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March 20, 2014

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Serial No. 14-054
LIC/CDS/R0
Docket No.: 50-305
License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
REQUEST FOR EXEMPTION FROM 10 CFR 50.54(w)(1)

Pursuant to 10 CFR 50.12, "Specific exemptions," Dominion Energy Kewaunee, Inc. (DEK) requests a permanent exemption from 10 CFR 50.54(w)(1) for Kewaunee Power Station (KPS). 10 CFR 50.54(w)(1) requires individual power reactor licensees to obtain insurance coverage from private sources to provide protection covering the licensee's obligation, in the unlikely event of an accident, to stabilize and decontaminate the reactor and the reactor site. Specifically, licensees must obtain insurance having a minimum coverage limit for each reactor station site of either $1.06 billion or whatever amount of insurance is generally available from private sources, whichever is less. This insurance coverage is referred to as "onsite coverage" or "onsite insurance coverage."

DEK is requesting an exemption to 10 CFR 50.54(w)(1) to reduce the minimum coverage limit of 10 CFR 50.54(w)(1) to $50 million for KPS.

The underlying purpose of 10 CFR 50.54(w)(1) is to require sufficient property damage insurance to ensure adequate funding of onsite post-accident recovery, stabilization and decontamination costs following an accident at an operating nuclear power plant. However, the regulation does not take into consideration the reduced potential for, and consequences of, such nuclear incidents at permanently shutdown facilities. The KPS facility is a single reactor site and the reactor is permanently shut down and defueled (References 1 and 2). The proposed exemption would allow a reduction in the level of onsite insurance coverage for KPS to a level that is commensurate with the permanently defueled status of the facility and the underlying purpose of the rule.

The exemption request is provided in the attachment to this letter. DEK requests approval of this proposed exemption request by March 31, 2015. If approved prior to October 30, 2014, DEK will delay implementation of this proposed exemption until after October 30, 2014. Plant-specific analyses show that after October 30, 2014, the spent fuel stored in the KPS spent fuel pool will have decayed to the extent that it is no longer thermal-hydraulically capable of sustaining a zirconium fire if the spent fuel pool is accidentally drained. A zirconium fire represents the most significant incident possible following permanent defueling of the reactor. These plant-specific analyses are discussed in the attachment to this letter.

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NRR

Please contact Mr. Craig Sly at 804-273-2784 if you have any questions or require additional information.

Very truly yours,

Mark D. Sartain
Vice President – Nuclear Engineering

Attachment:

1. Request for Exemption from 10 CFR 50.54(w)(1)

References:

1. Letter from D. G. Stoddard (DEK) to NRC Document Control Desk, "Certification of Permanent Cessation of Power Operations," dated February 25, 2013. [ADAMS Accession No. ML13058A065]
2. Letter from Daniel G. Stoddard (DEK) to NRC Document Control Desk, "Certification of Permanent Removal of Fuel from the Reactor Vessel," dated May 14, 2013. [ADAMS Accession No. ML13135A209]

Commitments made by this letter: None

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ATTACHMENT 1

REQUEST FOR EXEMPTION FROM 10 CFR 50.54(w)(1)

KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.

KEWAUNEE POWER STATION
REQUEST FOR EXEMPTION FROM 10 CFR 50.54(w)(1)

I. DESCRIPTION OF REQUESTED EXEMPTION

Pursuant to 10 CFR 50.12, "Specific exemptions," Dominion Energy Kewaunee, Inc. (DEK) requests a permanent exemption from 10 CFR 50.54(w)(1) for Kewaunee Power Station (KPS). 10 CFR 50.54(w)(1) requires individual power reactor licensees to obtain insurance coverage from private sources to provide protection covering the licensees obligation, in the unlikely event of an accident, to stabilize and decontaminate the reactor and the reactor site. Specifically, licensees must obtain insurance having a minimum coverage limit for each reactor station site of either $1.06 billion or whatever amount of insurance is generally available from private sources, whichever is less. This insurance coverage is referred to as "onsite coverage" or "onsite insurance coverage."

DEK is requesting an exemption to 10 CFR 50.54(w)(1) to reduce the minimum coverage limit of 10 CFR 50.54(w)(1) to $50 million for KPS.

