPS on April 24, 2013, to describe the decommissioning process and receive comments and questions from the public regarding the PSDAR. A summary of the meeting can be found in an NRC memorandum dated June 24, 2013 (ADAMS Accession No. ML13171A152). Public questions and comments on the PSDAR and other areas related to the site's decommissioning, including the NRC staff's responses, are available for review in the transcript of the meeting (ADAMS Accession Number ML13168A558). The NRC staff also received e-mail comments from the public concerning the PSDAR.

Public comments presented during the PSDAR public meeting, and those received by the NRC via e-mail, generally fell into two categories: (1) comments that are within the regulatory purview of the NRC staff's review of the PSDAR, and considered by the staff during its review, and (2) comments that were found to be outside the regulatory purview of the NRC, or were not relevant to the review performed by the NRC staff and thus were not considered, as detailed below.

The public questions and comments that the staff considered during its review of the PSDAR are summarized below:

- Questions or comments about whether there is reasonable assurance that sufficient funds are available to decommission the facility, who manages those funds, and the NRC's role in oversight and monitoring the use of these funds.
- Questions or comments about the use of decommissioning trust fund resources for expenses other than those defined in 10 CFR 50.2.
- Questions or comments about the date that the permanent national high level waste storage facility is assumed to be available to receive the spent fuel being stored at KPS.
- Questions or comments on spent fuel management costs, including construction and management of an independent spent fuel storage installation.
- Questions or comments about the description of the licensee's activities planned during the various decommissioning periods.

Public comments or questions that were found to be outside of the NRC's regulatory purview or outside the scope of the NRC staff's review of the PSDAR, as defined in 10 CFR 50.82(a)(4)(i), are summarized below:

- Questions or comments regarding the need for 60 years to complete decommissioning at KPS. There was a general concern that the time frame was too long.
- Questions or comments regarding the overall condition of the plant and specific condition of various plant components.
- Questions or comments on the period of time that irradiated fuel will be stored in the SFP and what determines when the spent fuel can all be transferred to dry spent fuel storage casks.
- Question or comments relating to regulatory requirements that the licensee must meet (e.g., emergency planning requirements of 10 CFR 50.54(q); Fukushima upgrades; fire protection).
- Questions or comments related to a postulated beyond design-basis SFP zirconium fire.

- Questions or comments about NRC reviews, inspections, or processes that apply to KPS under a decommissioning regulatory framework.
- Questions or comments about activities (e.g., tax revenue from real estate assessments and use of land resources near the site) that are regulated by the other entities.
- Questions or comments concerning the possible restart of the reactor.
- Questions or comments on long-term electrical grid stability.
- Questions on who is paying for the replacement power that will no longer be provided by KPS.
- Questions or comments on the socioeconomic impact of the reactor shutdown
- Questions or comments concerning site morale.
- Questions or comments concerning what structures will be removed during 'Greenfield' phase of site restoration.
- Questions or comments concerning the size and regulation of the dry cask storage ISFSI including concerns about casks from other reactors being stored at KPS.

The NRC staff reviewed the PSDAR and DCE against the requirements in 10 CFR 50.82(a). In addition, the staff used the guidance in Regulatory Guide (RG) 1.185, Revision 1, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," in conducting its review and concludes the following:

