



Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428

Docket 50-302
Operating License No. DPR-72

July 17, 2013
3F0713-05

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

Subject: Crystal River Unit 3 – Request for Rescission of Fukushima Orders (EA-12-049 and EA-12-051) Response to Request for Additional Information

- References:
1. EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (Accession No. ML12054A735)
 2. EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012 (Accession No. ML12054A679)
 3. CR-3 to NRC Letter, "Crystal River Unit 3 – Request for Rescission of Fukushima Orders (EA-12-049 and EA-12-051)," dated May 13, 2013 (Accession No. ML13144A080)

Dear Sir:

Duke Energy Florida, Inc., formerly known as Florida Power Corporation, is providing a response to a request for additional information (RAI) related to a request to rescind the Nuclear Regulatory Commission (NRC) Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (Reference 1), and Order EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012 (Reference 2). The RAI questions, which are in response to the CR-3 to the NRC letter dated May 13, 2013 (Reference 3), are specific to the protection of the spent fuel while in the spent fuel pool.

Attachment 1 to this letter contains the response to the RAI. The response provides justification for relaxing NRC Order EA-12-049.

This correspondence contains new regulatory commitments identified in Attachment 2.

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If you have any questions regarding this submittal, please contact Mr. Dan Westcott, Licensing Supervisor, at (352) 563-4796.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 17, 2013.

Sincerely,



John Elnitsky, Vice President
Project Management and Construction

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Attachments: 1. Response to Request for Additional Information
2. List of Regulatory Commitments

xc: NRR Project Manager
Fukushima Project Manager
Regional Administrator, Region II

DUKE ENERGY FLORIDA, INC.

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ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

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By letter dated May 13, 2013, Duke Energy Florida, Inc., formerly known as Florida Power Corporation, requested that the NRC rescind Fukushima Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012, and EA-12-051 "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012. On June 18, 2013, the NRC provided an email request for additional information (RAI). By NRC letter dated June 28, 2013, these questions were formally transmitted to Crystal River Unit 3 (CR-3).

1. Please identify specifically the existing equipment, procedures and strategies that you propose to use to address the safety functions addressed in the Order EA-12-049 related to spent fuel cooling capabilities.

CR-3 has a Safety Related, Seismic Class 1 spent fuel pool with its deck located at 162 feet (referenced to plant datum) which is above the design basis maximum flood level (stillwater) of 121.4 feet. The piping in the Spent Fuel Cooling system is also Seismic Class 1 and is not postulated to fail under design basis seismic events. The only credible challenge to spent fuel cooling is an extended loss of AC power (ELAP).

Nuclear Energy Institute (NEI) 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, states that the objective of FLEX is to establish an indefinite coping capability to prevent damage to the fuel in the spent fuel pool by using installed equipment (Phase I), on-site portable equipment (Phase II), and pre-staged off-site resources (Phase III). The underlying strategies for coping involve the initial reliance on installed plant equipment, a transition from installed plant equipment to on-site FLEX equipment after installed equipment is no longer available, and obtaining additional capability and redundancy from off-site equipment until power, water, and coolant injection systems are restored or commissioned. The CR-3 strategy for indefinite coping consists of long term operation of the passive cooling system with support using off-site equipment and resources.

For Phase I, due to the robust nature of the pool and the minimal heat up rate, the existing equipment credited for initial coping in response to an ELAP event is the pool and its inventory of water. There is greater than 380,000 gallons of water in the spent fuel pool. Based on conservative decay heat levels for the fuel in storage today, the heat up rate for the pool upon a loss of forced cooling is approximately 1.04 degrees Fahrenheit/hour. This corresponds to approximately 107 hours to reach 212 degrees Fahrenheit and more than 19 days to boil off inventory down to a level of 10 feet above the top of the fuel racks. The 10 feet above the fuel racks was chosen for radiation shielding purposes.