10 CFR 50.54(w)(1) reads as follows:

> *"(w) Each power reactor licensee under this part for a production or utilization facility of the type described in §§ 50.21(b) or 50.22 shall take reasonable steps to obtain insurance available at reasonable costs and on reasonable terms from private sources or to demonstrate to the satisfaction of the NRC that it possesses an equivalent amount of protection covering the licensee's obligation, in the event of an accident at the licensee's reactor, to stabilize and decontaminate the reactor and the reactor station site at which the reactor experiencing the accident is located, provided that:*
>
> *(1) The insurance required by paragraph (w) of this section must have a minimum coverage limit for each reactor station site of either $1.06 billion or whatever amount of insurance is generally available from private sources, whichever is less. The required insurance must clearly state that, as and to the extent provided in paragraph (w)(4) of this section, any proceeds must be payable first for stabilization of the reactor and next for decontamination of the reactor and the reactor station site. If a licensee's coverage falls below the required minimum, the licensee shall within 60 days take all reasonable steps to restore its coverage to the required minimum. The required insurance may, at the option of the licensee, be included within policies that also provide coverage for other risks, including, but not limited to, the risk of direct physical damage."*

II. BACKGROUND

The KPS facility is a single unit reactor site with the reactor permanently shut down and defueled. KPS is located in the southeast corner of Kewaunee County, Wisconsin, on the west shore of Lake Michigan. By letter dated May 14, 2013, DEK submitted a

certification of permanent removal of fuel from the reactor vessel (Reference 2). Therefore, the 10 CFR Part 50 license for KPS no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2). Currently, spent fuel from reactor operation is stored either in the onsite Independent Spent Fuel Storage Installation (ISFSI) or in the spent fuel pool.

III. DISCUSSION AND JUSTIFICATION

The underlying purpose of 10 CFR 50.54(w)(1) is to require sufficient property damage insurance to ensure adequate funding of onsite post-accident recovery, stabilization and decontamination costs following an accident at an operating nuclear power plant. The requirements of 10 CFR 50.54(w)(1) were developed taking into consideration the risks associated with an operating nuclear power reactor, including the potential consequences of a release of radioactive material from the reactor. However, the regulation does not take into consideration the reduced potential for, and consequences of, such nuclear incidents at permanently shutdown facilities. The KPS facility is a single reactor site and the reactor is permanently shut down and defueled (References 1 and 2). The proposed exemption would allow a reduction in the level of onsite insurance coverage to a level that is commensurate with the permanently defueled status of KPS and the underlying purpose of the rule.

Although the likelihood of an accident at an operating reactor is small, the consequences can be large, in part due to the high temperatures and pressures of the reactor coolant system as well as the inventory of radionuclides. For a permanently shutdown and defueled reactor, nuclear accidents involving the reactor and its associated systems, structures and components are no longer possible. Furthermore, reductions in the probability and consequences of non-operating reactor nuclear incidents are substantially reduced because; 1) the decay heat from the spent fuel decreases over time, which reduces the amount of cooling required to prevent the spent fuel from heating up to a temperature that could compromise the ability of the fuel cladding to retain fission products, and; 2) the relatively short-lived radionuclides contained in the spent fuel, particularly volatile components like iodine and noble gasses, decay away, thus reducing the inventory of radioactive materials available for release.

Although the potential for, and consequences of, nuclear accidents decline substantially after a plant permanently defuels its reactor, they are not completely eliminated. There are potential onsite and offsite radiological consequences that could be associated with the onsite storage of the spent fuel in the spent fuel pool (SFP). In addition, a site with a permanently shutdown and defueled reactor may contain an inventory of radioactive liquids, activated reactor components, and contaminated materials. For purposes of modifying the amount of onsite insurance coverage maintained by a permanently shutdown and defueled reactor licensee, the potential radiological consequences of these non-operating reactor nuclear incidents are appropriate to consider, despite their very low probability of occurrence.

A. Reduced Scope and Severity of Radiological Accidents at KPS

Section 14 of the KPS Updated Safety Analysis Report (USAR) described the design basis accident (DBA) scenarios that were applicable to KPS during power operations. During normal power operations, the forced flow of water through the reactor coolant system (RCS) removed the heat generated by the reactor core. The RCS, operating at high temperatures and pressures, transferred this heat through the steam generator tubes to the secondary system. The most severe postulated accidents for operating nuclear power plants involve damage to the reactor core and the release of large quantities of fission products to the reactor coolant system. Many of the USAR accident scenarios for operating plants involve failures or malfunctions of systems which could affect the reactor core.

