



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

May 12, 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 – APPROVAL OF SHIFT MANAGER/
CERTIFIED FUEL HANDLER TRAINING PROGRAM (TAC NO. MF2370)

Dear Mr. Heacock:

By letter dated June 17, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13176A117), as supplemented by letters dated September 17, 2013 (ADAMS Accession No. ML13263A186), and October 30, 2013 (ADAMS Accession No. ML13309A750), Dominion Energy Kewaunee, Inc. (DEK) submitted its Shift Manager/Certified Fuel Handler training program for the Kewaunee Power Station (KPS) to the U.S. Nuclear Regulatory Commission (NRC).

DEK permanently ceased power operations at KPS on May 7, 2013, and provided a certification of permanent removal of fuel from the reactor vessel on May 14, 2013, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.82(a)(1)(i) and 10 CFR 50.82(a)(1)(ii). Consistent with the KPS permanently shutdown and defueled status, DEK established a Shift Manager/Certified Fuel Handler training requirement for the on-shift management representative supervising irradiated fuel management and decommissioning activities. At KPS, an individual qualified as a Certified Fuel Handler must also meet all training requirements of a shift manager, in addition to the Certified Fuel Handler specific training. As defined in 10 CFR 50.2, the Certified Fuel Handler is a non-licensed operator who has qualified in accordance with a fuel handler training program approved by the NRC. Accordingly, DEK has requested NRC approval of the KPS shift Manager/Certified Fuel Handler training program.

The NRC has reviewed the submittals and approves the KPS Shift Manager/Certified Fuel Handler training program as requested.

A copy of the related safety evaluation is enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Gratton". The signature is fluid and cursive, with a long horizontal stroke at the end.

Christopher Gratton, 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

Enclosure:
Safety Evaluation

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING EVALUATION OF THE KEWAUNEE POWER STATION

SHIFT MANAGER/CERTIFIED FUEL HANDLER TRAINING PROGRAM

KEWAUNEE POWER STATION

DOCKET NOS. 50-305

1.0 INTRODUCTION

By letter dated February 25, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13058A065), Dominion Energy Kewaunee, Inc. (DEK, the licensee) submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) indicating that it would permanently cease power operations at Kewaunee Power Station (KPS) on May 7, 2013. On May 7, 2013, DEK permanently ceased power operations at KPS. On May 14, 2013, DEK certified that it had permanently defueled the KPS reactor vessel (ADAMS Accession No. ML13135A209).

Following permanent shutdown, DEK established a Shift Manager/Certified Fuel Handler (Shift Manager/CFH) training program as a training requirement for the on-shift management representative responsible for supervising and directing the monitoring, storage, handling, and cooling of irradiated nuclear fuel in a manner consistent with ensuring the health and safety of the public. Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.2 requires that Certified Fuel Handlers be qualified in accordance with an NRC-approved training program. By letter dated June 17, 2013 (ADAMS Accession No. ML13176A117), as supplemented by letters dated September 17, 2013 (ADAMS Accession No. ML13263A186), and October 30, 2013 (ADAMS Accession No. ML13309A750), DEK requested NRC approval of the KPS Certified Fuel Handler training program.

2.0 REGULATORY EVALUATION

The regulatory requirements and guidance that the NRC staff used in its review of the KPS Certified Fuel Handler training program are as follows:

- Section 50.2 of 10 CFR, "Definitions," which states that *Certified Fuel Handler* means, for a nuclear power reactor facility, a non-licensed operator who has qualified in accordance with a fuel handler training program approved by the Commission.

Enclosure

- Section 50.120 of 10 CFR, "Training and qualification of nuclear power plant personnel," which states, in part, that:
 - (b)(2) The training program must be derived from a systems approach to training as defined in 10 CFR 55.4, and must provide for the training and qualification of the following categories of nuclear power plant personnel:
 - (i) Non-licensed operator.
 - (b)(3) The training program must incorporate the instructional requirements necessary to provide qualified personnel to operate and maintain the facility in a safe manner in all modes of operation. The training program must be developed to be in compliance with the facility license, including all technical specifications and applicable regulations. The training program must be periodically evaluated and revised as appropriate to reflect industry experience as well as changes to the facility, procedures, regulations, and quality assurance requirements. The training program must be periodically reviewed by licensee management for effectiveness. Sufficient records must be maintained by the licensee to maintain program integrity and kept available for NRC inspection to verify adequacy of the program.
- Section 55.4 of 10 CFR, "Definitions," which states that *Systems approach to training* means a training program that includes the following five elements:
 - (1) Systematic analysis of the jobs to be performed
 - (2) Learning objectives derived from the analysis which describe desired performance after training
 - (3) Training design and implementation based on the learning objectives
 - (4) Evaluation of trainee mastery of the objectives during training
 - (5) Evaluation and revision of the training based on the performance of trained personnel in the job setting
- The Statements of Consideration for the "Decommissioning of Nuclear Power Reactors," Proposed Rule (60 FR 37374), dated July 20, 1995, and Final Rule (61 FR 39278), dated July 29, 1996.
- SECY-00-145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning," dated June 28, 2000.

