DUKE ENERGY®

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

Docket 50-302
Operating License No. DPR-72

10 CFR 140.8
10 CFR 140.11

May 7, 2014
3F0514-04

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

Subject: Crystal River Unit 3 – Exemption Request from 10 CFR 140.11 Regarding Minimum Requirement for Offsite Liability Insurance and Release from Participation in the Secondary Retrospective Rating Pool

References:
1. NRC to CR-3 letter dated March 13, 2013, "Crystal River Unit 3 Nuclear Generating Plant Certification of Permanent Cessation of Operation and Permanent Removal of Fuel from the Reactor," (ADAMS Accession No. ML13058A380)
2. CR-3 to NRC letter dated February 25, 2014, "Crystal River Unit 3 – Exemption Request for 10 CFR 140.11 Regarding Participation in the Secondary Retrospective Rating Pool for Deferred Premium Charges"

Dear Sir:

In accordance with the provisions of 10 CFR 140.8, Duke Energy Florida, Inc. (DEF) hereby provides an exemption request from 10 CFR 140.11(a)(4) to reduce the minimum offsite liability insurance required for Crystal River Unit 3 (CR-3) and that CR-3 be allowed to withdraw from participation in the secondary retrospective rating pool for deferred premium charges.

In Reference 1, the Nuclear Regulatory Commission (NRC) acknowledged CR-3's certification of permanent cessation of power operation and permanent removal of fuel from the reactor vessel. Accordingly, pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license for CR-3 no longer authorizes operation of the reactor or emplacement or retention of fuel in the reactor vessel. CR-3 poses little risk to the public health and safety in this condition since the reactor last operated on September 26, 2009.

The attachment to this letter contains rationale for the changes requested, the justification for the exemption in accordance with the standards of § 140.8, and an environmental effects evaluation. This correspondence supersedes Reference 2 in its entirety.

There are no new regulatory commitments made within this submittal.

DEF requests that the exemption request be granted by September 30, 2014.

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

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I declare under penalty of perjury that the foregoing is true and correct. Executed on May 7, 2014.

Sincerely,

John Elnitsky, Vice President
Project Management and Construction

JE/scp

Attachment: Description of Requested Exemption, Background, Justification for the Request, and Environmental Evaluation

xc: NRR Project Manager
Regional Administrator, Region I
State Contact

DUKE ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

EXEMPTION REQUEST FROM 10 CFR 140.11 REGARDING MINIMUM REQUIREMENT FOR OFFSITE LIABILITY INSURANCE AND RELEASE FROM PARTICIPATION IN THE SECONDARY RETROSPECTIVE RATING POOL

ATTACHMENT

DESCRIPTION OF REQUESTED EXEMPTION, BACKGROUND, JUSTIFICATION FOR THE REQUEST, AND ENVIRONMENTAL EVALUATION

DESCRIPTION OF REQUESTED EXEMPTION, BACKGROUND, JUSTIFICATION FOR THE REQUEST, AND ENVIRONMENTAL EVALUATION

1.0 Description of Requested Exemption

Pursuant to 10 CFR 140.8, Duke Energy Florida Inc., (DEF) requests an exemption from the requirements of 10 CFR 140.11(a)(4) for Crystal River Unit 3 (CR-3). 10 CFR 140.11(a)(4) requires licensees to have and maintain two levels of financial protection against offsite liability for each nuclear reactor which is licensed to operate, designed for the production of electrical energy, and has a rated capacity of 100,000 electrical kilowatts or more. The two levels of financial protection are as follows:

- Primary insurance coverage of $375,000,000 from private sources; and,
- Secondary financial protection in the form of private liability insurance available under an industry retrospective rating plan.

The proposed exemption would reduce the required level of primary offsite liability insurance to $100,000,000 and allow CR-3 to withdraw from participation in the secondary retrospective rating pool for deferred premium charges.

10 CFR 140.11(a)(4) reads as follows:

10 CFR 140.11, "Amounts of financial protection for certain reactors."

(a) Each licensee is required to have and maintain financial protection:

(4) In an amount equal to the sum of $375,000,000 and the amount available as secondary financial protection (in the form of private liability insurance available under an industry retrospective rating plan providing for deferred premium charges equal to the pro rata share of the aggregate public liability claims and costs, excluding costs payment of which is not authorized by section 170o.(1)(D) of the Act, in excess of that covered by primary financial protection) for each nuclear reactor which is licensed to operate and which is designed for the production of electrical energy and has a rated capacity of 100,000 electrical kilowatts or more: Provided, however, that under such a plan for deferred premium charges for each nuclear reactor which is licensed to operate, no more than $121,255,000 with respect to any nuclear incident (plus any surcharge assessed under subsection 170o.(1)(E) of the Act) and no more than $18,963,000 per incident within one calendar year shall be charged. Except that, where a person is authorized to operate a combination of 2 or more nuclear reactors located at a single site, each of which has a rated capacity of 100,000 or more electrical kilowatts but not more than 300,000 electrical kilowatts with a combined rated capacity of not more than 1,300,000 electrical kilowatts, each such combination of reactors shall be considered to be a single nuclear reactor for the sole purpose of assessing the applicable financial protection required under this section.