DEK is decommissioning KPS using a SAFSTOR method in which most fluid systems are drained and the plant is left in a stable condition until final decontamination and dismantlement activities begin. The irradiated fuel will be stored in the spent fuel pool (SFP) and/or in the ISFSI until it is shipped off site sometime in the future. The reactor, RCS, and secondary system are no longer in operation and have no function related to the safe storage and management of irradiated fuel. Details related to the decommissioning plans for KPS were submitted to the NRC in the KPS Post Shutdown Decommissioning Activities Report (PSDAR) (Reference 3).

Since all fuel has been permanently removed from the KPS reactor vessel, the postulated accidents involving failure or malfunction of the reactor, RCS, or secondary system are no longer applicable. The postulated accidents that remain applicable to KPS in the permanently defueled condition are a fuel handling accident (FHA) in the auxiliary building where the SFP is located, an accidental release of waste liquid, or an accidental release of waste gas. The waste gas tanks have been purged. Therefore, a rupture of the associated waste gas storage system components is no longer an applicable initiator or source of such an accident. Since waste liquids are only of concern if they contain gases with a potential to be volatilized; and since there are no longer dissolved radioactive gases onsite with the potential for being volatilized while waste liquid is being stored or processed for discharge; waste liquids are also no longer a source of such an accident.

A revised FHA analysis was developed to address the permanently defueled condition of KPS. The analysis determined a reasonable time post-cessation of operations for movement of fuel from the spent fuel pool during which, if a fuel handling accident occurs, dose consequences would not exceed the limits of the Environmental Protection Agency (EPA) Protective Actions Guidelines (PAGs) (Reference 12) at the exclusion area boundary (EAB). The analysis assumes spent fuel pool decontamination based on 23 feet of water over the failed fuel assembly, no credit for emergency ventilation or filtration (control room or otherwise) and no credit for control room atmospheric dispersion for a bounding upper limit of acceptable control room unfiltered inflow.

The revised FHA analysis shows that, following 90 days of irradiated fuel decay time after reactor shutdown[1] and compliance with the spent fuel pool water level requirements of Technical Specification TS 3.7.13, the dose consequences are acceptable without relying on any systems, structures, or components (SSCs) to remain functional during and following the event. The supporting calculation for this analysis was provided in Enclosure 4 of Reference 10 (Calculation RA-0028, "Kewaunee Fuel Handling Accident Post-Cessation of Operations.")

B. NRC Proposed Rulemaking

The NRC staff has generically evaluated the legal, technical, and policy issues regarding the financial protection requirements for large nuclear power plants that have been permanently shut down. The results of these evaluations were summarized in SECY-96-256 (Reference 4) and the NRC staff recommended course of action was approved by the Commission in a Staff Requirements Memo (SRM) (Reference 5). These documents established the basis for the NRC exercising its discretionary authority to specify an appropriate level of onsite insurance coverage for permanently shutdown nuclear power reactors.

In SECY-97-186 (Reference 6), the NRC staff proposed rulemaking for Commission approval that was consistent with SECY-96-256, Option 2. In SECY-97-186, the NRC staff proposed changes to 10 CFR 50.54(w)(1) that would establish appropriate levels of onsite insurance coverage for plants that are permanently shutdown and defueled and that meet specified facility configurations during permanent shutdown.

On October 30, 1997, the NRC published a proposed rulemaking to amend regulations governing liability coverage for permanently shutdown nuclear plants. The proposed rulemaking established four different configurations for permanently shutdown plants that encompassed anticipated spent fuel characteristics and storage modes during the period between permanent shutdown and termination of the license. The rulemaking proposed financial protection requirements for each of the four specified plant configurations, including a configuration where the plant is permanently shutdown, the reactor defueled, and the spent fuel stored in the spent fuel pool is not susceptible to a zircaloy cladding failure or gap release caused by an incipient fuel cladding failure if the pool is accidentally drained.

However, the NRC staff rulemaking efforts were suspended prior to issuing the final rule when it was realized that an NRC staff-approved technical basis did not exist for generic decay times after which the zirconium cladding failure concern could be eliminated. The proposed changes to regulations governing onsite insurance coverage were subsequently included in a risk-informed, integrated rulemaking initiative for decommissioning nuclear power plants, which has yet to be acted on. This rulemaking

[1] KPS was shutdown on May 7, 2013. Therefore, 90 days of irradiated fuel decay time elapsed on August 5, 2013.

initiative, documented in SECY-00-145 (Reference 7), included onsite insurance coverage requirements based on the proposed decommissioning insurance rulemaking issued on October 30, 1997, as modified to address the public comments received in response to that proposed rulemaking. The modified rulemaking, as incorporated into SECY-00-145, would have allowed the minimum onsite insurance coverage to be reduced to $50 million once the spent fuel in the spent fuel pool is no longer thermal-hydraulically capable of sustaining a zirconium fire, based on a plant-specific analysis.

