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

October 31, 2014

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 – ISSUANCE OF AMENDMENT FOR CHANGES TO THE EMERGENCY PLAN AND EMERGENCY ACTION LEVELS (TAC NO. MF3411)

Dear Mr. Heacock:

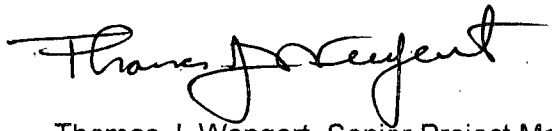
The U.S. Nuclear Regulatory Commission (NRC or Commission) has issued the enclosed Amendment No. 214 to Renewed Facility Operating License No. DPR-43 for the Kewaunee Power Station (KPS). The amendment revises the KPS emergency plan and emergency action level scheme to reflect the low likelihood of any credible accident resulting in radiological releases requiring offsite protective measures in its permanently shutdown and defueled condition. The amendment is in response to Dominion Energy Kewaunee, Inc.'s (DEK) application dated January 16, 2014, as supplemented by letters dated June 19, 2014, and September 9, 2014. The changes were submitted to the NRC for approval in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(q)(4) and 10 CFR 50, Appendix E, Section IV.B.2.

The amendment revises the emergency plan and emergency action level scheme to comply with the requirements of 10 CFR Part 50.47, "Emergency plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," subject to the exemptions granted to the licensee by the NRC letter to DEK dated October 27, 2014. In addition, the emergency action level scheme revision is based on the Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels," dated November 2012. NEI 99-01, Revision 6, provides guidance for permanently shutdown and defueled nuclear power plants for the development of a site-specific emergency classification scheme.

The NRC staff concludes that the KPS revised emergency plan and emergency action level scheme provide: (1) an adequate basis for an acceptable state of emergency preparedness, and (2) reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency based on the permanently shutdown and defueled status of the KPS facility.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

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 No. 50-305

Enclosures:
1. Amendment No. 214 to Renewed
   Facility Operating License No. DPR-43
2. Safety Evaluation

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

DOMINION ENERGY KEWAUNEE, INC.

DOCKET NO. 50-305

KEWAUNEE POWER STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 214
License No. DPR-43

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Dominion Energy Kewaunee, Inc., dated January 16, 2014, as supplemented by letters dated June 19, 2014, and September 9, 2014, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, by Amendment No. 214, Renewed Facility Operating License No. DPR-43 is hereby amended to authorize the revision to the Kewaunee Power Station Emergency Plan and Emergency Action Level Scheme as set forth in Dominion Energy Kewaunee, Inc. application dated January 16, 2014, as supplemented by letters dated June 19, 2014, and September 9, 2014, and evaluated in the NRC staff's safety evaluation dated October 31, 2014. The license amendment is effective as of its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

William M. Dean, Director
Office of Nuclear Reactor Regulation

Date of Issuance: October 31, 2014

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO AMENDMENT NO. 214 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-43

DOMINION ENERGY KEWAUNEE, INC.

KEWAUNEE POWER STATION

DOCKET NO. 50-305

1.0 INTRODUCTION

The Kewaunee Power Station (KPS) is a decommissioning power reactor located on approximately 900 acres in Carlton, Wisconsin, which is 27 miles southeast of Green Bay Wisconsin. The licensee, Dominion Energy Kewaunee, Inc. (DEK), is the holder of the KPS Renewed Facility Operating License No. DPR-43, issued pursuant to the Atomic Energy Act of 1954, as amended, and Part 50, "Domestic Licensing of Production and Utilization Facilities," of Title 10 of the *Code of Federal Regulations* (10 CFR).

By letter dated February 25, 2013 (Reference 1), DEK submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) indicating its intention to permanently cease power operations pursuant to 10 CFR 50.82(a)(1)(i). On May 7, 2013, KPS permanently shut down. On May 14, 2013, DEK submitted a certification of permanent removal of fuel from the reactor vessel pursuant to 10 CFR 50.82(a)(1)(ii) (Reference 2). Upon docketing of these certifications, 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). KPS is authorized to possess and store irradiated nuclear fuel. Spent fuel is currently stored on site in a spent fuel pool (SFP) and in an independent spent fuel storage installation (ISFSI) dry cask storage facility.

By letter dated January 16, 2014, "License Amendment Request 257, Permanently Defueled Emergency Plan and Emergency Action Level Scheme" (Reference 3), DEK requested a license amendment to revise the KPS Emergency Plan, referred to hereafter as the Permanently Defueled Emergency Plan (PDEP), and the KPS Emergency Action Level (EAL) scheme. DEK submitted the KPS PDEP and the KPS EAL scheme to the NRC for approval in accordance with 10 CFR 50.54(q)(4) and 10 CFR 50, Appendix E, Section IV.B.2. Based on an NRC staff request for additional information (RAI), DEK supplemented its original application in a letter dated June 19, 2014 (Reference 4). In a letter dated September 9, 2014 (Reference 5), DEK provided an additional supplement to its amendment request in response to another RAI from the staff.

The supplemental letters submitted by DEK dated June 19, 2014, and September 9, 2014, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the Federal Register on August 5, 2014 (79 FR 45472).

1.1 Discussion

DEK submitted its proposed PDEP amendment in accordance with 10 CFR 50.54(q)(4), because it does not meet all the planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E that are required for an operating reactor. However, by letter dated October 27, 2014 (Reference 6), the NRC staff granted DEK exemptions from certain EP requirements in 10 CFR 50.47 and 10 CFR 50, Appendix E, in accordance with 10 CFR 50.12 and based on the low risks associated with a permanently shutdown and defueled reactor. In granting the requested exemptions to DEK, the staff primarily relied on KPS site-specific analyses, which provided reasonable assurance that: (1) an offsite radiological release would not exceed the U.S. Environmental Protection Agency's (EPA's) Protective Action Guidelines (PAGs) at the exclusion area boundary for any remaining applicable design-basis accidents; and (2) in the unlikely event of a severe beyond design-basis accident resulting in a loss of all cooling to the spent fuel stored in the SFP, sufficient time would be available to initiate appropriate mitigating actions, and if needed, for offsite authorities to implement protective actions using a comprehensive emergency management plan[1] approach to protect the health and safety of the public. The staff's action was also based the Commission's approval of proposed exemptions, as documented in a Staff Requirements Memorandum dated August 7, 2014 (Reference 7) to SECY-14-0066, "Request by Dominion Energy Kewaunee, Inc. for Exemptions from Certain Emergency Planning Requirements," dated June 27, 2014 (Reference 8). With the NRC staff granting DEK approval to the previously requested EP exemptions, DEK states that the proposed KPS PDEP will continue to meet the remaining applicable planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E.