3.0 TECHNICAL EVALUATION

The 1996 "Decommissioning of Nuclear Power Reactors" rulemaking that codified the need for a CFH at decommissioning reactors recognized that the risks posed by permanently shutdown and defueled power reactors are significantly less than those posed by operating reactors. In that rulemaking, the Commission noted that:

- While the spent fuel is still highly radioactive and generates heat caused by radioactive decay, no neutron flux is generated and the fuel slowly cools as its energetic decay products diminish.

- The systems required for maintaining the spent fuel in the spent fuel pool as well as the operations required to contain the remaining residual contamination in the facility and spent fuel pool are relatively simple.
- Because the spent fuel is stored in a configuration that precludes the nuclear fission reaction, no generation of new radioactivity can occur and the potential for consequences that could result from an inadvertent nuclear reaction are highly unlikely.

Because of the reduced risks and relative simplicity of the systems needed for safe storage of the spent fuel, the Commission stated in the rulemaking that "[t]he degree of regulatory oversight required for a nuclear power reactor during its decommissioning stage is considerably less than that required for the facility during its operating stage."

In the rulemaking, the Commission also provided insights as to the responsibilities of the new position of the CFH. Specifically, the CFH is needed to ensure that emergency action decisions necessary to protect the public health and safety are made by an individual who has both the requisite knowledge and plant experience.

These CFH responsibilities were further affirmed in the staff's proposed decommissioning rulemaking plan (SECY-00-145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning," dated June 28, 2000). Although never voted on by the Commission, the paper provided the following insights on CFH responsibilities:

A licensee that has docketed certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, as specified in [10 CFR] 50.82(a)(1), shall maintain staff with the qualifications and capabilities to safely conduct decommissioning activities along with safe handling and storage of spent fuel and respond to plant emergencies.

Considering the definition of Certified Fuel Handler in 10 CFR 50.2, the background provided by the 1996 decommissioning rule statements of consideration, and the insights provided in SECY-00-145, the NRC staff determined that an acceptable CFH training program should ensure that the trained individual has requisite knowledge and experience in spent fuel handling and storage, reactor decommissioning, and is capable of evaluating plant conditions and exercising prudent judgment for emergency action decisions. In addition, since the CFH is defined as a non-licensed operator, the NRC staff also used the criteria in 10 CFR 50.120 and assessed the program against the elements of a systems approach to training provided in the definitions section of 10 CFR 55.4.

Based on the above, three broad-scope objectives are used as criteria for an acceptable CFH training program:

- (1) Safe conduct of decommissioning activities
- (2) Safe handling and storage of spent fuel
- (3) Appropriate response to plant emergencies

DEK states that a Shift Manager/CFH training program was established for the on-shift management representative supervising irradiated fuel management and decommissioning activities consistent with 10 CFR 50.2 and the permanently shutdown and defueled status of

KPS. The staff confirmed that at KPS, an individual qualified as a CFH must also meet all training requirements of a shift manager, in addition to the CFH specific training as indicated in the KPS Shift Manager/CFH Training Program Guide (TPG). The staff also determined that the proposed KPS defueled Technical Specifications (ADAMS Accession No. ML13156A037), which is still under staff review, would require the shift manager to be a Certified Fuel Handler. Therefore, the NRC staff reviewed the KPS Shift Manager/CFH training program as the fuel handler training program required to meet the 10 CFR 50.2 definition of a CFH.

One of the purposes listed in the KPS Shift Manager/CFH training program (TPG Section 1.4), is related to the safe conduct of decommissioning activities. The NRC staff reviewed the program and found that it is designed to prepare the Shift Manager/CFH for managing resources and coordinating the actions of technical disciplines during SAFSTOR operations recognizing that the Shift Manager/CFH has a unique responsibility for spent fuel pool safety, and the protection of plant personnel and equipment on a day-to-day basis. The NRC staff finds this to be consistent with objective (1) above.