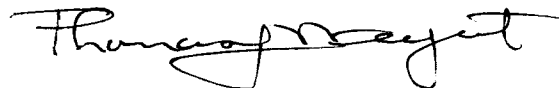
1. Section II of the PSDAR, "Description of Planned Decommissioning Activities," and the DCE provide the applicable information identified in Section C(1) of RG 1.185. The NRC staff's review found that the licensee described the activities associated with the major periods or milestones related to the decommissioning as required by 10 CFR 50.82(a)(4)(i) and consistent with RG 1.185. These periods included Preparations (for Dormancy), Dormancy, Preparations for Decommissioning, Decommissioning, and Site Restoration.
2. Section III of the PSDAR, "Schedule of Decommissioning Activities," and the DCE provide the estimated dates for initiation and completion of major decommissioning activities, as required by 10 CFR 50.82(a)(4)(i), and consistent with Section C(2) of RG 1.185. The NRC staff finds that the schedule for decommissioning activities is adequate to achieve KPS license termination within 60 years of permanent cessation of operations as required by 10 CFR 50.82(a)(3).
3. Section IV of the PSDAR, "Estimated of Expected Decommissioning and Spent Fuel Management Costs," and the DCE provide an estimate of the expected decommissioning costs for KPS. DEK estimated the total decommissioning cost of KPS to be approximately \$532.8 million (in 2012 dollars). DEK estimated the costs associated with the long-term irradiated fuel management at \$278.4 million (2012 dollars). The NRC staff finds that DEK's site-specific DCE and the cost of long-term storage of spent fuel for KPS are not unreasonable, are described consistent with the guidance in R.G. 1.185, provide sufficient details associated with the funding mechanisms, and meet the requirements of 10 CFR 50.82(a)(4)(i).
4. Section V of the PSDAR, "Environmental Impacts," provides a discussion of the potential environmental impacts associated with the KPS decommissioning activities, as identified by Section C(4) of RG 1.185. The PSDAR includes a comparison of potential environmental impacts from KPS planned decommissioning activities with impacts from

similar activities provided in NUREG-0586, Initial Report, "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," dated August 1988 (GEIS) and Supplement 1, dated November 2002. The GEIS and supplement evaluated the environmental impacts of decommissioning activities at nuclear power reactors necessary to reduce residual radioactivity to levels that allows for the termination of the NRC license. The licensee compared the KPS facility to the reference facility in NUREG-0586 and found that the KPS environmental impacts were all bounded by the analysis provided in NUREG-0586. After reviewing the licensee's comparison, the NRC staff finds that the potential environmental impacts associated with KPS decommissioning activities are bounded by the previously issued GEIS and its supplement, are described consistent with the guidance in RG 1.185, and meet the requirements of 10 CFR 50.82(a)(4)(i).

Based on this review, the NRC staff finds that the PSDAR contains the information required by 10 CFR 50.82(a)(4)(i), and is consistent with RG 1.185. In accordance with 10 CFR 50.82(a)(7), DEK must notify the NRC in writing before performing any significant decommissioning activity inconsistent with, or making a significant schedule change from, the planned decommissioning activities or schedules described in the PSDAR, including changes that significantly increase the decommissioning costs. In DEK's April 25, 2014, update to the PSDAR, the licensee's schedule for completing spent fuel transfer to KPS dry cask storage ISFSI has been moved up to 2016 from the 2020 date reported in the original PSDAR. DEK stated that the revised schedule will result in cost savings associated with irradiated fuel management and will have no impact on funds available to radiological decontamination and license termination.

If you have any questions regarding this letter, please contact William Huffman, at (301) 415-2046 or by e-mail at [William.Huffman@nrc.gov](mailto:William.Huffman@nrc.gov).

Sincerely,



Thomas J. Wengert, Senior Project Manager  
Plant Licensing IV-2 and Decommissioning  
Transition Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-305

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similar activities provided in NUREG-0586, Initial Report, "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," dated August 1988 (GEIS) and Supplement 1, dated November 2002. The GEIS and supplement evaluated the environmental impacts of decommissioning activities at nuclear power reactors necessary to reduce residual radioactivity to levels that allows for the termination of the NRC license. The licensee compared the KPS facility to the reference facility in NUREG-0586 and found that the KPS environmental impacts were all bounded by the analysis provided in NUREG-0586. After reviewing the licensee's comparison, the NRC staff finds that the potential environmental impacts associated with KPS decommissioning activities are bounded by the previously issued GEIS and its supplement, are described consistent with the guidance in RG 1.185, and meet the requirements of 10 CFR 50.82(a)(4)(i).

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Sincerely,  
 /RA/  
 Thomas J. Wengert, Senior Project Manager  
 Plant Licensing IV-2 and Decommissioning  
 Transition Branch  
 Division of Operating Reactor Licensing  
 Office of Nuclear Reactor Regulation

Docket Nos. 50-305

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\* see previous

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