In addition to the proposed emergency plan changes in the PDEP, DEK is proposing to change the entire EAL scheme to reflect the permanently shutdown and defueled status of KPS. In accordance with Section IV.B.2 of Appendix E, the licensee must receive NRC approval before implementing a change to the entire EAL scheme. DEK states that the changes to the EAL scheme are consistent with the methodology recommended for permanently shutdown and defueled reactors provided by Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6,

[1] A comprehensive emergency management plan (CEMP) in this context, also referred to as an emergency operations plan (EOP), is addressed in the Federal Emergency Management Agency's (FEMA) Comprehensive Preparedness Guide (CPG) 101, "Developing and Maintaining Emergency Operations Plans." CPG 101 is the foundation for State, territorial, tribal, and local emergency planning in the United States. It promotes a common understanding of the fundamentals of risk-informed planning and decision making and helps planners at all levels of government in their efforts to develop and maintain viable, all-hazards, all-threats emergency plans. An EOP is flexible enough for use in all emergencies. It describes how people and property will be protected; details who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies and other resources available; and outlines how all actions will be coordinated. A CEMP is often referred to as a synonym for "all hazards planning."

"Methodology for Development of Emergency Action Levels," dated November 2012, (Reference 9) which has been endorsed by the NRC.

2.0 REGULATORY EVALUATION

2.1 Emergency Plan

Section 50.47 of 10 CFR, "Emergency plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a)(1)(i) state, in part, that:

> ... no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

Section 50.47(b) of 10 CFR establishes the standards that the onsite and offsite emergency response plans must meet for NRC staff to make a positive finding that there is reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency.

Appendix E, Section IV, "Content of Emergency Plans," to 10 CFR Part 50 provides the requirements for the content of the emergency plans.

Section 72.32(a) of 10 CFR, "Emergency Plan," establishes the contents of an emergency plan for a specific-licensed ISFSI.

The current EP regulations, contained in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, apply to both operating and permanently shutdown, defueled power reactors. However, EP regulations are silent with regard to the fact that once a power reactor permanently ceases operation and removed fuel from the reactor vessel, the risks of credible emergency accident scenarios are reduced. The current practice for permanently shutdown and defueled power reactors has been to request exemptions, under 10 CFR 50.12, that allow changes to the licensee's emergency plan commensurate with the credible site-specific risks that are present during decommissioning. Such EP exemptions generally recognize the reduction in radiological risk as spent fuel ages and the preclusion of accidents that are strictly applicable to an operating power reactor.

The practice of considering exemptions acknowledges this regulatory construct and is a well-established part of the NRC regulatory process that allows licensees to address site-specific situations or to implement alternative approaches for circumstances not necessarily contemplated in the regulations for operating power reactors. The exemption process, which allows the agency to provide relief in appropriate circumstances where safety and security continue to be assured, is not unique to the decommissioning of power reactors or to the specific technical areas of EP. The Commission makes decisions on exemption requests on a site-specific, case-by-case basis, following an established process that includes the NRC staff's detailed technical assessment on individual exemption requests.

Revision 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Reference 10), provides a common reference and guidance source for power reactor licensees to develop radiological emergency response plans. NUREG-0654/FEMA-REP-1 provides guidance for the format and content of the emergency plan, including evaluation criteria for each of the planning standards in 10 CFR 50.47(b).

As part of the review for DEK's license amendment request, the NRC staff also used the EP guidance provided in the Spent Fuel Project Office Interim Staff Guidance (ISG) – 16, "Emergency Planning" (Reference 11), prepared by the NRC's Office of Nuclear Material Safety and Safeguards, to ensure consistency between specific-licensed and general-licensed ISFSIs.

2.2 Emergency Action Level Scheme

Paragraph 50.47(b)(4) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee~~, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures~~.

The NRC staff reviews implementation methods to ensure consistency throughout the industry for a given reactor and containment design to assess a licensee's request to modify its EAL scheme, as necessary, to address site-specific design considerations.

Section IV.B of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, as exempted, states:

> 1. The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within ~~and outside~~ the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite ~~and offsite~~ monitoring. ~~By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.~~ The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

2. A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees shall follow the change process in § 50.54(q) for all other emergency action level changes.

This review is based upon a revision to the KPS EAL scheme provided in the licensee's application letter and supplemented by the licensee's responses to the NRC's requests for additional information. Enclosure 2 of the licensee's letter dated June 19, 2014 (Reference 4) contains the final version of the licensee's proposed site-specific EAL scheme for KPS, which were reviewed by the NRC for acceptability.

As part of this review, the NRC staff assessed the site-specific modifications made by DEK to the guidance provided by NEI 99-01, Revision 6 (Reference 9). The purpose of NEI 99-01, Revision 6, is to provide guidance to nuclear power plant operators for the development of a site-specific emergency classification scheme. The methodology described in this document is consistent with Federal regulations, and related US Nuclear Regulatory Commission (NRC) requirements and guidance. In particular, this methodology has been endorsed by the NRC, by letter dated March 28, 2013 (Reference 12), as an acceptable method for developing EALs required by 10 CFR 50.47(b)(4), related sections of 10 CFR Part 50, Appendix E, and the associated planning standard evaluation elements of NUREG-0654/ FEMA-REP-1, Rev. 1 (Reference 10). In addition, the methodology also provides guidance for permanently shutdown and defueled nuclear power plants for the development of a site-specific emergency classification scheme.

3.0 TECHNICAL EVALUATION

3.1 Emergency Plan

Pursuant to DEK's certifications under 10 CFR 50.82, no reactor operations can take place and the station is prohibited from moving the fuel from the SFP to the reactor vessel. Consequently, the KPS PDEP describes the station's plan for responding to emergencies that may arise at KPS while in a permanently shutdown and defueled configuration. Recognizing that there are no postulated accidents that would result in offsite dose consequences that are large enough to require offsite emergency planning, the PDEP no longer specifies offsite radiological emergency planning activities and the onsite emergency planning activities are reduced in scope. The PDEP specifically implements the planning standards of 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50, as exempted by the NRC staff in its letter to DEK dated October 27, 2014 (Reference 6).

This section reflects the NRC staff's technical evaluation for the KPS PDEP using the planning standards of 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50, as exempted, and the evaluation criteria provided in NUREG-0654/FEMA-REP-1, as applicable to 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, as exempted.