As discussed in the staff response to a question in SECY-00-145 (see "NRC Staff Responses to NEI White Paper Comments on Improving Decommissioning Regulations," page 6, response to Question 3)

> *"The staff believes that full insurance coverage must be maintained for 5 years or until a licensee can show by analysis that its spent fuel pool is no longer vulnerable to such [a zirconium] fire."*

In addition, as discussed in the staff response to a question in SECY-00-145 (see "NRC Staff Responses to NEI White Paper Comments on Improving Decommissioning Regulations," page 5, response to Question 2):

> *"Since the zirconium fire scenario would be possible for up to several years following shutdown, and since the consequences of such a fire are severe in terms of property damage and land contamination, the staff position is that full onsite liability coverage must be retained for five years or until analysis has indicated that a zirconium fire is no longer possible."*

In a memorandum dated August 16, 2002 (Reference 8), the NRC Executive Director for Operations provided the NRC Commissioners a status of the regulatory exemptions for plants in decommissioning. This memorandum stated that,

> *"In the absence of any anticipated nuclear power plant decommissionings in the near term, the staff believes that there is no immediate need for moving forward with a majority of the decommissioning regulatory improvement work that is currently planned. Specifically, broad scope regulatory improvements for decommissioning nuclear power plants do not appear to be of sufficient priority given a lack of future licensees that would benefit at this time. Due to higher priorities, resources are being deferred for decommissioning rulemakings that are not currently in progress or not related to security.... If any plants do unexpectedly shutdown permanently, decommissioning regulatory issues would continue to be addressed through the exemption process in a manner similar to current practice.*

Thus, the proposed rulemaking process changes for decommissioning plants discussed above were stopped in deference to the exemption process that had been used for previous licensees.

C. Plant-Specific Analyses of Beyond Design Basis Events

DEK assessed the following beyond design basis events associated with irradiated fuel stored in the KPS SFP. Supporting calculations for these assessments were provided to the NRC in Enclosure 4 of Reference 10. A summary of the assessments is provided below.

1. Complete Loss of Cooling Water Inventory with Air Cooling

DEK has performed a qualitative comparison of the heatup characteristics of the KPS spent fuel that would result from a beyond design basis event involving the complete loss of spent fuel pool (SFP) water (when cooling depends on the natural circulation of air through the spent fuel racks), against the results documented in NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants" (Reference 9), for the reference PWR. The results of this comparison concluded that the minimum spent fuel decay time necessary to preclude the possibility of a zirconium/zircaloy fire for the condition where the SFP is completely drained is approximately 17 months for KPS. Therefore, as of October 30, 2014, the earliest date that the requested exemption would be implemented, decay heat cannot raise the spent fuel cladding temperature sufficiently to cause clad failure (565°C) if all water is drained from the SFP. Since fuel cladding would remain intact at this temperature, a complete loss of water from the KPS SFP would not result in an offsite release exceeding the early-phase EPA Protective Action Guidelines (PAGs). A copy of the qualitative comparison is provided in Enclosure 4 of Reference 10 (Evaluation ETE-NAF-20130072, "Kewaunee Spent Fuel Pool Zirconium Fire Parameter Comparison").

A confirmatory quantitative analysis of this qualitative comparison was subsequently performed, with similar results, and is also provided in Enclosure 4 of Reference 10 (Sargent & Lundy Calculation 2013-11284, "Maximum Cladding and Fuel Temperature Analysis for Uncovered Spent Fuel Pool").

The above plant-specific analysis established that after 17 months of spent fuel decay time, air cooling will be adequate in the normal storage configuration to prevent zircaloy cladding failure or gap release caused by an incipient fuel cladding failure if the pool is accidentally drained.

2. Loss of All Heat Removal Capability

By October 2014, approximately 26 days will be available to restore water cooling to the SFP before the SFP water level reaches three feet above the top of the fuel (additional time would be available before fuel is uncovered). Because of the relative ease with which alternative means of supplying cooling water to the SFP can be established, it is not reasonable to postulate that fuel damage can occur due to a loss of normal cooling capability to the SFP.

