



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

June 26, 2014

Mr. Terry D. Hobbs
Decommissioning Director
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 – REVIEW OF CERTIFIED FUEL HANDLER
TRAINING AND RETRAINING PROGRAM (TAC NO. MF1458)

Dear Mr. Hobbs:

By letter dated April 15, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13130A125), as supplemented by letters dated July 24, 2013 (ADAMS Accession No. ML13225A495), and February 6, 2014 (ADAMS Accession No. ML14042A044), Florida Power Corporation, Inc. (FPC), a wholly owned subsidiary of Duke Energy, Inc., submitted its Certified Fuel Handler training and retraining program for the Crystal River Unit 3 Nuclear Generating Plant (CR-3) to the U.S. Nuclear Regulatory Commission (NRC) for approval. On October 18, 2013, the NRC staff issued an amendment to the CR-3 operating license changing the name of the licensee from FPC to Duke Energy Florida, Inc. (ADAMS Accession No. ML13158A277).

In a letter dated February 20, 2013 (ADAMS Accession No. ML13056A005), 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), FPC certified it had permanently ceased operation of the CR-3 reactor and permanently removed the fuel from the reactor vessel. Consistent with the CR-3 permanently shutdown and defueled status, FPC submitted a request to approve a Certified Fuel Handler training and retraining program to ensure that the monitoring, handling, storage and cooling of irradiated fuel is performed in a safe manner. 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. Non-licensed personnel are trained in accordance with 10 CFR 50.120.

T. Hobbs

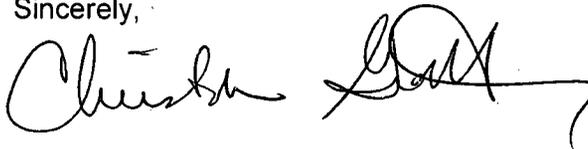
- 2 -

The NRC has reviewed the submittals and approves the CR-3 Certified Fuel Handler training program as requested.

A copy of the related safety evaluation is enclosed.

If you have any questions, please contact me at 301-415-1055 or via e-mail at Christopher.Gratton@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Gratton", with a long horizontal flourish extending to the right.

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. 50-302

Enclosure:
As stated

cc w/enclosure: Distribution via Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CERTIFIED FUEL HANDLER TRAINING AND RETRAINING PROGRAM

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

DUKE ENERGY FLORIDA, INC.

DOCKET NO. 50-302

1.0 INTRODUCTION

By letter dated February 20, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13056A005), Florida Power Corporation, Inc. (FPC, the licensee), a wholly owned subsidiary of Duke Energy, Inc., submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) that it had permanently ceased power operations at the Crystal River Unit 3 Nuclear Generating Plant (CR-3) and had permanently transferred all fuel to the spent fuel pool (SFP). The plant was in an extended outage at the time and all fuel had already been offloaded to the SFP.

By letter dated April 15, 2013 (ADAMS Accession No. ML13130A125), as supplemented by letters dated July 24, 2013 (ADAMS Accession No. ML13225A495), and February 6, 2014 (ADAMS Accession No. ML14042A044), the licensee submitted its Certified Fuel Handler (CFH) training and retraining program for CR-3 to the NRC for approval.

On October 18, 2013, the NRC staff issued an amendment to the CR-3 operating license changing the name of the licensee from FPC to Duke Energy Florida, Inc. (ADAMS Accession No. ML13158A277).

The proposed training and retraining program is to be used to satisfy training requirements for the plant personnel 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 CFHs be qualified in accordance with an NRC-approved training program.

Enclosure

2.0 REGULATORY EVALUATION

The regulatory requirements and guidance that the NRC staff used in its review of the CR-3 CFH training and retraining 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.
- 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 describes 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 [*Federal Register*] 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

3.1 CFH Training Program Broad-Scope Objectives

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 shut down 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 NRC 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 consistent with the requirements in 10 CFR 50.54(x) and (y). 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

The proposed training and retraining program was reviewed by the NRC staff. This program requires lectures and/or self-study activities, on-the-job training and testing related to the facility license (content, bases, and importance of Technical Specifications), radiological safety principles, as well as on procedures and facilities (refer to Sections 2.1; Section 2.2; and Appendices A and B of the CR-3 CFH training and retraining program (TRP) provided in the attachment to the licensee's letter dated April 15, 2013). The NRC staff finds inclusion of these topics to be consistent with objective (1) above.