3.1.1 Assignment of Responsibility (Organizational Control)

Paragraph 50.47(b)(1) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations ~~within the Emergency Planning Zones~~ have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

The KPS PDEP identifies that the primary responsibilities for emergency response by KPS and by State and local organizations have been assigned, and the emergency responsibilities of the various supporting organizations have been specifically established.

The Shift Manager is at the station 24 hours a day and is the senior management position at the station during off-normal hours. This position is responsible for monitoring conditions and approving onsite activities. The Shift Manager shall assume the position of Emergency Director once the emergency declaration has been made.

Designated on-shift staff positions are available 24 hours per day. The licensee's onsite Emergency Response Organization (ERO) will be activated and augment the on-shift staff during an Alert classification or at the direction of the Emergency Director for a Notification of Unusual Event classification. The on-shift staff can perform all required response actions, including initiation of SFP mitigation measures, until the ERO arrives.

Offsite response organization assistance (i.e., fire, ambulance and local law enforcement agency (LLEA)) is requested by the Emergency Director. The Emergency Director coordinates the offsite response organizations' response, plant access, and radiological controls with the onsite activities. State and local government agency response offsite will be in accordance with each agency's CEMP approach, and will be commensurate with the hazard posed by the emergency. The following letters of agreement are in place for those local agencies that may respond to the site, and for the hospital that may be required to treat a contaminated injured individual from the KPS site, as designated in the KPS PDEP:

- City of Kewaunee Fire Department (assistance to the Plant Fire Brigade),
- City of Kewaunee (ambulance services),
- Aurora Medical Center (offsite medical services), and
- Kewaunee County Sheriff's Department (law enforcement).

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(1), as exempted, pertaining to responsibilities for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.2 Onsite Emergency Organization

Paragraph 50.47(b)(2) of 10 CFR requires that a licensee's emergency response plan contain:

> On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident

response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

The KPS PDEP identifies that: the on-shift licensee responsibilities for emergency response are unambiguously defined; adequate staffing to provide initial facility accident response in key functional areas is maintained at all times; timely augmentation of response capabilities is available; and the interfaces among various onsite response activities and offsite support and response activities are specified.

KPS has designated personnel on-shift at all times that provide the initial response to an event. Members of the on-shift organization are trained on their responsibilities and duties in the event of an emergency, and are capable of performing necessary response actions until the augmenting ERO arrives or the event is terminated. The on-shift staffing assignments include the roles and responsibilities for their emergency response functions. The relationship between normal and emergency response positions for the shift personnel is unchanged when an event occurs.

The ERO augments the on-shift station organization's ability to respond to declared emergencies. Personnel are trained and assigned to the ERO based on either their normal job qualifications or by being specifically trained to fill a position. The ERO is activated when an Alert is declared or at the discretion of the Emergency Director for a Notification of Unusual Event. The Emergency Director is responsible for ensuring that an ERO callout method is initiated to augment the on-shift staff. The minimum augmented staff is a Radiation Protection Director and a Technical Director. The Shift Manager assumes the responsibilities of the Emergency Director. The Radiation Protection Director and Technical Director will augment the on-shift station organization within 2 hours of the declaration of an Alert classification. The table of on-shift positions and the augmented positions that fulfill emergency staffing capabilities is provided in Section 6.4 of the KPS PDEP. This table provides a graphical representation of the functional responsibilities for designated on-shift positions and the augmented positions that fulfill emergency staffing capabilities.

The KPS PDEP further provides that, in the event of an emergency at KPS that requires personnel and other support resources beyond those available within the KPS ERO, augmentation resources are available from KPS staff and other Dominion Energy facilities. Additional support to KPS is available from offsite organizations, as previously discussed in Section 3.1.1 of this safety evaluation.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(2) pertaining to the onsite emergency organization for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.3 Emergency Response Support and Resources

Paragraph 50.47(b)(3) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> Arrangements for requesting and effectively using assistance resources have been made, ~~*arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made,*~~ and other organizations capable of augmenting the planned response have been identified.

The KPS PDEP identifies that arrangements for requesting and effectively using assistance resources have been made, and other organizations capable of augmenting the planned response have been identified. Fire, ambulance, and LLEA response is at the request and direction of the Emergency Director. Letters of agreement are in place for those local agencies that will respond to the site and for the local hospital that may be required to treat a contaminated injured individual from the site, as designated in the PDEP. These letters of agreement are discussed in Section 3.1.1 above.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(3), as exempted, pertaining to the emergency response support and resources for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.4 Emergency Classification System

Paragraph 50.47(b)(4) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee~~, *and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures*~~.

The KPS PDEP identifies that the emergency classification system covers a spectrum of possible radiological and non-radiological emergencies at KPS. The emergency classification system categorizes accidents and/or emergency situations into one of two emergency classification levels depending on emergency conditions at the time of the incident. The emergency classification levels applicable at KPS, in order of increasing severity, are a Notification of Unusual Event and Alert. Each of these emergency classes requires notification to State and local agencies, as designated in the PDEP, as well as the NRC. The classification of emergencies up to an Alert is consistent with the regulations for an ISFSI in 10 CFR 72.32(a)(3) and the exemptions granted as described in the NRC letter dated October 27, 2014 (Reference 6).

The emergency classification system is based on NEI 99-01, Revision 6, as applied to a permanently shutdown and defueled power reactor with fuel stored in a SFP and a dry cask ISFSI, with emergency classification levels of a Notification of Unusual Event and Alert. Once indications are available to plant operators that an EAL has been met, the event is assessed and declared, and the corresponding emergency classification level is promptly declared as soon as possible and within 30 minutes. Notification to the State and local offsite authorities, designated in the PDEP, and the NRC, is required within 60 minutes of the event being declared.

Methods for detecting and evaluating postulated accidents applicable to KPS for emergency classification include the use of installed systems, instrumentation, alarms, and approved procedures.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(4), as exempted, pertaining to the emergency classification system for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility. The evaluation of the EAL scheme for the permanently shutdown and defueled status of KPS is provided in Section 3.2 of this safety evaluation.

3.1.5 Notification Methods and Procedures

Paragraph 50.47(b)(5) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations ~~and the public~~ has been established~~; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established~~.