2.0 Background

CR-3 has been shutdown since September 26, 2009, when the plant entered the Cycle 16 refueling outage. In the process of creating a construction opening for replacement of steam generators during that outage, a delamination of the concrete shell of the containment was discovered. The construction opening and adjacent concrete shell of the containment was repaired during 2010 and 2011. During tensioning of the containment prestressing tendons following the concrete repair, delaminations occurred in two other sections of the containment

shell. In consideration of performing a second repair of the containment shell, all fuel was removed from the reactor vessel and placed in storage in the Spent Fuel Pools (SFPs) as of May 28, 2011.

On February 5, 2013, DEF announced that CR-3 would be retired. DEF notified the NRC on February 20, 2013 of permanent cessation of operation and that CR-3 had removed all fuel from the reactor (Reference 8.1). By letter dated March 13, 2013, the NRC acknowledged CR-3's certification of permanent cessation of power operation and permanent removal of fuel from the reactor vessel (Reference 8.2). Accordingly, pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for CR-3 no longer authorizes operation of the reactor or emplacement or retention of fuel in the reactor vessel.

3.0 Reduced Scope and Severity of Radiological Accidents at CR-3

The CR-3 Final Safety Analysis Report (FSAR) has been updated, since the cessation of operation, to revise the Chapter 14 Safety Analysis section. The only accident that remains credible is the Fuel Handling Accident (FHA). The updated FHA analysis is based on conditions at the end of September 2013, four years following the last reactor operation. The FHA analysis demonstrates that the only significant radionuclide released is Krypton-85 and the exclusion area boundary (EAB) dose is 5.9E-02 millirem.

A radioactive waste handling event has been added to FSAR Chapter 11, Radioactive Waste & Radiation Protection, section to bound the possible radioactive waste handing events during decommissioning. The event postulates a release from the drop and rupture of a transport cask containing used primary system resin during cask handling immediately outside the plant. Although an airborne release is not expected to occur due to the low flammability and reactivity of the spent resin, a release is nevertheless postulated. Using very conservative assumptions the dose at the EAB is calculated to be 40 millirem.

All nuclear fuel is currently stored in the CR-3 SFPs. A calculation was performed to assess pool heat up in the event of a loss of normal pool coolant flow. That calculation determined that it would take a minimum of 22.5 days for the pool inventory to boil off to 10 feet above the top of the fuel storage racks in the most conservative case of ventilation operating in the Fuel Storage Building. This provides an abundance of time to recognize and respond to loss of cooling events.

A calculation was performed to evaluate the heat up of the fuel with all water drained from the SFPs. The calculation determined that as of September 26, 2013, four years following the last reactor operation, the maximum temperature that the fuel cladding would reach would be 547°C with no ventilation in the Fuel Storage Building and 336°C with normal ventilation. A temperature of 565°C is considered to be the threshold for the onset of cladding swelling which could lead to cladding breach, therefore, no degradation of the cladding is predicted from a complete pool drain down.

More detailed descriptions of the FHA, Radioactive Waste Event, and Air Cooled Heatup Calculations are contained in Reference 8.3.

4.0 Discussion

The underlying purpose of 10 CFR 140.11 is to require sufficient offsite liability insurance to ensure adequate funding for offsite liability claims following an accident at an operating nuclear power plant. The requirements of 10 CFR 140.11 were developed taking into consideration the

risks associated with an operating nuclear power reactor, including the potential consequences of a release of radioactive material from the reactor. However, the regulation does not take into consideration the reduced potential for, and consequences of, nuclear incidents at permanently shutdown facilities.

The dose and heatup calculations described in Section 3.0 demonstrate that the offsite risk presented by CR-3 during the decommissioning process is minimal, justifying a reduction in the offsite coverage and withdrawal from participation in the secondary retrospective rating pool for deferred premium charges. The financial protection limits of 10 CFR 140.11(a)(4) were established to require that licensees maintain sufficient insurance to cover the costs of a nuclear accident at an operating reactor. However, the regulation does not take into consideration the reduced potential for, and consequences of, nuclear incidents at permanently shutdown and defueled facilities. The dose and heatup calculations demonstrate that CR-3 cannot cause more than minimal offsite consequences even considering extreme events. At this time and in the future, CR-3 is not and will not be likely to create offsite consequences sufficient to cause operating plants to pay deferred premiums for offsite liability claims. Therefore, DEF should not be required to continue to be at risk of paying deferred premiums for events at operating units.