3. Partial Loss of Cooling Water Inventory with No Air Cooling

A site-specific adiabatic heatup analysis to address a partial draindown of the SFP was performed to conservatively evaluate the length of time for uncovered spent fuel assemblies to reach a critical temperature for clad damage assuming no air-cooling. The analysis shows that the time necessary for the hottest fuel assembly to reach the critical temperature of 900°C, which corresponds to the temperature threshold for self-sustained oxidation of cladding in air, is 10 hours after the fuel rods have become uncovered. The supporting calculation for this analysis is provided in Enclosure 4 of Reference 10 (Calculation 2013-07050, "Maximum Cladding Temperature Analysis for an Uncovered Spent Fuel Pool with No Air Cooling"). As stated in NUREG-1738, 900°C is an acceptable temperature to use for assessing onset of fission product release under transient conditions (to establish the critical decay time for determining availability of 10 hours to evacuate) if fuel and cladding oxidation occurs in air. Ten hours is sufficient time for personnel at the station to respond with additional resources, equipment, and capability to restore cooling to the spent fuel pool, even after the most non-credible, catastrophic drain down event, and, if necessary, to initiate offsite protective measures.

4. Rapid Draindown Due to Cask Drop Event

KPS has a single-failure proof auxiliary building crane that is used for lifting heavy loads, such as spent fuel casks, over the SFP. The seismic analysis methodology for the auxiliary building crane is required by KPS License Condition 2.C.(11) and is being maintained in the KPS license. Because the auxiliary building crane will not lower its load in an uncontrolled fashion during a seismic event, a cask drop event is not considered a credible initiator of a rapid SFP draindown event at KPS.

5. Shine from a Drained Spent Fuel Pool

Although a significant release of radioactive material from the spent fuel is not possible in the absence of water cooling after approximately 17 months, the potential exists for radiation exposure to an offsite individual in the event that shielding of the fuel is lost (a beyond-design-basis event). The supporting calculation for this analysis is provided in Enclosure 4 of Reference 10 (Calculation RA-0044, "Dose Rate at the KPS Site Boundary Following a Complete Draindown of the Spent Fuel Pool"). The gamma radiation dose rate at the site boundary would be sufficiently low, such that it would take more than a month for the event to exceed the EPA early-phase Protective Action Guidelines (PAG) of 1 Rem. This would allow sufficient time to develop and implement onsite mitigative actions and provide confidence that additional offsite measures could be taken without planning if efforts to re-establish shielding over the spent fuel are delayed.

6. Radioactive Waste Handling Accident

This accident evaluates the drop of a high integrity container (HIC) in the auxiliary building such that its entire contents of radioactive, dewatered demineralizer resin (i.e., 100%) escapes. This analysis did not postulate any specific mechanism for release; however, ten percent of the HIC contents are dispersed into the air in aerosol form. A small fraction (i.e., 10%) of the escaped resin is non-mechanistically assumed to be released as airborne radioactivity and pass from the auxiliary building directly to the environment. The sum of the whole body and inhalation doses at the exclusion area boundary is 0.015 rem, which is much less than the 1 rem limit of the EPA PAG. Supporting information is provided in Enclosure 4 of Reference 10 (Calculation RA-0050, "Kewaunee Resin Cask Drop Dose Consequence Analysis").

Based on the plant-specific qualitative comparison and quantitative analyses discussed above, DEK concludes that the criteria for reducing the minimum onsite insurance coverage limit required by 50.54(w)(1) from $1.06 billion to $50 million, as established in SECY-00-145 and its predecessor documents, will be met at KPS after October 30, 2014. Therefore, DEK believes that the proposed exemption is justified.

The proposed reduction in the minimum level of onsite insurance coverage from $1.06 billion to $50 million would continue to serve the underlying purpose of the rule and provide a conservative level of financial protection considered commensurate with the significant reduction in the probability and consequences of potential nuclear incidents at KPS. The exemption would not present an undue risk to the health and safety of the public because analyses demonstrate that dose to the public for events that can occur during decommissioning are below acceptable limits. Consistent with the NRC's conclusions documented in SECY-00-145, the proposed reduction in the level of onsite insurance coverage would continue to provide sufficient property damage insurance to ensure funding for onsite post-accident recovery, stabilization, and decontamination costs in the unlikely event of a nuclear incident at KPS.

