



Serial: NPD-NRC-2009-201
September 3, 2009

10CFR52.79

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

**LEVY NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 064 RELATED TO
RADIATION PROTECTION DESIGN FEATURES**

Reference: Letter from Donald Habib (NRC) to Garry Miller (PEF), dated August 12, 2009,
"Request for Additional Information Letter No. 064 Related to SRP Section
12.03-12.04 for the Levy County Nuclear Plant, Units 1 and 2 Combined License
Application"

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits our response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in the referenced letter.

A response to the NRC request is addressed in the enclosure. The enclosure also identifies changes that will be made in a future revision of the Levy Nuclear Plant Units 1 and 2 application.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (919) 546-6107.

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

Executed on September 3, 2009.

Sincerely,

A handwritten signature in black ink that reads "Garry D. Miller".

Garry D. Miller
General Manager
Nuclear Plant Development

Enclosure

cc : U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

**Levy Nuclear Plant Units 1 and 2
Response to NRC Request for Additional Information Letter No. 064 Related to
SRP Section 12.03-12.04 for the Combined License Application, dated August 12, 2009**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
12.03-12.04-1	L-0529	Response enclosed – see following pages

NRC Letter No.: LNP-RAI-LTR-064

NRC Letter Date: August 12, 2009

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 12.03-12.04-1

Text of NRC RAI:

Levy County COL FSAR section 12.4.1.9 provides a description of the potential sources of exposure to construction workers. The dose limits to the workers are reviewed by the staff to ensure compliance with 10 CFR 20.1301.

10 CFR 20.1301 (a)(1) states "The total effective dose equivalent to individual members to the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year".

Review of related Levy County SCOL documents to support an independent assessment of compliance with the regulations, requires the staff to request additional information to make a determination of reasonable assurance.

The NRC staff reviewed supplemental information item LNP SUP 12.4-1, regarding dose to construction workers, in the new Subsection 12.4.1.9 (subsections 12.4.1.9.1 through 12.4.1.9.5). The information provided in FSAR section 12.4.1.9.1-4 was not sufficient for the staff to validate and verify the estimated doses for Unit 2 construction workers. Without this information the staff can not verify that the application meets the acceptance criteria in SRP 12.3-4 and complies with the dose limits in 10 CFR 20.1301 and 1302.

1) The applicant states that per DCD Section 12.4.2, the direct radiation contribution from the containment and other plant buildings is negligible. However, neither the DCD nor the applicant provides data as to the source of direct dose or the dose rates expected at locations for construction workers. Furthermore, the same statement is made regarding construction worker dose received from performing the tie-in of Unit 2 liquid effluent piping. The staff requests the applicant to provide additional data, including evaluated potential dose rates, with bases, at reasonably occupied construction worker locations to substantiate these conclusions.

2) The applicant uses the worst case X/Q value at 402 meters from Unit 1 to determine the dose to Unit 2 construction workers and assumes a worker residence time of 2080 hours. Dose determined at 402 meters is used with no discussion on the relationship of this distance to actual distances that construction workers will be from the radiation source release points. As indicated by Figure 2.1.1-203, construction workers could be substantially closer to Unit 1 sources than the 402 meters assumed. Furthermore, a construction worker residence time of 2080 hours is used; this value may not necessarily be reflective of anticipated worker exposure times (i.e., non-conservative) considering potential overtime during construction activities for Unit 2, which have been typical for such construction projects. The applicant is requested to provide a justification as to the appropriateness of calculating construction worker doses using the X/Q value for 402 meters, WSW. Additionally, the potential for increased work hours, above the nominal 2080 hours per year, should be considered in estimating construction worker dose.

Provide the information necessary to reproduce the calculations or reference where the information was obtained such that it is available to the staff to make an independent determination of construction worker dose estimates. Include the necessary information in the Levy County FSAR Section 12.4.

PGN RAI ID #: L-0529

PGN Response to NRC RAI:

1. DCD Subsection 12.3.2.2.1 states: "During reactor operation, the shield building protects personnel occupying adjacent plant structures and yard areas from radiation originating in the reactor vessel and primary loop components. The concrete shield building wall and the reactor vessel and steam generator compartment shield walls reduce radiation levels outside the shield building to less than 0.25 mrem/hr from sources inside containment. The shield building completely surrounds the reactor coolant system components." With a dose rate directly outside the LNP 1 shield building of less than 0.25 mrem/hr, the dose at the fence around the LNP 1 protected area would be negligible. Thus, the contribution to construction workers from the containment and other buildings would be negligible. Exposure of LNP 2 construction workers to radioactive effluents was not evaluated because the discharge structure and the blowdown piping will be completed during LNP 1 construction. A change to FSAR Subsection 12.4.1.9.2 will be made in a future revision.
2. LNP 2 will be situated directly due north of LNP 1. The distance of 402 m (1320 ft) from LNP 1 is the distance from LNP 1 to the center of the LNP 2 nuclear island. The nuclear island and shield building is where a majority of the construction activities will take place and therefore, is the reason this distance was used to determine the dose to construction workers. In FSAR Subsections 12.4.1.9.3 and 12.4.1.9.5 it has been assumed a construction worker exposure time is 2080 hours (40 hours per week for 52 weeks). If it is assumed that a construction worker exposure time is 60 hours per week (assuming 20 hours per week overtime) for 52 weeks, the annual dose to a construction worker would increase by 50% and the total worker collective dose would increase by 50%. With an increase in the annual dose to a construction worker of 50%, the annual dose would remain below the 10 CFR 20.1301 limits. This would be the case for any expected level of overtime including the most limiting 72 hour or 84 hour work weeks.

Associated LNP COL Application Revisions:

The following changes will be made to the LNP FSAR in a future revision:

1. Revise the last paragraph of Subsection 12.4.1.9.2 from:
"Exposure of LNP 2 construction workers to radioactive liquid effluents is not evaluated because the discharge structure and blowdown piping is completed during LNP 1 construction. The only exposure of LNP 2 construction workers to liquid effluents is due to the tie-in of LNP 2 pipeline. The exposure from this activity is negligible."

To read:

“Exposure of LNP 2 construction workers to radioactive effluents was not evaluated because the discharge structure and the blowdown piping will be completed during LNP 1 construction.”

2. Add the following paragraph to the end of Subsection 12.4.1.9.5:

It has been assumed that a construction worker exposure time is 40 hours per for 52 weeks. Since construction projects can involve significant overtime for construction workers the annual dose to a construction worker could be higher. The dose would be higher in proportion to the amount of time over 40 hours per week. If the construction workers worked 60 hours per week for 52 weeks, the dose presented in Table 12.4-201 would increase by 50%. However, when compared to the dose limits presented in Table 12.4-201, the dose to the construction worker is still well below the 10 CFR 20.1301 public dose limit. This would be the case for any expected level of overtime including the most limiting 72 hour or 84 hour work weeks.

Attachments/Enclosures:

None.