The program also includes lectures and/or self-study activities, on-the-job training and testing related to the monitoring, handling, storage, and cooling of nuclear fuel (refer to Section 2.1 and Appendices A and B of the CFH TRP). The NRC staff finds this to be consistent with objective (2) above.

The staff found that the training and retraining program includes a focus on the use of normal, abnormal, and emergency procedures. Also included is training on accident analysis and the plant Emergency Plan. The staff finds this to be consistent with objective (3) above.

Therefore, the NRC staff concludes that the CR-3 CFH training and retraining program meets all of the broad-scope objectives discussed above.

3.2 Training Program Evaluation

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 shut down 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 CFHs. 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 Part 55 were modified by licensees 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

(ADAMS Accession No. 9712040233), and Zion, dated July 20, 1998 (ADAMS Accession No. 9807240263) included confirming that the program was based on a systems approach to training (SAT) as defined in 10 CFR 55.4. On May 12, 2014, the NRC staff approved a CFH program for Kewaunee (ADAMS Accession No. ML14104A046). The staff reviewed the specific elements of the CR-3 CFH training and retraining program against the regulatory requirements of 10 CFR 50.120(b)(2) and (b)(3), consistent with previous NRC staff reviews and approvals of decommissioning reactor CFH programs.

3.2.1 Systems Approach to Training Evaluation

Section 50.120(b)(2) states that training programs under this section must be derived using the systems approach to training as defined in 10 CFR 55.4. The licensee stated in its application dated April 15, 2013, that the CFH training and retraining program was designed to fulfill those requirements.

The NRC staff reviewed the CFH training and retraining program and found that the program includes all five of the required elements of a SAT-based program:

- (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.

In an RAI response dated February 6, 2014, the licensee stated that the program has been developed by CR-3 training and operations personnel using the currently approved task list. A job analysis was performed by training and operations personnel using the task lists previously developed for Senior Reactor Operator (SRO), Shift Manager (SM), and Shift Technical Advisor (STA) positions. Operations personnel performed the Difficulty, Importance, and Frequency (DIF) review for the job analysis assuming that the plant was shut down and permanently defueled.

No new tasks were identified using the job analysis and DIF ratings and tasks that are no longer applicable for the current conditions were deselected. Since there are no new tasks, the previous analyses performed for these tasks are sufficient, as are the learning objectives previously developed and used in lesson material. The NRC staff finds this to be consistent with SAT elements (1) and (2) above to provide training and qualifications to the CFH.

The licensee also stated in its February 6, 2014, RAI response that CFH training and retraining program documents will be issued upon NRC approval of the training and retraining program. The licensee included CR-3 procedure TRN-1000, "DTO – Performance Based Training," which contains the licensee's internal requirements to ensure a systems approach to training is used for maintaining the training program, in Attachment 2 of the February 6, 2014, response. The procedure contains specific guidance on training design and implementation, including guidance on training program oversight, administration, analysis of training needs, training material design activities, training material development activities, conduct of training, evaluation of training

effectiveness, and record keeping. Specifically, Section 9.5 of TRN-1000, "Training Material Developmental Activities," gives guidance on developing lesson plans, and requires that lesson plans contain, among other things, learning objectives. The NRC staff finds the licensee's plan to develop and implement training in accordance with TRN-1000 will result in training that is consistent with SAT element (3) above.

In Section 2.3.1 of the CR-3 CFH TRP, the licensee's training/retraining program description states the trainees are evaluated by written exam requiring a minimum score of 80 percent to pass and an operating exam consisting of Job Performance Measures with critical steps that form the bases for failure. The NRC staff finds that this meets SAT element (4).

Section 4.0 of the CR-3 CFH TRP requires completion of a routine assessment of the effectiveness and accuracy of training by appropriate management during, and at the end of, each 2-year training cycle. In addition, Section 9.7, "Training Effectiveness," of CR-3 TRN-1000 describes what the licensee takes into consideration during an annual evaluation of training programs implemented at CR-3, including the CR-3 CFH TRP. The NRC staff finds this consistent with SAT element (5).