D. Previous Exemptions

Other decommissioning plants have been granted exemptions allowing reductions to onsite insurance coverage.[2] One specific example is provided in Reference 11 for Zion Units 1 and 2.

E. Summary

DEK is requesting an exemption to 10 CFR 50.54(w)(1) to allow a reduction in the minimum onsite insurance coverage to $50 million for KPS. The underlying purpose of 10 CFR 50.54(w)(1) is to require sufficient onsite insurance to ensure adequate funding

[2] For examples see SECY-97-186, Attachment 2, "Regulatory Analysis for Rulemaking on Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors," Table 2-1, "Financial Protection Exemptions Currently in Effect at PSD Plants."

of onsite post-accident recovery, stabilization and decontamination following an accident at an operating nuclear power plant. The requirements of 10 CFR 50.54(w)(1) were developed taking into consideration the risks associated with the operation of an operating nuclear power reactor, including the potential consequences of a release of radioactive material from the reactor. However, the regulation does not take into consideration the reduced potential for, and consequences of, such nuclear incidents at permanently shutdown facilities.

KPS is a single unit reactor site with the reactor permanently shutdown and defueled. As such, it is no longer possible for the radiological consequences of design basis accidents or other credible events at KPS to exceed the limits of the Environmental Protection Agency (EPA) Protective Actions Guidelines (PAGs) at the exclusion area boundary (EAB) after October 30, 2014. DEK has performed site-specific analyses for cases where the spent fuel pool is assumed to be accidentally drained. These analyses show that after October 30, 2014, if the KPS spent fuel pool is assumed to be accidentally drained: 1) air cooling of the spent fuel in the spent fuel pool will be sufficient to maintain the integrity of the fuel cladding, and; 2) if air cooling is interrupted, sufficient time is available to implement compensatory measures (such as refilling the SFP or spraying water on the spent fuel), to restore necessary cooling. In addition, a site-specific analysis shows that in the event of a loss of all heat removal capacity, approximately 26 days will be available to restore water cooling to the SFP before the SFP water level reaches three feet above the top of the fuel (additional time would be available before fuel is uncovered).

IV. JUSTIFICATION FOR EXEMPTION AND SPECIAL CIRCUMSTANCES

10 CFR 50.12 states that the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of Part 50 which are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the defense and security. 10 CFR 50.12 also states that the Commission will not consider granting an exemption unless special circumstances are present. As discussed below, this exemption request satisfies the provisions of Section 50.12.

A. The exemption is authorized by law

The requested exemption is authorized by law and similar exemptions have been granted by the Commission. Other permanently shutdown plants that have been granted similar exemptions are discussed above. In addition, the requested exemption is consistent with the guidelines presented by the NRC staff in SECY-96-256. The proposed exemption is not contrary to the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

B. The exemption will not present an undue risk to public health and safety

The requirements of 10 CFR 50.54(w)(1) and the existing level of onsite insurance coverage for KPS are predicated on the assumption that the reactor is operating. However, KPS is a permanently shutdown and defueled facility. The permanently defueled status of the facility has resulted in a significant reduction in the number and severity of potential accidents, and correspondingly, a significant reduction in the potential for and severity of onsite property damage. The proposed reduction in the amount of onsite insurance coverage does not impact the probability or consequences of potential accidents. The proposed level of insurance coverage is commensurate with the reduced risk and reduced cost consequences of potential nuclear accidents at KPS. Therefore, granting the requested exemption will not present an undue risk to the health and safety of the public.

C. The exemptions are consistent with the common defense and security

The proposed exemption would not eliminate any requirements associated with physical protection of the site and would not adversely affect DEK's ability to physically secure the site or protect special nuclear material. Physical security measures at KPS are not affected by the requested exemption. Therefore, the proposed exemption is consistent with the common defense and security.

D. Special Circumstances

Pursuant to 10 CFR 50.12(a)(2), the NRC will not consider granting an exemption to its regulations unless special circumstances are present. DEK believes that special circumstances are present as discussed below.

1. Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. (10 CFR 50.12(a)(2)(ii))

The underlying purpose of 10 CFR 50.54(w)(1) is to require sufficient property damage insurance to ensure funding of onsite post-accident recovery stabilization, and decontamination costs following an accident at an operating nuclear power plant. The requirements of 10 CFR 50.54(w)(1) were developed taking into consideration the risks associated with the operation of an operating nuclear power reactor, including the potential consequences of a release of radioactive material from the reactor. However, the regulation does not take into consideration the reduced potential for, and consequences of, nuclear incidents at permanently shutdown facilities.