The CR-3 procedures that govern the operation of the pool are OP-406, "Spent Fuel Cooling System," AR-402, "PSA "G" Annunciator Response," AP-406, "Loss of Spent Fuel Pool Cooling," AP-770, "Emergency Diesel Generator Actuation," AP-1080, "Refueling Canal/Spent Fuel Pool Level Lowering," and AAG-005, "Contingencies for Loss of SF Pool Level."

There is no Phase II response as described in NEI 12-06 as the volume of water in the pool and the current heat up rate provides sufficient time (greater than 72 hours) to obtain and operate off-site equipment prior to the fuel becoming uncovered. The 72 hours is discussed in NEI 12-06, Appendix F, for the AP1000 reactor initial coping response time prior to transitioning to indefinite, long term operation with off-site equipment and resources. The AP1000 initial coping response is accomplished with passive safety systems. Since the CR-3 initial coping response

will be accomplished with passive systems, using 72 hours as the Phase II time frame for evaluation is appropriate.

The Phase III support equipment provides ancillary inventory makeup to the pool and will be included into procedure AAG-005 no later than August 28, 2013. The makeup flow, assuming 100 degrees Fahrenheit water, necessary to compensate for boil-off is approximately 7 gallons per minute (gpm). The minimum pump discharge pressure required to deliver 7 gpm is 30 psig. Duke Energy Policy Statement PY-AD-ALL-0002, "FLEX Equipment Shared Inventory Policy for the Crystal River Nuclear Plant," will be developed to formalize the arrangement for the Duke nuclear fleet to provide any necessary spent fuel pool cooling equipment to CR-3. This Policy Statement will be approved by the Duke Energy Chief Nuclear Officer. Discussions with the Duke nuclear fleet Fukushima Project Manager shows that there are portable diesel powered pumps meeting the CR-3 minimum requirements, available for CR-3 use if/when needed. One such pump design would be the Hale Brand pump located at the Brunswick, Harris, and Robinson Nuclear Plants. The Hale Brand pump is a trailer mounted, single stage, RSD series, 1500 gpm, centrifugal pump using a diesel engine as the prime mover.

2. Order EA-12-049 requires reasonable protection of the equipment used for the spent fuel pool (SFP) cooling mitigation strategies. Please identify the level of protection afforded to the existing equipment that you propose to use for these purposes and the programmatic controls to assure its long term availability.

The SFP is a safety related, Seismic Class 1 structure that is sufficiently robust to be protected from severe environmental challenges. It is located within the Auxiliary Building which is a Class I structure (excluding the steel roof support structure) protected from external hazards such as missiles and flooding. CR-3 Engineering Procedure EGR0351, "Condition Monitoring of Structures," will provide the inspection and acceptance criteria to assure design function capability is monitored under the maintenance rule and will be issued prior to August 28, 2013.

No protection will be afforded to Phase II equipment since the response to RAI 1 above provides justification for not needing Phase II to cope with an ELAP event.

For Phase III coping strategies, NEI 12-06, Section 7.3.1.c, indicates that storage locations separated by a distance sufficient to minimize the probability that a single event (high wind event) could damage all FLEX mitigation equipment would be acceptable. Although NEI 12-06 does not identify this provision for all other initiating conditions, it is understood that if the off-site resources are sufficiently distant as to ensure the initiating condition does not impact both the plant and the storage location, then the equipment should be considered deployable. The other plants in the Duke Energy nuclear fleet are located in North Carolina and South Carolina and are sufficiently removed from Crystal River, at least 400 miles distant. Therefore, no special protection of any off-site equipment is required by CR-3 given the existing capability for long-term passive cooling and the significant coping period before any off-site equipment would be needed.

3. Order EA-12-049 requires the capability to address challenges to SFP cooling including mitigating the loss of all alternating current power indefinitely. Please identify how existing procedures and arrangements for utilization of offsite resources address this requirement.