The KPS PDEP identifies the Emergency Director position, which is assumed by the Shift Manager upon the declaration of an emergency, as having the authority and responsibility for: declaring emergencies; initiating notifications to the Federal, State and local officials; and initiating corrective and mitigative actions. The ERO is activated by a plant announcement and by an ERO callout system, as directed by the Emergency Director.

The Nuclear Accident Reporting System (NARS) is a communication system used to notify State and local agencies, as designated in the PDEP, of a declared emergency. The NARS form contains information that identifies the station, emergency classification level, site meteorological data, and the applicable EAL. Notification to State and local agencies, as designated in the PDEP, will be made within 60 minutes of an event declaration. Notification of designated State and local agencies using NARS is the responsibility of the Emergency Director.

The Event Notification System (ENS) is a dedicated telephone system used to notify the NRC Operations Center. The NRC will be notified as soon as possible after State and local notifications, but within 60 minutes of event declaration. In the event of failure of the ENS, commercial phone lines will be used to notify the NRC. Notification to the NRC is the responsibility of the Emergency Director.

Medical, LLEA, and firefighting support services, which may be requested to respond onsite, are primarily notified for assistance via the public 911 process. Requests for support services are the responsibility of the Emergency Director.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(5), as exempted, pertaining to the notification methods and procedures for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.6 Emergency Communications

Paragraph 50.47(b)(6) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> Provisions exist for prompt communications among principal response organizations to emergency personnel ~~*and to the public*~~.

The KPS PDEP identifies that the provisions exist for prompt communications among principal response organizations to emergency personnel. The following communication methods provide 24-hour capability internal to the plant and for plant-to-offsite communications:

- Commercial telephone systems,
- Plant public address system,
- Portable radios,
- NARS,
- ERO callout method, and
- NRC ENS.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(6), as exempted, pertaining to the emergency communications for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.7 Public Education and Information

Paragraph 50.47(b)(7) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> ~~*Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors),*~~ (T)he principal points of contact with the news media for dissemination of information during an emergency ~~*(including the physical location or locations)*~~ are established in advance, and procedures for coordinated dissemination of information to the public are established.

The KPS PDEP identifies that the Dominion Energy Communications Department personnel will be notified of a declared emergency via the ERO callout method. The Communications Department will monitor media activity and coordinate with senior management, disseminating public information per Dominion Energy communication protocols. As necessary, news conferences can be conducted on site or at another location using these communication

protocols. Communications Department personnel, or senior plant or corporate management, will represent the station as the plant spokesperson.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(7), as exempted, pertaining to the public education and information for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.8 Emergency Facilities and Equipment

Paragraph 50.47(b)(8) of 10 CFR requires that a licensee's emergency response plan contain:

> Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

The KPS PDEP identifies that the Control Room is where plant systems and equipment parameters are monitored. The Control Room is the onsite center for command and control of emergency response activities. Control Room personnel will: assess plant conditions; evaluate the magnitude and potential consequences of any abnormal conditions; initiate preventative, mitigating and corrective actions; and perform notifications. When activated, ERO responders will physically report to the Control Room.

The KPS PDEP also identified the Site Relocation Facility, which is located in the Carlton Township Hall, 1.6 miles North of KPS on Highway 42, and approximately 2 miles west on County Road G. The Site Relocation Facility functions as a staging area for augmentation of emergency response staff if the site is under threat of or experiencing a hostile action.

The Radiation Monitoring System continues to provide for continuous radiological surveillance in applicable plant areas, based on the permanently shutdown and defueled and status of the KPS facility. The system performs the following basic functions:

- Warns personnel of potential radiological health hazards;
- Gives early warning of certain plant malfunctions that might lead to a radiological health hazard or plant damage;
- Prevents or minimizes the effects of inadvertent releases of radioactivity to the environment by consequence-limiting automatic responses; and
- Provides routine monitoring of controlled offsite plant releases.

The Radiation Monitoring System is divided into two sub-systems. The Process Radiation Monitoring System monitors various liquid and air streams for indication of radiation levels within those streams. The Area Radiation Monitoring System monitors radiation levels in various areas of the plant.

Portable radiation and contamination monitoring instruments, and sampling equipment normally utilized and maintained by the Radiation Protection group are available for emergency use. Additionally, the PDEP provides that there are facilities for analyzing radioactive samples that

are equipped with instruments that can detect alpha and beta radioactivity, and a gamma spectroscopy system with automatic spectrum analysis.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(8) pertaining to the emergency facilities and equipment for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.9 Accident Assessment

Paragraph 50.47(b)(9) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> Adequate methods, systems, and equipment for assessing and monitoring actual or potential ~~*offsite*~~ consequences of a radiological emergency condition are in use.

The KPS PDEP identifies that there are methods, systems, and equipment in use for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition. The assessment activities required to evaluate a particular emergency depend on the specific nature and classification of that emergency. The EALs identify the system parameter and effluent parameter values which can be used to determine the emergency condition. Declaration of an emergency classification is performed by the Emergency Director in accordance with the EAL scheme.

Additionally, there are implementing procedures that utilize radiological instrumentation readings and site meteorological data to provide a rapid method of determining the magnitude of any potential radioactive release during an accident condition. Although KPS is permanently shutdown and defueled with spent fuel in the SFP and dry cask storage, and there is a low likelihood of any credible accident resulting in radiological releases requiring offsite protective measures, KPS maintains the capability to perform dose assessment on a 24-hour per day basis. Initial dose assessment is the responsibility of the Emergency Director. Subsequent dose assessments are the responsibility of the Radiation Protection Director.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(9), as exempted, pertaining to the accident assessment for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.10 Protective Response

Paragraph 50.47(b)(10) of 10 CFR, as exempted, requires that a licensee's emergency response plan contain:

> A range of protective actions has been developed ~~*for the plume exposure pathway EPZ*~~ for emergency workers and the public. ~~*In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as*~~

~~*appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.*~~

The KPS PDEP identifies that the protective actions for onsite personnel are provided for their health and safety. Implementation guidelines for onsite protective actions are provided in the Emergency Plan Implementing Procedures, which continue to provide for a range of protective actions to protect onsite personnel in the event of a hostile action.