KPS is a single unit reactor site with the reactor permanently shutdown and defueled. As such, it is no longer possible for the radiological consequences of design basis accidents or other credible events at KPS to exceed the limits of the

Environmental Protection Agency (EPA) Protective Actions Guidelines (PAGs) at the exclusion area boundary (EAB). DEK has performed site-specific analyses for cases where the spent fuel pool is assumed to be accidentally drained. These analyses show that after October 30, 2014: 1) air cooling of the spent fuel in the spent fuel pool will be sufficient to maintain the integrity of the fuel cladding, and; 2) if air cooling is interrupted, sufficient time is available to implement compensatory measures (such as refilling the SFP or spraying water on the spent fuel), to restore necessary cooling. In addition, a site-specific analysis show that in the event of a loss of all heat removal capacity, approximately 26 days will be available to restore water cooling to the SFP before the SFP water level reaches three feet above the top of the fuel (additional time would be available before fuel is uncovered).

The proposed reduction in the level of onsite insurance coverage from $1.06 billion to $50 million would continue to serve the underlying purpose of the rule by requiring a conservative level of financial protection considered commensurate with the significant reduction in the probability and consequences of nuclear incidents at KPS. Consistent with the NRC's conclusions documented in SECY-00-145, the proposed reduction in the level of onsite insurance coverage would continue to require sufficient property damage insurance to ensure funding for onsite post-accident recovery, stabilization, and decontamination costs in the unlikely event of an accident at KPS.

Therefore, application of the requirement in 10 CFR 50.54(w)(1) to maintain $1.06 billion in onsite insurance coverage is not necessary to achieve the underlying purpose of this rule and special circumstances are present as defined in 10 CFR 50.12(a)(2)(ii).

2. **Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. (10 CFR 50.12(a)(2)(iii))**

Continued compliance with 10 CFR 50.54(w)(1) would require that DEK maintain $1.06 billion in onsite insurance coverage. The reduction in onsite insurance coverage from $1.06 billion to $50 million would continue to require a level of financial protection commensurate with the underlying purpose of the rule while eliminating an unnecessary financial burden.

Continued application of the requirement to maintain $1.06 billion in onsite insurance coverage for KPS would result in undue hardship and costs being incurred by the KPS decommissioning trust fund for the purchase of unnecessary levels of onsite insurance coverage. The NRC has granted similar exemptions to other decommissioning facilities.

Therefore, compliance with the rule would result in an undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. Therefore, the special circumstances are present as defined in 10 CFR 50.12(a)(2)(iii).

V. ENVIRONMENTAL CONSIDERATION

The proposed exemption meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(25), because the proposed exemption involves: (i) no significant hazards consideration; (ii) no significant change in the types or significant increase in the amounts of any effluent that may be released offsite; (iii) no significant increase in individual or cumulative occupational radiation exposure; (iv) no significant construction impact; (v) no significant increase in the potential for consequences from radiological accidents; and (vi) the requirements from which the exemption is sought involve: (H) Surety, insurance or indemnity requirements. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed exemption.

(i) No significant hazards consideration

Pursuant to 10 CFR 50.12, "Specific exemptions," Dominion Energy Kewaunee, Inc. (DEK) requests a permanent exemption from 10 CFR 50.54(w)(1) for Kewaunee Power Station (KPS). DEK is proposing an exemption to 10 CFR 50.54(w)(1) to reduce the minimum coverage limit of 10 CFR 50.54(w)(1) from $1.06 billion to $50 million. DEK has evaluated the proposed exemption to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92 as discussed below:

1. **Does the proposed exemption involve a significant increase in the probability or consequences of an accident previously evaluated?**

   The proposed exemption has no effect on plant systems, structures and components (SSCs) and no effect on the capability of any plant SSC to perform its design function. The proposed exemption would not increase the likelihood of the malfunction of any plant SSC. The proposed exemption would have no effect on the probability of consequences of any of the previously evaluated accidents in the KPS Updated Safety Analysis Report.