As stated in the response to RAI 1, the heat up rate of the pool is slow enough to provide greater than 19 days of cooling before additional action would be required. This will provide

sufficient time to coordinate with the Duke nuclear fleet to arrange for any required off-site resources. Duke Energy Policy Statement PY-AD-ALL-0002 will be developed to formalize the arrangement for the Duke nuclear fleet to provide any necessary spent fuel pool cooling equipment to CR-3. The determination to invoke the Policy Statement will be made according to CR-3 procedure EM-225, "Duties of the Technical Support Center Accident Assessment Team." EM-225 requires that the Emergency Coordinator make the determination on the need for off-site Duke nuclear fleet resources. The procedure and Policy Statement will be issued no later than August 28, 2013. Additionally, due to the length of time available prior to reliance on off-site assistance, it is not anticipated that extraordinary measures will be needed to deliver any off-site resources. Once received on-site, AAG-005 will be used for installation and operation of the off-site pump.

4. NEI 12-06, Revision 0, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," (ADAMS Accession No. ML 12242A378), as endorsed by Japan Lessons Learned Project Directorate Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," (ADAMS Accession No. ML 12229A174) specifies the use of a permanent connection point diverse from the SFP deck for make-up capabilities. Please discuss how your existing equipment and procedures address this.

CR-3 has multiple permanent connection points diverse from the spent fuel pool deck for makeup capabilities to the pool. They are located at valves SFV-122 and SFV-129. These valves are physically located on the 143 foot and 119 foot elevation of the Auxiliary Building, respectively, and are diverse/separated from the spent fuel pool deck (162 foot elevation plant datum). Each hook up (only one is required to achieve the required flow) requires the removal of a threaded pipe cap and the installation of an adapter for hook up to the pump described above. Either valve is approximately 1000 feet from the expected location of the pump used to mitigate this event. The adapters will be stored within an Emergency Operations Box which will keep them protected and readily accessible during the event. The contents of this storage box are periodically inventoried by CR-3 procedure SP-306, "Routine Surveillance Log," to ensure the availability of the equipment. The installation of the adapter will be governed by procedure AAG-005 along with the installation of the hose and operation of the pump. The task to install the adapter is considered within the skill of the craft so no additional training or qualification is required.

DUKE ENERGY FLORIDA, INC.

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ATTACHMENT 2

LIST OF REGULATORY COMMITMENTS

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The following table identifies the complete list of actions committed to by Duke Energy Florida, Inc., (DEF) relevant to the response to a request for additional information (RAI) related to a request to rescind the Nuclear Regulatory Commission (NRC) Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (Accession No. ML12054A735), and Order EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012 (Accession No. ML12054A679.) Any other actions discussed in the submittal represent intended or planned actions by DEF. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Crystal River Unit 3 (CR-3) Licensing Supervisor of any questions regarding this document or any associated regulatory commitments.

Commitment	Due Date
The Phase III support equipment provides ancillary inventory makeup to the pool and will be included into procedure AAG-005, "Contingencies for Loss of SF Pool Level."	August 28, 2013
Duke Energy Policy Statement PY-AD-ALL-0002 will be developed to formalize the arrangement for the Duke nuclear fleet to provide any necessary spent fuel pool cooling equipment to CR-3. The determination to invoke the Policy Statement will be made according to CR-3 procedure EM-225, "Duties of the Technical Support Center Accident Assessment Team." EM-225 requires that the Emergency Coordinator make the determination on the need for off-site Duke nuclear fleet resources. The procedure and Policy Statement will be issued no later than August 28, 2013.	August 28, 2013
CR-3 Engineering Procedure EGR0351, "Condition Monitoring of Structures," will provide the inspection and acceptance criteria to assure design function capability is monitored under the maintenance rule.	August 28, 2013
The adapters will be stored within an Emergency Operations Box which will keep them protected and readily accessible during the event.	August 28, 2013