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**LEVY NUCLEAR PLANT, UNITS 1 AND 2  
DOCKET NOS. 52-029 AND 52-030  
VOLUNTARY SUBMITTAL OF ENVIRONMENTAL IMPACTS FROM RETIREMENT OF CR3**

Ladies and Gentlemen:

As described in the Levy Nuclear Plant Units 1 and 2 (LNP) combined license (COL) application, blowdown from LNP will be discharged to the existing discharge area for the Crystal River Energy Complex (CREC). Duke Energy Florida (DEF) now plans to decommission Crystal River Unit 3 (CR3). The purpose of this letter is to submit recent analyses developed to evaluate impacts to the environment and determine if prior analyses supporting the LNP COL application are still bounding considering decommissioning of CR3.

Enclosure 1 to this letter summarizes the results of the recent analyses performed in support of the LNP COL application. The reports which present the details of these analyses are provided as Attachments A and B to Enclosure 1.

If you have any further questions, or need additional information, please contact Bob Kitchen at (704) 382-4046, or me at (704) 382-9248.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 20, 2013.

Sincerely,

Christopher M. Fallon  
Vice President  
Nuclear Development

Enclosures/Attachments:

1. Summary of Analyses Concerning CR3 Decommissioning Environmental Impacts
  - A. Crystal River Energy Complex Discharge Canal Plume Modeling, Revision 1
  - B. Phase 1 Assessment Report: Impact of Decrease in Dilution Factor

cc : U.S. NRC Region II, Regional Administrator  
Mr. Donald Habib, U.S. NRC Project Manager  
Ms. Mallecia Sutton, U.S. NRC Environmental Project Manager

D094  
MRO

**Levy Nuclear Plant, Units 1 and 2  
NRC Review of Environmental Report  
Summary of Analyses Concerning CR3 Decommissioning Environmental Impacts**

**DEF RAI ID#: L-1077**

During development of the Environmental Impact Statement (EIS) for the Levy Nuclear Plant (LNP), the U.S. Nuclear Regulatory Commission (NRC) simulated offshore salinity and temperature impacts of the combined Crystal River Energy Complex (CREC) and LNP discharge (NRC, 2012). The simulations were based on the operation of CREC Units 1 through 5. Duke Energy Florida, Inc. (DEF) now plans to decommission CREC Unit 3 (CR3) and may decommission CREC Units 1 and 2 at a later date.

DEF has simulated the changes to the salinity and temperature characteristics of the discharge plume resulting from two scenarios, the decommissioning of CR3 only and the decommissioning of CREC Units 1, 2, and 3. The newly simulated salinity and temperature distributions in the Gulf of Mexico are used to evaluate impacts to the environment, and whether previous analyses are still bounding considering the decommissioning of CREC Unit 3. DEF has also evaluated the impact of a change in the dilution factor used to calculate radiological impacts due to radioactive liquid waste pathway releases during normal operation. The decreased dilution factor, based on the elimination of dilution flows resulting from the decommissioning of CREC Units 1, 2, and 3, is used in analyses to assess compliance with regulatory requirements, specifically 10 CFR 50 Appendix I and 40 CFR 190. The information provided below summarizes the results of these analyses that are presented in the following documents (Attachments A and B, respectively):

- A. CH2M HILL, Technical Memorandum 338884-TMEM-136, "Crystal River Energy Complex Discharge Canal Plume Modeling", Revision 1, Prepared for Duke Energy, September 18, 2013.
- B. WorleyParsons, PECOLA-2-LI-022-0004-R0, "Phase 1 Assessment Report: Impact of Decrease in Dilution Factor", Prepared for Duke Energy, December 2013.

**Impacts from Simulated Changes to Discharge Salinity and Temperature**

Impacts to aquatic communities from changes to the salinity characteristics of the discharge plume are projected to be minimal. While the elevated salinity is projected to be near the reported maximum tolerance values for some species located close to the shoreline, the extent of high values is limited to the nearshore embayment between the intake dike and the Cross Florida Barge Canal (CFBC). In general, communities in the limited area where salinity increases are projected to occur, are adapted to, and tolerant of, high salinities and the fluctuations common to nearshore areas.

The simulated maximum thermal value expected from the addition of LNP Units 1 and 2 did not increase due to the decommissioning of CR3. Overall, the areal extent of the thermal plume was simulated to be smaller post-decommissioning. The range of thermal values resulting from the various modeled scenarios continues to be within the tolerance range of the seagrass and oyster aquatic communities.

Because of the limited extent of the elevated salinity and temperature values in the discharge plume, the tolerance of species in this area, and naturally occurring variability in conditions over

the seasons, no significant environmental impact is expected from the future operations as a result of the LNP discharge.

Based on the assessment presented in Technical Memorandum 338884-TMEM-136 (Attachment A) and summarized above, impacts are not considered significant or warranting further review. A supplement to the FEIS does not appear necessary under 10 CFR 51.92 because the change in discharge salinity and temperature does not significantly change the results of the environmental review.

**Radiological Impacts due to Radioactive Liquid Waste Pathway Releases During Normal Operation**

A revised discharge dilution factor of 3 was calculated based on discharge contributions from LNP Units 1 and 2 and CREC Units 4 and 5 (worst case scenario). This change in dilution factor (reduced from 21) does not affect compliance with dose standards or other regulations, including the design objectives in 10 CFR Part 50 Appendix I, or invoke any of the other criteria in ISG-11 "Finalizing Licensing-Basis Information" for an immediate revision to the FSAR. Thus, any changes to the FSAR that are required to more accurately describe the discharge contributions for this scenario will be implemented post-COL following completion of the final design.

An evaluation was performed to calculate the radiological impacts due to radioactive liquid waste pathway releases during normal operation based on the revised dilution factor, in order to assess whether the results of the environmental review would be significantly affected. The revised dilution factor increases the potential doses to the maximum exposed individual (MEI), population within a 50 mile radius of the Levy nuclear plant, and terrestrial and aquatic biota but does not exceed the regulatory dose design objectives and remains below the level at which no excess health effects are expected. A supplement to the FEIS does not appear necessary under 10 CFR 51.92 because the change in dilution factor does not significantly change the results of the environmental review.

**Attachments:**

- |              |   |
|--------------|---|
| Attachment A | Technical Memorandum 338884-TMEM-136, "Crystal River Energy Complex Discharge Canal Plume Modeling," Revision 1 |
| Attachment B | PECOLA-2-LI-022-0004-R0, "Phase 1 Assessment Report: Impact of Decrease in Dilution Factor"                     |

Technical Memorandum 338884-TMEM-136  
Crystal River Energy Complex Discharge Canal Plume Modeling  
Revision 1  
(71 pages attached)

**PECOLA-2-LI-022-0004-R0**  
**Phase 1 Assessment Report: Impact of Decrease in Dilution Factor**  
**(36 pages attached)**

# Tech Memo Approval Form

Tech Memo Number: 338884-TMEM-136

Revision: 1

Project: 338884

Review Date: 09/18/2013

<b>Tech Memo Title:</b> Crystal River Energy Complex Discharge Canal Plume Modeling			
<b>Revision History:</b>			
Revision Number	Description	Approval Date	Affected Pages
0	Initial submittal	08/14/2013	All
1	Revised for clarification of CFBC flows and a typographical error in Table 1.	09/18/2013	14, 23
<b>Document Review and Approval</b>			
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