



Serial: NPD-NRC-2009-034  
March 2, 2009

10CFR52.79

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

**LEVY NUCLEAR POWER PLANT, UNITS 1 AND 2  
DOCKET NOS. 52-029 AND 52-030  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 008 RELATED TO  
CONTROL ROOM HABITABILITY SYSTEM**

Reference: Letter from Ravindra G. Joshi (NRC) to Garry Miller (PEF), dated February 3, 2009,  
"Request for Additional Information Letter No. 008 Related to SRP Section 06.04  
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 Power 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 March 2, 2009.

Sincerely,

Garry D. Miller  
General Manager  
Nuclear Plant Development

Enclosure

cc : U.S. NRC Director, Office of New Reactors/NRLPO  
U.S. NRC Office of Nuclear Reactor Regulation/NRLPO  
U.S. NRC Region II, Regional Administrator  
Mr. Brian C. Anderson, U.S. NRC Project Manager

**Levy Nuclear Power Plant Units 1 and 2  
Response to NRC Request for Additional Information Letter No. 008 Related to  
SRP Section 06.04 for the Combined License Application, dated February 3, 2009**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
06.04-1	L-0023	Response enclosed – see following pages

**NRC Letter No.:** LEVY-RAI-LTR-008

**NRC Letter Date:** February 3, 2009

**NRC Review of Final Safety Analysis Report**

**NRC RAI #:** 06.04-1

**Text of NRC RAI:**

Provide site-specific toxic chemical habitability analysis.

LNP COL 6.4-1 has not sufficiently addressed the required COL item for Section 6.4.4.2. Please provide the amount and location of possible sources of hazardous chemicals stored inside the Levy Nuclear Plant Units 1 and 2. For hazardous chemicals onsite, provide a detailed evaluation including the formation of toxic vapor and its travelling downwind toward the control room. Demonstrate compliance with Regulatory Guide 1.78 or justify any alternative to establish if mitigating actions need to be taken.

Similarly, for the hazardous chemicals identified in Table 2.2.2-202, provide an evaluation against RG 1.78 or justify any alternative to determine if mitigating actions need to be taken.

**PGN RAI ID #:** L-0023

**PGN Response to NRC RAI:** 06.04-1

**Onsite Chemicals**

The Westinghouse DCD evaluated chemicals, along with quantity and location, are identified in the proposed COL Application Revisions shown below with an LMA of STD SUP 6.4-1. As indicated in DCD Subsection 6.4.4, the analysis of these sources was in accordance with Regulatory Guide 1.78 and the methodology in NUREG-0570, and the analysis showed that "these sources do not represent a toxic hazard to control room personnel." The STD SUP items are supported by the NRC's AP1000 FSER (NUREG-1793) Subsection 6.4 which indicated "The staff performed an independent evaluation. On the basis of the data Westinghouse furnished regarding quantity, sizes, and locations, the staff concludes that these onsite chemicals meet the guidelines of RG 1.78, Revision 1." The hazards identified in the DCD have been evaluated in a standard manner (as discussed in the DCD) and these evaluations are relied upon to support the hazard information in the COLA. The discussion of these hazards identified in the DCD is incorporated by reference into the COLA. (Note that DCD Table 6.4-1 has recently been revised by Westinghouse to include the line item for hydrogen in the liquid state which is reflected in the attached proposed Application Revision. See WEC letter DCP/NRC2345 dated January 19, 2009.)

As part of the evolving design details, Westinghouse has modified the specified quantities and/or locations for some of the chemicals in the original main control room (MCR) chemical hazards calculation. The specific DCD Table 6.4-1 volume or location changes for the chemicals evaluated in the original chemical hazards calculation have been assessed using the same calculation methodologies and results and were found to be satisfactory in protecting the MCR from these hazards. These revisions are included in the proposed COL Application Revisions

shown below with an LMA of STD COL 6.4-1 and include increases in the quantities of CO<sub>2</sub>, Nitrogen and the algaecide.

Future LNP Changes to COLA FSAR Table 6.4-201 will be made in accordance with the applicable requirements. Such changes may involve providing details regarding onsite locations and quantities for those chemicals listed in DCD Table 6.4-1 or for any newly identified chemicals. An analysis will be performed in accordance with RG 1.78 and the methodology in NUREG-0570 in the event there are non-conservative, plant specific deviations from DCD Table 6.4-1 or for new chemicals with a quantity greater than 100 lbs and that are stored within 0.3 miles of the control room.

**Offsite Chemicals**

FSAR section 2.2.3.3 states, "Stationary hazardous chemical sources within 8 km (5 mi) of LNP are limited to the Inglis WTP located 4.8 km (3 mi) from LNP (Reference 2.2-208). The quantities stored at the plant are listed in Table 2.2.2-202. As shown in Table 2.2.2-202, the quantities stored are small and are not significant sources of airborne contamination even in the event of an accidental failure of the storage containers. Therefore, there are no sources of toxic chemicals within 8 km (5 mi) of LNP that could pose a threat to LNP."