This request is consistent with Staff rulemaking and policy proposals contained in Staff letters SECY-00-0145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning" (Reference 8.4) and SECY-01-0100, "Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools." (Reference 8.5). Both Staff letters recommended reductions in offsite liability insurance and withdrawal from participation in the secondary retrospective rating pool for decommissioning plants.

The proposed reduction in the level of offsite liability financial protection from $375 million to $100 million and elimination of the requirement to continue participation in the secondary retrospective rating pool would continue to serve the underlying purpose of the rule. These requested changes would maintain a conservative level of financial protection considered commensurate with the significant reduction in the probability and consequences of potential nuclear incidents at CR-3. Consistent with the NRC's conclusions documented in SECY-00-0145, this reduced financial protection insurance coverage would continue to conservatively ensure adequate funding to address potential claims resulting from the reduced offsite consequences of a permanently defueled facility by members of the public.

5.0 Justification for the Request

The specific requirements for exemptions from Part 140 requirements are set forth in 10 CFR 140.8. The § 140.8 conditions for granting this exemption are that it is authorized by law and is otherwise in the public interest.

An exemption to reduce the required amount of offsite liability protection and to allow CR-3 to withdraw from participation in the secondary retrospective rating pool for deferred premium charges is authorized by law as evidenced by NRC proposed rulemaking in SECY-00-0145 and policy recommendations in SECY-01-0100. Additionally, exemptions to reduce the required amount of offsite liability protection and allow withdrawal from participation in the secondary retrospective rating pool for deferred premium charges have been granted to other decommissioning nuclear power plants as stated in Reference 8.6 which reaffirms the validity of these exemptions following the terrorist attacks of September 11, 2001.

This exemption is in the public interest since it still maintains a level of liability insurance coverage commensurate with the public risk. The reduction in financial obligations reduces financial burden, with respect to insurance premiums, and outstanding financial risk of up to $18.963 million per year and $121.255 million total to rate payers of the utility.

6.0 Environmental Evaluation

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

(i) No significant hazards consideration

Pursuant to 10 CFR 50.12, "Specific exemptions," Duke Energy Florida, Inc. (DEF) requests a permanent exemption from 10 CFR 140.11(a)(4) for Crystal River Unit 3 (CR-3). DEF is proposing an exemption from 10 CFR 140.11(a)(4) requesting to reduce the minimum offsite liability protection coverage limit from $375 million to $100 million and to allow CR-3 to withdraw from participation in the secondary retrospective rating pool for deferred premium charges. DEF has evaluated the proposed exemption to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92 as discussed below:

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

   The proposed exemption has no effect on plant systems structures and components (SSCs) and no effect on the capability of any plant SSC to perform its design function. The proposed exemption would not increase the likelihood of the malfunction of any plant SSC. The proposed exemption would have no effect on the probability or consequences of any accident in the CR-3 Final Safety Analysis Report.

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

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

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

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

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

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

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

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

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

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

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

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

(iv) There is no significant construction impact.

There are no construction activities associated with the proposed exemption.

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

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

(vi) The requirements from which exemption is sought involve

(H) Surety, insurance or indemnity requirements

The requirements from which the exemption is sought involve financial protection and for the indemnification and limitation of liability of licensees pursuant to Section 170 of the Atomic Energy Act of 1954, as amended, and 10 CFR 140.11(a)(4).

7.0 Conclusion

Pursuant to the provisions of 10 CFR 140.8, "Specific exemptions," DEF is requesting an exemption from 10 CFR 140.11(a)(4) for CR-3. The requested exemption is authorized by law and otherwise in the public interest.

8.0 References

8.1 CR-3 to NRC letter, "Crystal River Unit 3 - Certification of Permanent Cessation of Power Operations and that Fuel Has Been Permanently Removed from the Reactor," dated February 20, 2013. (ADAMS Accession No. ML13056A005)

8.2 NRC to CR-3 letter, "Crystal River Unit 3 Nuclear Generating Plant Certification of Permanent Cessation of Operation and Permanent Removal of Fuel From the Reactor," dated March 13, 2013. (ADAMS Accession No. ML13058A380)

8.3 CR-3 to NRC letter, "Crystal River Unit 3 – License Amendment Request #315, Revision 0, Permanently Defueled Emergency Plan and Emergency Action Level Scheme, and Request for Exemption to Certain Radiological Emergency Response Plan Requirements Defined by 10 CFR 50," dated September 26, 2013. (ADAMS Accession No. ML13274A584)

8.4 SECY-00-0145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning," dated June 28, 2000.

8.5 SECY-01-0100, "Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools (WITS 200000126)," dated June 4, 2001.

8.6 Memorandum from William D. Travers (NRC) to NRC Commissioners, "Status of Regulatory Exemptions for Decommissioning Plants (WITS 200100085, WITS 199900133, WITS 199900072)," dated August 16, 2002.