

PMLevyCOLPEm Resource

From: Habib, Donald
Sent: Thursday, April 03, 2014 7:29 AM
To: Kitchen, Robert (Robert.Kitchen@duke-energy.com); Waters, David (David.Waters2@duke-energy.com); larry.taylor@duke-energy.com; Wilkins, Tillie (tillie.wilkins@pgnmail.com)
Subject: Draft RAI 7475 for Levy COL Related to Condensate Return Design Change
Attachments: RAI_7475.docx

To All,

Attached is draft RAI 7475 related to the Condensate Return Design Change for the Levy Nuclear Plant Units 1 and 2 Combined License Application.

This RAI is being transmitted to you nonpublicly to allow you to verify that they contain no proprietary information. Please contact me before noon on Tuesday, April 8, 2014, to identify any proprietary information in the draft RAI so that the staff can appropriately revise the RAI to allow them to be publicly issued.

If you would like to schedule a conference call to discuss this RAI, please let me know before noon on Tuesday, April 8, 2014. If no request for a conference call is received, the RAI will be issued as final.

Thank you,

Donald C. Habib
Project Manager
U.S. Nuclear Regulatory Commission
Office of New Reactors, DNRL/NWE1
Room T-6D14
Washington, DC 20555
301-415-1035
donald.habib@nrc.gov

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Recipients:

"Kitchen, Robert (Robert.Kitchen@duke-energy.com)" <Robert.Kitchen@duke-energy.com>
Tracking Status: None
"Waters, David (David.Waters2@duke-energy.com)" <David.Waters2@duke-energy.com>
Tracking Status: None
"larry.taylor@duke-energy.com" <larry.taylor@duke-energy.com>
Tracking Status: None
"Wilkins, Tillie (tillie.wilkins@pgnmail.com)" <tillie.wilkins@pgnmail.com>
Tracking Status: None

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Request for Additional Information

Issue Date:

Application Title: Levy County, Units 1 and 2 - Dockets 52-029 and 52-030

Operating Company: Duke Energy Florida

Docket No. 52-029 and 52-030

Review Section: 06.03 - Emergency Core Cooling System

Application Section:

QUESTIONS

As stated in section 4.3.3.5 of the Utility Requirements Document (URD) and restated in Section 2.3.2 of the staff's safety evaluation, a design requirement for the passive decay heat removal system is to have sufficient water capacity in the passive decay heat water pools to permit 72 hours of operation after SCRAM without the need for refill (ADAMS Accession No. ML070600372). Based upon the licensing guidance in the URD, NUREG-1242, SECY-94-084, and the Regulatory Treatment of Non-Safety Systems (RTNSS) as discussed in the Section 19.3 of the Standard Review Plan, in order for the Passive Residual Heat Removal Heat Exchanger (PRHR-HX) to meet the requirements of GDC 34 and GDC 44 the In-containment Refueling Water Storage Tank (IRWST) should have sufficient capacity to permit a minimum of 72 hours of operation after SCRAM following an accident without the need for refill. The submitted changes to the passive core cooling system regarding condensate return has caused staff to question the mission time for the PRHR-HX/IRWST. The staff requests the following:

- What is the safety-related mission time for the PRHR-HX/IRWST following a non-LOCA accident?
- Provide the PRHR-HX tube plugging assumption used in the analysis of design basis accidents in Chapter 15 that credit use of the PRHR-HX.
- Provide the PRHR-HX tube plugging assumption used in the safe-shutdown analysis presented in Appendix E of Chapter 19.
- Update the FSAR to clarify the safety-related design basis for the PRHR-HX/IRWST regarding the 72 hour capacity of the IRWST for the mitigation of accidents.

In letter NPD-NRC-2014-005, dated February 07, 2014, Section 1.0 of Enclosure 2 states that among the "safety-related" design bases of the Passive Core cooling System (PXS) is the capability of the Passive Residual Heat Removal Heat Exchanger (PRHR-HX) to cool the Reactor Coolant System (RCS) to the safe shutdown condition of 420 °F in 36 hours. Compliance with safety-related design requirements is typically demonstrated through the use of conservative analyses or best estimate plus uncertainty evaluations. The best estimate shutdown temperature evaluation provided in Section 19E.4.10.2 has caused staff to question whether the treatment of uncertainty is adequate to demonstrate the safety-related design basis of the PRHR-HX having the capability to cool the RCS to 420 °F in 36 hours. Staff requests the following:

- Provide the conservative assumptions used for the AP1000 Safe Shutdown Temperature Evaluation.
- If obtaining safe shutdown in 36 hours is a safety-related design requirement, update the FSAR with a conservative, design-basis analysis.
- If it is determined that obtaining safe shutdown in 36 hours is not a safety-related design requirement, provide justification and update the FSAR accordingly.

Staff is performing confirmatory calculations to assist in the staff's review of the safe shutdown temperature evaluation and is requesting the following additional information be provided from the analysis presented in Section 19E.10.4:

- What is the initial mass of the Reactor Coolant System (RCS), including core makeup tanks (CMTs) but excluding the accumulators?
- Provide tabulated data of the following quantities as a function of time:
 - The heat transfer between the RCS and each steam generator.
 - The mass flow rate through each steam generator.
 - Mass flow rate through the CMTs.
 - IRWST level.