Another purpose listed in the KPS Shift Manager/CFH training program, TPG Section 1.4, relates to the safe handling and storage of spent fuel. Specifically, the training program is designed to train the Shift Manager/CFH to provide a mix of technical and managerial skills necessary to safely and efficiently direct the operations of the KPS Spent Fuel Pool and its support systems. The Shift Manager/CFH training program also includes modules specific to spent fuel handling. The NRC staff finds this to be consistent with objective (2) above.

The staff also found that the KPS Shift Manager/CFH training program includes training for the appropriate response to plant emergencies. The program is designed to train the Shift Manager/CFH in normal, abnormal, and emergency situations and includes modules related to abnormal conditions, emergency procedures, and response programs. The staff finds this to be consistent with objective (3) above.

Therefore, the NRC staff concludes that the KPS Shift Manager/CFH training program meets the broad-scope objectives discussed above.

Following issuance of the 1996 decommissioning rule, the NRC commenced review and approval of CFH training programs for permanently shutdown and defueled reactors consistent with the requirements in the rule. Reactors that permanently shutdown would reassess their staffing plans related to decommissioning organization structure; retaining, re-assigning or releasing staff; and meeting minimum staffing requirements in technical specifications and regulatory required programs (e.g., emergency response organizations, fire brigade size, security, etc.). The effort balanced personnel and plant status commensurate with the reduced risk once the certifications associated with permanent cessation of operation had been submitted. Included in the effort was the transition from licensed operators to Certified Fuel Handlers. With a simplified operating configuration in the permanently shutdown and defueled condition, licensed operators were replaced with CFHs following NRC approval of the CFH training program. Consistent with these changes, the training and requalification programs required by 10 CFR 55 were modified to reflect the reduced staffing levels and responsibilities of the operations staff. Past practice by the NRC related to review of a CFH training program (see NRC safety evaluations for Maine Yankee, dated November 26, 1997 [NRC Accession Number 9712040233], and Zion, dated July 20, 1998 [NRC Accession Number 9807240263]) included confirming that the program was based on a systems approach to training (SAT) as defined in

10 CFR 55.4. The staff reviewed the specific elements of the KPS Shift Manager/CFH training program against the regulatory requirements of 10 CFR 50.120, consistent with previous NRC staff reviews and approvals of decommissioning reactor CFH programs, together with certain other elements of 10 CFR 50.120 applicable to training programs.

3.1 Use of the Systems Approach to Training (SAT) as defined in 10 CFR 55.4

In its June 17, 2013, submittal, DEK stated that the KPS Certified Fuel Handler training program was based on analyses consistent with the SAT method defined in 10 CFR 55.4, and was developed using the SAT as required in 10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel."

The licensee's June 17, 2013, submittal included the KPS Shift Manager/Certified Fuel Handler Training Program Guide. In a supplemental letter dated September 17, 2013, the NRC staff was provided a copy of KPS's administrative procedure TR-KW-101, "Conduct of Training." In the supplemental letter, DEK also states that:

"The [Shift Manager/CFH] program was developed by Training and Operations personnel using an approved task list and creating a task training work matrix. The task training work matrix was used to determine the initial and continuing training required for each task based on the Difficulty, Importance, Frequency (DIF) process (analysis), which determines if initial and continuing training are required. Learning objectives were determined from the task list based on the required knowledge and skills for each task (design of the program). The training materials (lesson plans/exams) and the Shift Manager/Certified Fuel Handler Qualification Manual were then developed from the learning objectives (development of the training program). The Shift Manager/Certified Fuel Handler Training Program Guide was issued, which established the program (implementation of the training program). KPS Procedure TR-KW-101, "Conduct of Training," ensures that the systems approach to training is used for trainee evaluation and for maintaining and evaluating the Shift Manager/Certified Fuel Handler Program, including an annual review of the program which is documented and reported to senior management (program evaluation and revision)."

The NRC staff's evaluation of the KPS Shift Manager/CFH training program against the SAT is discussed below.

3.2 Program Evaluation

The staff reviewed the KPS Shift Manager/CFH training program against the five elements of a SAT-based program, which are:

- (1) Systematic analysis of the jobs to be performed
- (2) Learning objectives derived from the analysis which describe desired performance after training
- (3) Training design and implementation based on the learning objectives
- (4) Evaluation of trainee mastery of the objectives during training

- (5) Evaluation and revision of the training based on the performance of trained personnel in the job setting

Section 6.3.5 of the KPS Shift Manager/CFH Training Program Guide (TPG) describes the selection of topics/learning objectives such as the monitoring, storage, handling, and cooling of nuclear fuel and operation and monitoring of the spent fuel pool support systems and states that they are based on a job analysis for the Shift Manager/CFH function. The NRC staff finds this to be consistent with SAT elements (1) and (2) above.