The KPS PDEP also provides that accountability should be considered and used as a protective action whenever a site-wide risk to health or safety exists, and prudence dictates. If personnel accountability is required, at the direction of the Emergency Director, all individuals at the site (including employees without emergency assignments, visitors and contractor personnel) shall be notified of an emergency over the public address system, and by the sounding of the plant alarm. Accountability of all personnel onsite should be accomplished within 60 minutes after an event declaration and maintained thereafter.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(10), as exempted, pertaining to the protective actions for onsite personnel during an emergency is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.11 Radiological Exposure Control

Paragraph 50.47(b)(11) of 10 CFR requires that a licensee's emergency response plan contain:

> Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

The KPS PDEP identifies the means for controlling radiological exposures for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with the EPA Emergency Worker and Lifesaving Activity Protective Action Guides. As necessary, the Radiation Protection Director will ensure Radiological Control Areas (RCAs) are established in response to the event. The Radiation Protection Director will direct control of access to all RCAs, unless immediate access is authorized by the Emergency Director to facilitate emergency repairs.

The KPS PDEP further provides that all reasonable measures shall be taken to control the radiation exposure within applicable limits specified in 10 CFR Part 20 to emergency response personnel providing rescue, first aid, decontamination, emergency transportation, medical treatment services, and corrective actions, or assessment actions. The Emergency Director is responsible for authorizing plant and emergency response personnel to receive doses in excess

of 10 CFR Part 20 limits, if necessary. This authorization is coordinated with the Radiation Protection Director.

All personnel are monitored for radioactive contamination prior to leaving the site. Portable radiation survey meters are available to frisk personnel for potential contamination. Documentation of surveys, contamination, and decontamination activities is maintained in accordance with the KPS Radiation Protection procedures.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(11) pertaining to the radiological exposure control for onsite emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.12 Medical and First Aid Support

Paragraph 50.47(b)(12) of 10 CFR requires that a licensee's emergency response plan contain:

> Arrangements are made for medical services for contaminated injured individuals.

The KPS PDEP identifies that arrangements are made for medical services for contaminated injured individuals. KPS maintains on-shift personnel and equipment to provide first aid for personnel working at the site. First aid training for personnel assigned to the on-shift responsibility includes courses equivalent to Red Cross Multi-Media. Medical supplies for emergency first aid treatment are provided on the site at various plant locations. Stretchers are available for transporting non-mobile, injured personnel.

The KPS PDEP further provides that if immediate professional medical help is required, local ambulance services are available via a letter of agreement with the City of Kewaunee to assist in the transport of seriously injured or radioactively contaminated injured personnel. Arrangements have been made with the Aurora Medical Center for the medical treatment of plant personnel. Hospital personnel have been instructed and trained in the treatment and care of patients with radiological contamination and radiation overexposure.

The PDEP identifies one Radiation Technologist as part of the on-shift complement to enhance response capabilities for radiological monitoring. If there is a need for contaminated personnel to be transported to the Aurora Medical Center, personnel trained in radiological monitoring will be dispatched either with the injured individual or to Aurora Medical Center to monitor and maintain radiological controls.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(12) pertaining to the medical and first aid support for onsite emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.13 Recovery and Reentry

Paragraph 50.47(b)(13) of 10 CFR requires that a licensee's emergency response plan contain:

> General plans for recovery and reentry are developed.

The KPS PDEP identifies that the plant recovery organization will be based on the normal KPS organization and would function with a KPS executive management position responsible for directing all site activities. During a declared emergency, a point may be reached where the emergency can be considered to be in a stable condition, with the understanding that this condition could be attained even though specific EALs are still exceeded. The Emergency Director may determine that there is no longer a need to keep the emergency organization in effect and to begin recovery. Although de-escalation to a lower emergency level may be performed, it is not necessary to de-escalate prior to initiating plant recovery.

The extent and nature of the corrective and protective measures and the extent of plant recovery will depend on the emergency conditions at hand and the status of plant areas and equipment. The general goals for plant recovery are:

- An orderly evaluation of the cause and effect of the emergency and implementation of solutions to prevent immediate recurrence of the incident;
- A planned approach for returning the emergency back to a stable condition by obtaining the appropriate manpower, materials, and equipment;
- A planned approach to coordinate with offsite authorities to identify and resolve situations that may impact the general public;
- An evaluation of the radiation exposure records for all onsite emergency response personnel involved in the incident;
- A planned approach to ensure that radiation exposures and contamination controls are consistent with the ALARA program; and
- To ensure that all nuclear safety-related procedures associated with the recovery operation are submitted to the Facility Safety Review Committee (FSRC) for review and approval prior to their implementation.

The PDEP further provides that the plant recovery activities shall be in accordance with the plant technical specifications and other license documents. During plant recovery, the radiation exposure limits of 10 CFR Part 20 shall apply. The plant recovery will be terminated by a KPS executive management position after the emergency has been returned to a stable condition.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(13) pertaining to the recovery and reentry for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.14 Exercises and Drills

Paragraph 50.47(b)(14) of 10 CFR requires that a licensee's emergency response plan contain:

> Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

The KPS PDEP identifies that: periodic exercises will be conducted to evaluate major portions of emergency response capabilities; periodic drills will be conducted to develop and maintain key skills; and deficiencies identified as a result of exercises or drills will be corrected. KPS will conduct a biennial exercise to test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communication networks, and to ensure that emergency personnel are familiar with their duties. KPS will also invite offsite response organizations to participate in the biennial exercise. For alternating years, a drill will be conducted for the purpose of testing, developing, and maintaining the proficiency of emergency responders.

The following equipment and proficiency drills may be performed as part of an exercise, a drill, or as an independent drill:

- Communication drills,
- Medical emergency drills,
- Radiological monitoring drills,
- Health physics drills,
- Accountability drills, and
- Augmentation capability assessment drills.

The PDEP further provides that critiques will evaluate the performance of the organization. The ability of KPS personnel to self-evaluate weaknesses and identify areas for improvement is the key to successful drill conduct.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(14) pertaining to the exercises and drills for emergency response is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.15 Radiological Emergency Response Training

Paragraph 50.47(b)(15) of 10 CFR requires that a licensee's emergency response plan contain:

> Radiological emergency response training is provided to those who may be called on to assist in an emergency.

The KPS PDEP identifies that the training program for emergency response personnel is based on the requirements of Appendix E to 10 CFR Part 50, as exempted, and position-specific

responsibilities as defined in the PDEP. ERO personnel in the following categories receive initial training and retraining each year thereafter:

- Shift Managers/Emergency Directors (on-shift), and Technical Directors and Radiation Protection Directors (ERO augmented staffing),
- Plant Operators and Maintenance personnel,
- Radiation Protection personnel,
- Security personnel, and
- First aid.

Personnel who are badged for unescorted access receive plant access training annually. Information pertaining to their safety and the safety of visitors under escort during a declared emergency is included in this training.