   Therefore, the proposed exemption does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed exemption create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed exemption does not involve a physical alteration of the plant. No new or different type of equipment will be installed and there are no physical modifications to existing equipment associated with the proposed exemption. Similarly, the proposed exemption would not physically change any structures, systems, or components involved in the mitigation of any accidents. Thus, no new initiators or precursors of a new or different kind of accident are created. Furthermore, the proposed exemption does not create the possibility of a new accident as a result of new failure modes associated with any equipment or personnel failures. No changes are being made to parameters within which the plant is normally operated, or in the setpoints which initiate protective or mitigative actions, and no new failure modes are being introduced.

Therefore, the proposed exemption does not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the proposed exemption involve a significant reduction in a margin of safety?**

   The proposed exemption does not alter the design basis or any safety limits for the plant. The proposed exemption does not impact station operation or any plant SSC that is relied upon for accident mitigation.

   Therefore, the proposed exemption does not involve a significant reduction in a margin of safety.

Based on the above, DEK concludes that the proposed exemption presents no significant hazards consideration, and, accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

There are no expected changes in the types, characteristics, or quantities of effluents discharged to the environment associated with the proposed exemption. There are no materials or chemicals introduced into the plant that could affect the characteristics or types of effluents released offsite. In addition, the method of operation of waste processing systems will not be affected by the exemption. The proposed exemption will not result in changes to the design basis requirements of SSCs that function to limit or monitor the release of effluents. All the SSCs associated with limiting the release of effluents will continue to be able to perform their functions. Therefore, the proposed exemption will result in no significant change to the types or significant increase in the amounts of any effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The exemption would result in no expected increases in individual or cumulative occupational radiation exposure on either the workforce or the public. There are no expected increases in normal occupational doses.

(iv) There is no significant construction impact.

There are no construction activities associated with the proposed exemption.

(v) There is no significant increase in the potential for consequences from radiological accidents.

See the no significant hazards considerations discussion in item 1 above.

(vi) The requirements from which exemption is sought involve surety, insurance or indemnity requirements.

The requirements from which the exemption is sought involve financial protection and for the indemnification and limitation of liability of licensees pursuant to Section 170 of the Atomic Energy Act of 1954, as amended and 10 CFR 50.54(w)(1).

VI. CONCLUSION

Pursuant to the provisions of 10 CFR 50.12, "Specific exemptions," Dominion Energy Kewaunee, Inc. (DEK) is requesting an exemption from 10 CFR 50.54(w)(1) for Kewaunee Power Station (KPS). The requested exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. In addition, special circumstances are present as set forth in 10 CFR 50.12.

References

1. Letter from D. G. Stoddard (DEK) to NRC Document Control Desk, "Certification of Permanent Cessation of Power Operations," dated February 25, 2013. [ADAMS Accession No. ML13058A065]
2. Letter from Daniel G. Stoddard (DEK) to NRC Document Control Desk, "Certification of Permanent Removal of Fuel from the Reactor Vessel," dated May 14, 2013. [ADAMS Accession No. ML13135A209]
3. Letter from Daniel G. Stoddard to NRC Document Control Desk, "Post Shutdown Decommissioning Activities Report," dated February 26, 2013. [ADAMS Accession No. ML13063A248]
4. SECY-96-256, "Changes to the Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors, 10 CFR 50.54(w) and 10 CFR 140.11," dated December 17, 1996.
5. Staff Requirements Memo, "Re: SECY-96-256, Changes to Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors," dated January 28, 1997. [ADAMS Accession No. 9702070060]
6. SECY-97-186, "Changes to the Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors, 10 CFR 50.54(w) and 10 CFR 140.11," dated August 13, 1997.
7. SECY-00-145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning," dated June 28, 2000.
8. Memorandum from William D. Travers (NRC) to NRC Commissioners, Status of Regulatory Exemptions for Decommissioning Plants (WITS 200100085, WITS 199900133, WITS 199900072)," dated August 16, 2002.
9. NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants," August 1997.
10. Letter from M. D. Sartain to NRC Document Control Desk, "License Amendment Request 257, Permanently Defueled Emergency Plan and Emergency Action Level Scheme," dated January 16, 2014. [ADAMS Accession No. 14029A076]
11. Federal Register Volume 64, Number 248, December 28, 1999, pages 72700-72701, "In the Matter of Commonwealth Edison Company (Zion Nuclear Power Station, Units 1 and 2): Exemption."
12. U.S. Environmental Protection Agency, "Protective Action Guide and Planning Guidance for Radiological Incidents," Draft for Interim Use and Public Comment, dated March 2013 (PAG Manual).