Sections 6.3.5 and 6.3.6 of the KPS Shift Manager/CFH TPG describe how training content based on the learning objectives is designed and implemented by using both classroom lecture or self-study and on the job training. The NRC staff finds this to be consistent with SAT element (3) above.

Section 6.6 of the KPS Shift Manager/CFH TPG states that the trainee is evaluated by a written examination requiring a minimum score of 80 percent to pass and an operating examination consisting of pass/fail job performance measures. The NRC staff finds this to be consistent with SAT element (4) above.

Section 3.17 of KPS Administrative Procedure TR-KW-101 requires completion of an annual review of the training programs by the Program Owner/Training Supervisor to evaluate and resolve issues to ensure training program effectiveness. This review includes, but is not limited to, an evaluation of the following elements:

- Progression of job incumbents enrolled in training courses
- Training Program Guide
- Total Task List
- Lesson Plans
- Training Materials
- Written and Oral Examinations
- Training Feedback
- Actions taken to resolve training issues.

The NRC staff finds this to be consistent with SAT element (5) above.

Additionally, the staff finds that the training program evaluations are controlled by procedure, include assessments both during and after training, and provide management oversight of both the effectiveness and accuracy of the training. Therefore, the NRC staff concludes that the annual program evaluation is consistent with the requirements of 10 CFR 50.120(b)(3), which state that the training program is to be periodically evaluated.

Other requirements applicable to the KPS Shift Manager/CFH program pursuant to 10 CFR 50.120(b)(3) were confirmed by the NRC staff to be present as discussed below:

- Section 7 of the KPS Shift Manager/CFH TPG states that records associated with the Certified Fuel Handler Training and Retraining program will be retained in retrievable format for the duration of the plant. The NRC staff finds this to be consistent with the requirement of 10 CFR 50.120(b)(3) which states that sufficient records must be

maintained by the licensee to maintain program integrity and kept available for NRC inspection to verify the adequacy of the program.

- Appendix A of the KPS CFH TPG provides a compendium of instructional areas that the licensee has identified as required instructional areas necessary to ensure that the Certified Fuel Handlers will be trained in all areas necessary to maintain the facility and operate equipment in a safe manner. The NRC staff finds this to be consistent with the requirement of 10 CFR 50.120(b)(3) which states that the training program must incorporate the instructional requirements necessary to provide qualified personnel to operate and maintain the facility in a safe manner in all modes of operation.
- The regulations in 10 CFR 50.120(b)(3) states that the training program must be developed to be in compliance with the facility license, including all technical specifications. DEK stated in its September 17, 2013, response to a staff request for additional information that the KPS Shift Manager/CFH training program meets the qualification requirements provided in KPS Technical Specification 5.3.1 that requires certain members of the facility staff, including a Shift Manager/CFH, meets or exceeds the minimum qualifications of ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel" for comparable positions. The NRC staff finds this to be consistent with the requirements of 10 CFR 50.120(b)(3).
- Section 3.4.1 of KPS Administrative Procedure TR-KW-101 describes what DEK takes into consideration during periodic evaluation of training programs implemented at KPS, including the Shift Manager/CFH training program, which includes:
 - New or revised procedures or processes
 - New or revised regulatory and industry documents
 - Plant or equipment modifications
- The NRC staff finds that Section 3.4.1 of KPS Administrative Procedure TR-KW-101 provides for the KPS Shift Manager/CFH training program to be periodically evaluated and revised, as appropriate, to reflect industry experience as well as changes to the facility, procedures, regulations, and quality assurance requirements consistent with the requirements of 10 CFR 50.120(b)(3).

4.0 CONCLUSION

The NRC staff review of the Kewaunee Shift Manager/Certified Fuel Handler training program determined the program addresses the safe conduct of decommissioning activities, safe handling and storage of spent fuel, appropriate response to plant emergencies, and is consistent with the SAT processes defined by 10 CFR 55.4 and the requirements of 10 CFR 50.120. Based on the finding and conclusions discussed above, the NRC staff approves the Kewaunee Shift Manager/Certified Fuel Handler training program pursuant to 10 CFR 50.2. Because the program is based on SAT, the licensee may change elements without NRC approval as long as the following are applicable: (1) suitable proficiency in the performance of the program's activities is maintained; and (2) changes are documented in an accessible manner that will allow the NRC to verify the adequacy of the program in accordance with 10 CFR 50.120.

The NRC has reviewed the submittals and approves the KPS Shift Manager/Certified Fuel Handler training program as requested.

A copy of the related safety evaluation is enclosed.

Sincerely,

/RA/

Christopher Gratton, 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

Enclosure:
Safety Evaluation

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