Additionally, training is offered annually to non-KPS organizations that may provide specialized services during a plant emergency (e.g., fire-fighting, medical services, transport of injured, etc.). The training shall be structured to meet the needs of that organization with respect to the nature of their support. Topics such as event notification, basic radiation protection, and interface activities between the off-site organization and KPS shall be made available.

The Point Beach Nuclear Power Plant and KPS share services from common offsite organizations and agencies. As specified in an established memorandum of understanding, the two plants keep each other informed regarding the emergency preparedness training being presented, thus allowing the two facilities to alternate presentations and minimize redundant training provided to the offsite agencies.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(15) pertaining to the radiological emergency response training is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.1.16 Emergency Plan Development and Review

Paragraph 50.47(b)(16) of 10 CFR requires that a licensee's emergency response plan contain:

> Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

The KPS PDEP identifies the responsibilities for plan development and review, and for distribution of emergency plans. These responsibilities include maintaining emergency response facilities, plans and procedures, letters of agreements, and emergency equipment and supplies. Additionally, the KPS PDEP provides the frequencies for required reviews.

Based on the NRC staff's review of the KPS PDEP as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(16) pertaining to the emergency plan development and review is addressed in an acceptable manner in the PDEP, considering the permanently shutdown and defueled status of the facility.

3.2 Emergency Action Level Scheme

KPS currently utilizes an EAL scheme based on the generic EAL scheme development guidance from NEI 99-01, Revision 4 (Reference 13), as applied for an operating power reactor facility, with site-specific modifications due to design issues and/or licensee preference. The licensee is converting to an EAL scheme using the development guidance from NEI 99-01, Revision 6, as applied for a permanently defueled and shutdown reactor with fuel stored in a SFP and a dry cask ISFSI, with site-specific modifications due to design issues and/or licensee preference.

As discussed in the NRC safety evaluation associated with the exemptions granted to DEK (Reference 6) from certain emergency planning requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, there is no longer any design basis accident at KPS that can result in a significant radiological release beyond the site boundary. Therefore, the NRC staff's assessment of the risks and consequences or a radiological release at KPS, based on its permanently shutdown and defueled condition, are insufficient to warrant classifications of a Site Area Emergency or General Emergency. As a result, the only Initiating Conditions (ICs) and Emergency Action Levels (EALs) applicable to KPS are either a Notification of Unusual Event (NOUE) or an Alert classification.

In its application and supplemental letters, the licensee submitted the proposed EAL scheme for KPS, their technical basis, a comparison matrix, the EAL numbering scheme, and an explanation for any difference or deviation from NEI 99-01, Revision 6 (Reference 9).

The proposed site-specific EAL scheme is unique to KPS as it contains site-specific designations and descriptions; however, to ensure consistency and regulatory stability, the NRC staff reviewed the proposed site-specific EAL scheme to ensure the following key characteristics of an effective EAL scheme are in place:

- Consistency (i.e., the EALs would lead to similar decisions under similar circumstances at different plants), up to and including standardization in intent, if not in actual wording;
- Human engineering and user friendliness;
- Potential for classification upgrade only when there is an increasing threat to public health and safety;
- Ease of upgrading and downgrading;
- Thoroughness in addressing and disposing of the issues of completeness and accuracy raised regarding Appendix 1 to NUREG-0654;
- Technical completeness for each classification level;
- Logical progression in classification for multiple events; and
- Objective and observable values.

To aid in understanding the nomenclature used in this safety evaluation, the proposed EAL scheme for KPS includes two emergency classification levels (ECL): (1) Notification of Unusual Event (U), and (2) Alert (A). Initial Conditions (ICs) for entry into each of the two ECLs are specified for conditions relating to: radiological effluents or abnormal radiation levels (A), system malfunctions (S), hazards (H), and Independent Spent Fuel Storage Installation (E), based on the permanently shutdown, defueled status of the facility with spent fuel stored on site in a spent fuel pool and dry cask storage facility. For each IC, specific EAL threshold values are identified that would require the declaration of an ECL. The EAL scheme is intended to provide multiple and diverse threshold values for all of the emergency classification levels (Notification of Unusual Event and Alert) to ensure accurate EAL classification and timely declaration.

In applying the guidance in NEI 99-01, Revision 6, developers should attempt to keep their site-specific schemes as close to the generic guidance as possible to ensure the intent of the generic ICs and EALs within the context of site-specific characteristics – locale, plant design, operating features, terminology, etc., is met. KPS made the following site-specific changes to incorporate the generic EAL scheme globally throughout the proposed EAL scheme:

- KPS used the term "Unusual Event (UE)," instead of "Notification of Unusual Event (NOUE)," as KPS determined that its use was consistent with current EAL matrix and agreed in meaning and intent with NEI 99-01, Revision 6.
- KPS removed reference to the "Operating Mode" as it did not apply in a permanently defueled condition.
- KPS removed the term "Example" from "Example Emergency Action Levels" and changed the numbering of the EALs.

The NRC considers these changes to be administrative in nature, and as such, acceptable since they do not impact the overall EAL scheme. An evaluation of the acceptability of respective EALs is provided in the following sections.

3.2.1 CATEGORY 'E': Independent Spent Fuel Storage Installation (ISFSI)

3.2.1.1 EAL E-HU1, "Damage to a Loaded Cask Confinement Boundary"

This EAL does not require an EAL set within the overall EAL scheme, as the EAL's intent is limited to radiological events at the ISFSI. While security-related events at the ISFSI are also of concern, they are bounded by the licensee's EAL Permanently Defueled (PD)-HA1.

This IC addresses an event that results in damage to the confinement boundary of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

To incorporate the generic EAL scheme, KPS removed the wording "on the surface of the spent fuel cask" from the EAL as surveys are performed on the transfer cask and the Horizontal

Storage Module (HSM) and not directly on the spent fuel cask itself. Additionally, the acceptance criteria for transfer cask readings are obtained at a distance of three feet.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.2 CATEGORY 'PD-A': Abnormal Radiological Release/Radiological Effluent

3.2.2.1 EAL PD-AU1, "An Uncontrolled Release of Gaseous or Liquid Radioactivity for 60 Minutes or Longer"

This EAL addresses a potential or actual decrease in the level of safety of the plant as indicated by an uncontrolled, low level radiological release for an extended period of time. It includes any gaseous or liquid radiological release, monitored or unmonitored, including those for which a radioactivity discharge permit is normally prepared.