The basis for the FSAR text is provided as follows. For liquids with vapor pressures less than about 10 mm Hg at atmospheric pressures, flashing does not occur to any appreciable extent and evaporation is limited. Regulatory Guide 1.78, section 3.2, does not require consideration of liquids with vapor pressures less than 10 mm Hg as toxic hazards. As shown in the table below, only sodium hypochlorite has a vapor pressure slightly above 10 mm Hg, however, sodium hypochlorite is a stable material commercially available for pool and spa sanitization and is not considered a potential inhalation hazard.

Chemical	Form	Vapor Pressure (mm Hg)	Quantity Stored at Inglis WTP
Calcium hydroxide (hydrated lime in powder form)	Solid	Not Applicable	<18 tons
Sulfuric Acid	Liquid	<1	1-50 gal drum
Sodium Hypochlorite (11%)	Liquid	12.1	< 850 gal
Phosphoric Acid	Liquid	<1	2-50 gal drums
Phosphonic Acid	Liquid	Not Available Essentially zero	2-50 gal drums
Sodium Hydroxide	Liquid	3.6	700 gal
Hydrogen Peroxide (35%)	Liquid	5	35 gal

**Associated LNP COL Application Revisions:**

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

1. COLA Part 2, FSAR Chapter 2, Subsection 2.2.3.3 last paragraph, 1<sup>st</sup> line will be revised from:

On-site chemical storage that supports plant operation is discussed in DCD Subsection 6.4.4.

To read:

There are no toxic gas release event hazards identified for the Levy site from hazardous chemicals that are outside the scope of the DCD identified in Table 6.4-201.

2. COLA Part 2, FSAR Chapter 6, Subsection 6.4.4 will be revised to add the following information with LMAs STD SUP 6.4-1 and/or STD COL 6.4-1.

Insert the following sentence at the end of Subsection 6.4.4.2:

Table 6.4-201 provides additional details regarding the evaluated onsite chemicals.

3. COLA Part 2, FSAR Chapter 6, add new Table 6.4-201 (with LMAs) as shown on the following page.

{Reviewer's Note: The DCD evaluated hazards are identified in FSAR Table 6.4-201 as standard supplemental (STD SUP) material. Revisions to the amounts and distances evaluated by WEC since the time of the DCD material approval are identified as standard COL information item (STD COL) material. Any additional site specific chemicals used, along with quantities and locations stored onsite will also be identified in the new FSAR Table 6.4-201 as site specific COL information item (LNP COL) material. This note is for reviewer information only and is not a part of the COLA change.}

**Attachments/Enclosures:**

None.

**Table 6.4-201**  
**Onsite Chemicals<sup>(1)</sup>**

	<b>Material</b>	<b>State</b>	<b>Quantity</b>	<b>Distance to MCR Intake</b>	<b>Location</b>
STD SUP 6.4-1	Hydrogen	Gas	500 ft <sup>3</sup>	375 ft	Gas storage
STD SUP 6.4-1	Hydrogen	Liquid	2000 gal	375 ft	Gas storage
STD COL 6.4-1	Nitrogen	Liquid	1500 gal	328 ft	Gas storage
STD COL 6.4-1	CO2	Liquid	6 tons	328 ft	Gas storage
STD SUP 6.4-1	Oxygen Scavenger [Hydrazine]	Liquid	1600 gal	245 ft	Turbine building
STD SUP 6.4-1	pH Addition [Morpholine]	Liquid	1600 gal	245 ft	Turbine building
STD SUP 6.4-1	Sulfuric Acid	Liquid	20,000 gal	328 ft	Turbine building
STD SUP 6.4-1	Sodium Hydroxide	Liquid	20,000 gal	328 ft	Turbine building
STD SUP 6.4-1	Fuel Oil	Liquid	200,000 gal	328 ft	DG fuel oil storage tank; DG building; Annex building
STD SUP 6.4-1	Corrosion Inhibitor [Sodium Molybdate (molybdic acid, disodium salt)]	Liquid	5000 gal	328 ft	Turbine building
STD SUP 6.4-1	Scale Inhibitor [Sodium Hexametaphosphate]	Liquid	5000 gal	328 ft	Turbine building
STD SUP 6.4-1	Biocide/Disinfectant [Sodium hypochlorite]	Liquid	10,000 gal	378 ft	Turbine building
STD COL 6.4-1	Algaecide [Ammonium comp polyethoxylate]	Liquid	800 gal	378 ft	Turbine building

Notes: (1). This table supplements DCD Table 6.4-1. Volumes are by container content per unit