3.2.2 Training Program Evaluations Under 10 CFR 50.120(b)(3)

The NRC staff also verified that the licensee's CFH training and retraining program met the requirements of 10 CFR 50.120(b)(3). Specifically, 10 CFR 50.120(b)(3) requires that the training program:

- a. incorporate the instructional requirements necessary to provide qualified personnel to operate and maintain the facility in a safe manner in all modes of operation;
- b. be developed to be in compliance with the facility license, including all technical specifications and applicable regulations;
- c. be periodically evaluated and revised as appropriate to reflect industry experience as well as changes to the facility, procedures, regulations, and quality assurance requirements;
- d. be periodically reviewed by licensee management for effectiveness; and
- e. ensure the licensee maintains and keeps available sufficient records to maintain program integrity and allow for NRC inspection to verify the adequacy of the program

The NRC staff reviewed the CR-3 CFH training and retraining program and confirmed that each of the requirements are satisfied as discussed below:

- Appendix A and Appendix B of the CR-3 CFH TRP 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)(a). The NRC staff finds this fulfills requirement a. above.
- The regulations in 10 CFR 50.120(b)(3) also state that the training program must be developed to be in compliance with the facility license, including all technical specifications. CR-3 technical specification 5.3.1 requires, in part, that each member of

the unit staff shall meet or exceed the minimum qualifications of American National Standards Institute (ANSI) document ANSI N18.1, 1971, "Selection and Training of Nuclear Power Plant Personnel," for comparable positions. DEF stated, in its April 15, 2013, application that the CR-3 CFH TRP shall be in accordance with the ANSI N18.1-1971. The NRC staff finds this to be consistent with requirement b. above.

- Section 4.0 of the CR-3 CFH TRP indicates that the training and retraining program will be evaluated during and at the end of each 2-two year training cycle. Additionally, Section 9.3.1 of TRN-1000 identifies several areas of the training program to be analyzed as part of periodic evaluations, including operating experience. The items identified in Section 9.3.1 are consistent with those items listed in requirement c. above. Together, the NRC staff finds this to be consistent with requirement c. above.
- The CFH training and retraining program guide indicates that routine assessments of the effectiveness and accuracy of training are made by appropriate CR-3 management personnel during and at the end of each two year training cycle. The training program requires that evaluation results be reviewed by a station oversight board as defined in site procedures. In addition, the station oversight board will verify the resolution of any discrepancies identified by the evaluation and ensure that required changes are incorporated into the program.

The program evaluations are controlled by the station oversight board, and include assessments both during and after training, and provide management oversight of both the effectiveness and accuracy of training, therefore, the NRC staff finds the bi-annual program evaluation to be consistent with requirement d. above for periodic management reviews for effectiveness.

- In section 5.0 of the CR-3 CFH TRP, the licensee's training/retraining program description states records associated with the CR-3 CFH training and retraining program will be retained in retrievable format for the duration of the plant license. The NRC staff finds this to be consistent with requirement e. above.

4.0 CONCLUSION

The NRC staff review of the Crystal River Unit 3 Certified Fuel Handler training and retraining program determined that 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(b)(2) and (3). Based on the finding and conclusions discussed above, the NRC staff approves the CR-3 CFH training and retraining 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.

Contributor: Brian Green
Date: June 26, 2014

T. Hobbs

- 2 -

The NRC has reviewed the submittals and approves the CR-3 Certified Fuel Handler training program as requested.

A copy of the related safety evaluation is enclosed.

If you have any questions, please contact me at 301-415-1055 or via e-mail at Christopher.Gratton@nrc.gov.

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. 50-302

Enclosure:
As stated

cc w/enclosure: Distribution via Listserv

DISTRIBUTION:

PUBLIC

LPL4-2 Reading

RidsAcrsAcnw_MailCTR Resource

RidsNrrDorlLpl4-2 Resource

RidsNrrLABClayton Resource

RidsNrrPMCrystalRiver Resource

RidsRgn1MailCenter Resource

RidsRgn2MailCenter Resource

ADAMS Accession No.: ML14155A181

***via email**

****by memo ML14147A258**

OFFICE	DORL/LPL4-2/PM	DORL/LPL4-2/LA	DRA/APHB/BC	OGC	DORL/LPL4-2/BC	DORL/LPL4-2/PM
NAME	CGratton	BClayton	SWeerakkody**	SUttal*	DBroaddus	CGratton
DATE	06/26/14	06/27/14	05/27/14	06/23/14	06/26/14	06/27/14

OFFICIAL RECORD COPY