The instrumentation and set points derived for this EAL are consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and are considered part of a standard EAL scheme.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS changed the IC to "An uncontrolled release of gaseous or liquid radioactivity for 60 minutes or longer," since the permanently shutdown and defueled condition of KPS no longer has the source term or motive force from credible accidents that could cause a gaseous release that would exceed 2 times the offsite dose calculation manual (ODCM) limits. KPS determined that using an IC worded to reflect the condition of an uncontrolled release of gaseous or liquid radioactivity for 60 minutes or longer more accurately implements the NEI guidance for an unusual event at KPS and is indicative of a potential degradation of the level of safety of the plant.

- KPS changed the NEI 99-01 EAL #1 (PD-AU1.1) to "Reading on ANY effluent radiation monitor that is greater than the reading shown for 60 minutes or longer." KPS determined that it no longer has the source term or motive force to perform any planned gaseous batch releases from a non-continuous release pathway, or established by a gaseous radioactivity discharge permit, that could exceed ODCM limits. Therefore, this part of the EAL does not directly apply to KPS for planned gaseous releases.

- KPS changed the NEI 99-01 EAL #2 and divided it into two EALs (PD-AU1.2 and PD-AU1.3): one for gaseous releases (PD-AU1.2) and one for liquid releases (PD-AU1.3). For PD-AU1.2, KPS determined that it no longer has the source term or motive force from a credible accident that could create a gaseous release that could exceed ODCM limits. Therefore, this part of the EAL does not directly apply to KPS. For PD-AU1.3, KPS determined that this EAL would still apply to the KPS source term and motive force for radioactive liquid releases; therefore, the NEI 99-01 guidance is used.

- KPS added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.2.2 EAL PD-AA1, "An Uncontrolled Release of Gaseous or Liquid Radioactivity Resulting in Detectable Levels at the Site Boundary"

This EAL addresses a release of gaseous or liquid radioactivity that results in detectable levels offsite that are below 1% of the EPA PAGs. It includes both monitored and unmonitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that could potentially exceed regulatory limits (e.g., a significant uncontrolled release).

The instrumentation and set points derived for this EAL are consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and are considered part of a standard EAL scheme.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS changed the IC to "An uncontrolled release of gaseous or liquid radioactivity resulting in detectable levels at the site boundary." KPS has determined that it no longer has the source term or motive force from a credible accident to create a gaseous release resulting in offsite dose greater than 10 mrem total effective dose equivalent (TEDE) or 50 mrem thyroid committed dose equivalent (CDE). Therefore, this IC does not directly apply to KPS as written in the NEI 99-01, Revision 6, for gaseous releases.

- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.2.3 EAL PD-AU2, "Unplanned Rise in Plant Radiation Levels"

This EAL is based upon site-specific indications of increased plant radiation levels caused by a decrease in water level above irradiated (spent) fuel or other unplanned events. The increased radiation levels are indicative of a minor loss in the ability to control radiation levels within the plant or radioactive materials. Either condition is a potential degradation in the level of safety of the plant.

The instrumentation and set points derived for this EAL are consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and are considered part of a standard EAL scheme.

As a site-specific change to the generic EAL scheme, KPS added plant specific radiation monitors and SFP level alarms.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.2.4 EAL PD-AA2, "Unplanned Rise in Plant Radiation Levels that Impedes Plant Access Required to Maintain Spent Fuel Integrity"

This EAL addresses elevated radiation levels in certain plant rooms/areas sufficient to preclude or impede personnel from performing actions necessary to maintain spent fuel integrity. As such, it represents an actual or potential substantial degradation of the level of safety of the plant. The Alert classification for this EAL is primarily intended to ensure the ERO is activated to support the on-shift personnel in removing the impediment to normal access to maintain spent fuel integrity.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS reworded EAL 2 to ensure the qualifier "UNPLANNED" referred specifically to the term "rise," and not to the phrase "Area Radiation Monitor or survey results."
- For PD-AA2.2, KPS removed reference to "Area Radiation Monitor readings." KPS provides that there are no area radiation monitors in the SFP Pump area; however, this area contains equipment that must be operated manually to maintain spent fuel integrity.
- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.3 CATEGORY 'PD-S': System Malfunction

3.2.3.1 EAL PD-SU1, "Unplanned Spent Fuel Pool Temperature Rise.

This EAL is based upon a loss of the ability to maintain spent fuel pool cooling. If uncorrected, boiling could occur, and result in a loss of water inventory and increased radiation levels.

The value for this EAL is consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and is considered part of a standard EAL scheme.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS added specific temperature information.
- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.4 CATEGORY 'PD-H': Hazards

3.2.4.1 EAL PD-HU1, "Confirmed Security Condition or Threat"

This EAL is based upon security-related events that pose a threat to plant personnel or equipment necessary to maintain cooling of the spent fuel, and thus represent a potential degradation in the level of safety.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS added reference to the vehicle barrier system (VBS) in the basis to provide guidance for escalation to an Alert classification.
- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.4.2 EAL PD-HA1, "Hostile Action within the VBS Boundary or Airborne Attack Threat within 30 Minutes"

This EAL addresses the occurrence of a hostile action within the VBS boundary or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the protected area, or the need to prepare the plant and staff for a potential aircraft impact.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS changed "Owner Controlled Area" to "VBS boundary."
- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.4.3 EAL PD-HU2, "Hazardous Event Affecting Safety System Equipment Necessary for Spent Fuel Cooling"

This EAL is based upon the effect natural and destructive hazards may have on a safety system needed for spent fuel cooling. The damage must be of sufficient magnitude that the safety system cannot, or potentially cannot, perform its design function. This condition reduces the margin to a loss or potential loss of the fuel clad barrier, and therefore represents a potential degradation of the level of safety.

KPS made the following site-specific changes to the generic EAL scheme:

- KPS added low lake level to the list of hazardous events.
- KPS identified site-specific design criteria for SFP cooling (only specifies a single train of cooling).
- Added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.4.4 EAL PD-HU3, "Other Conditions Exist Which in the Judgment of the Emergency Director Warrant Declaration of an Unusual Event"

This EAL set is based upon providing the decision-maker with EALs to consider when their judgment deems an emergency classification is warranted.

As a site-specific change to the generic EAL scheme, KPS added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.2.4.5 EAL PD-HA3, "Other Conditions Exist Which in the Judgment of the Emergency Director Warrant Declaration of an Alert"

This EAL is based upon providing the decision-maker with EALs to consider when their judgment deems an emergency classification is warranted.

As a site-specific change to the generic EAL scheme, KPS added an IC/EAL applicability statement to account for the end state of the plant.

Based on the NRC staff's review of this EAL, the staff finds that the licensee-specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while there are site-specific differences to what is provided in the generic EAL development guidance, it continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), and therefore, is acceptable for implementation.

3.3 Conclusions

3.3.1 Emergency Plan Conclusions

Based on the NRC staff's review of the proposed KPS PDEP as described in Section 3.1, the staff finds that the proposed PDEP meets the standards in 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50, as exempted, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the facility. Therefore, the staff concludes that the licensee's proposed KPS PDEP in its application dated January 16, 2014, as supplemented by letters dated June 19, 2014 and September 9, 2014, is acceptable.

3.3.2 Emergency Action Level Scheme Conclusions

The NRC staff has reviewed the technical basis for the proposed EAL scheme, the modifications from NEI 99-01, Revision 6, and the licensee's evaluation of the proposed changes. The licensee chose, in part, to modify its EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 6, in order to adopt a format more in alignment with its currently approved EAL scheme, as well as alignment with licensee-specific writer's guides and preferences. The NRC staff determined that these modifications are administrative in nature and do not alter the intent of any specific EAL within an EAL set, EAL category, or within the entire EAL scheme as stated in NEI 99-01, Revision 6.

From the review, the NRC staff determined that the proposed EAL scheme uses objective and observable values, is worded in a manner that addresses human engineering and user friendliness concerns, follows logical progression for escalating events, and allows for event

downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were appropriately used to set the boundaries of the emergency classification levels and ensure that all EALs that trigger emergency classification are in the same range of relative risk.

Based on the above, and the staff's review as described in Section 3.2, the NRC staff has determined that the proposed changes meet the guidance in NEI 99-01, Revision 6, the planning standards of 10 CFR 50.47(b)(4), the requirements in Appendix E to 10 CFR 50, and are consistent with the exemptions granted as described in the NRC letter dated October 27, 2014 (Reference 6). Therefore, the staff concludes that the proposed EAL scheme, as stated in Enclosure 2 of the licensee's letter dated June 19, 2014 (Reference 4), is acceptable, and provides reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Wisconsin State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding which was published in the *Federal Register* on August 5, 2014 (79 FR 45472). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter from Dominion Energy Kewaunee, Inc. to U.S. Nuclear Regulatory Commission, "Kewaunee Power Station - Certification of Permanent Cessation of Power Operations," dated February 25, 2013, (ADAMS Accession No. ML13058A065).

2. Letter from Dominion Energy Kewaunee, Inc. to U.S. Nuclear Regulatory Commission, "Kewaunee Power Station - Certification of Permanent Removal of Fuel from the Reactor Vessel," dated May 14, 2013, (ADAMS Accession No. ML13135A209).

3. Letter from Dominion Energy Kewaunee, Inc. to U.S. Nuclear Regulatory Commission, "Kewaunee Power Station - License Amendment Request 257, Permanently Defueled Emergency Plan and Emergency Action Level Scheme," dated January 16, 2014, (ADAMS Accession No. ML14029A076).

4. Letter from Dominion Energy Kewaunee, Inc. to U.S. Nuclear Regulatory Commission, "Kewaunee Power Station - Supplement 1 and Response to Request for Additional Information Regarding License Amendment Request 257, Permanently Defueled Emergency Plan and Emergency Action Level Scheme," dated June 19, 2014, (ADAMS Accession No. ML14178A167).

5. Letter from Dominion Energy Kewaunee, Inc. to U.S. Nuclear Regulatory Commission, "Kewaunee Power Station - Supplement 2 and Response to Request for Additional Information Regarding License Amendment Request 257, Permanently Defueled Emergency Plan and Emergency Action Level Scheme," dated September 9, 2014, (ADAMS Accession No. ML14255A004).

6. NRC letter "Kewanee Power Station – Exemptions From Certain Emergency Planning Requirements and Related Safety Evaluation (MF2567)" dated October 27, 2014, (ADAMS Accession No. ML14261A223).

7. Staff requirements memoranda (SRM) to SECY-14-0066, "Request by Dominion Energy Kewaunee, Inc. for Exemptions from Certain Emergency Planning Requirements," dated August 7, 2014, (ADAMS Accession No. ML14219A366).

8. SECY-14-0066, "Request by Dominion Energy Kewaunee, Inc. for Exemptions from Certain Emergency Planning Requirements," dated June 27, 2014, (ADAMS Accession No. ML14072A257).

9. Nuclear Energy Institute (NEI) 99-01, Revision 6, "Methodology for Development of Emergency Action Levels," November 2012 (ADAMS Accession No. ML12326A805).

10. U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, November 1980 (ADAMS Accession No. ML040420012).

11. Spent Fuel Project Office Interim Staff Guidance – 16, "Emergency Planning," dated June 14, 2000, NRC Office of Nuclear Material Safety and Safeguards (ADAMS Accession No. ML003724570).

12. Letter from Mark Thaggard, U.S. Nuclear Regulatory Commission to Susan Perkins-Grew, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 6, dated November 2012," dated March 28, 2013 (ADAMS Accession No. ML12346A463).

13. NEI 99-01 Revision 4, "Methodology for Development of Emergency Action Levels," dated January 2003 (ADAMS Accession No. ML041470143).

Principal Contributor: M. Norris, NSIR
D. Johnson, NSIR

Date: October 31, 2014

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

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 No. 50-305

Enclosures:
1. Amendment No. 214 to Renewed
   Facility Operating License No. DPR-43
2. Safety Evaluation

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RidsRgn3MailCenter Resource
JAnderson, NSIR
MNorris, NSIR

ADAMS Accession No.: ML14279A482 * via memorandum **via e-mail

OFFICE	NRR/DORL/LPL4-2/PM	NRR/DORL/LPL4-2/PM	NRR/DORL/LPL4-2/LA	NSIR/DPR/ORLOB/BC*
NAME	WHuffman	TWengert	MHenderson	JAnderson
DATE	10/03/14	10/09/14	10/10/14	10/07/14
OFFICE	OGC - NLO	NRR/DORL/LPL4-2/BC**	NRR/DORL/DD	NRR/DORL/D
NAME	AGhosh	DBroaddus	GWilson	MEvans
DATE	10/27/14	10/27/14	10/28/14	10/28/14
OFFICE	NRR/D	NRR/DORL/LPL4-2/PM		
NAME	WDean	TWengert		
DATE	10/31/14	10/31/14		

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