Progress Energy

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May 4, 2011

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
VOLUNTARY SUBMITTAL RELATED TO THE LIQUID WASTE MANAGEMENT SYSTEM DESCRIBED IN CHAPTER 11 OF THE FINAL SAFETY ANALYSIS REPORT

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits additional information concerning the liquid waste management system described in Chapter 11 of the Final Safety Analysis Report for the Levy Nuclear Plant Units 1 and 2 (LNP). This information is provided in response to a teleconference with the U. S. Nuclear Regulatory Commission (NRC) on March 29, 2011.

The requested additional information is provided in the enclosure. The enclosure also identifies changes that will be made in a future revision of the LNP application.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (727) 820-4481.

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

Executed on May 4, 2011.

Sincerely,

John Elnitsky
Vice President
New Generation Programs & Projects

Enclosure

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

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NRC Review of Final Safety Analysis Report

PGN RAI ID #: L-0922

PGN Response to NRC Question:

Progress Energy Florida's (PEF's) response to the Request for Additional Information (RAI) on the Levy Nuclear Plant's liquid radwaste system (WLS) discharge and cooling tower blowdown line determined that manual vent valves will be installed downstream of the radwaste discharge connection to the cooling tower blowdown line. The circulating water (CW) blowdown pipe routing starts at a cooling tower basin water elevation of approximately 50 ft. above mean sea level and follows the Progress Energy transmission line corridor that heads south. It is then routed alongside the barge canal to the point north of Crystal River Unit 3 where it turns south to the Crystal River Energy Complex discharge canal and ends at sea level.

The blowdown line will be approximately 13 miles of single-walled, buried 54-inch High Density Polyethylene (HDPE) pipe with a flowrate of approximately 28,000 gpm for each unit. The radwaste discharge piping connects to the cooling tower blowdown piping. The radwaste discharge piping is double-walled and leak-detected and terminates at this connection on the site property. Dilution of the radwaste with cooling tower blowdown occurs at this connection. At the high point in the system, two vacuum breakers will exist on each unit's blowdown line immediately following the last isolation valve and prior to the radwaste discharge connection on the site property. This ensures liquid radwaste will not flow through the vacuum breakers. With no liquid radwaste flowing through the vacuum breakers, there is no potential for radwaste to leak. One of the vacuum breakers on each line is for redundancy. The vacuum breakers would accommodate valve closure, and pump shutdown and restart transients.

Without vacuum breakers, a pump trip or closure of the last isolation valve on the line could introduce a column separation – recollapse water hammer in the system. Due to the length of the line and the mass of contained water, inertia and the elevation change would cause the column of water to continue down the line even after the valve was closed or the pump was tripped. This leaves a vapor pocket between the pump or valve and the end of the water column. The end of the pipe would be at atmospheric pressure and the vapor pocket would be at the saturation pressure of the cooling water (about 14.5 psig). The unbalanced force could cause the column to return up the pipe, collapse the vapor pocket and cause water hammer. Even if this did not happen, a subsequent restart of the system would cause a collapse of the vapor column with the resultant water hammer. The vacuum breakers introduce air into the line to prevent return of the column and to cushion the column collapse on restart of the system. Vacuum breakers are required to ensure the continued integrity of the blowdown line.

Where the blowdown pipe travels beneath the Cross Florida Barge Canal, a manual vent valve will be installed just upstream of the drop on each blowdown line. Because of the small elevation drop, a vent valve will be sufficient, and vacuum breakers are not needed. Vent valves are included to remove air either coming out of solution or air introduced by the vacuum breakers in the event that the air is not swept out of the blowdown line during system startup. The vent is located where air would be most likely to collect. The vents shall be capped and locked closed to prevent inadvertent operation. They would have to be installed in manholes in order to not protrude above ground. Therefore, only one vent valve, accessible through a manhole, shall be downstream of the radwaste discharge connection on each blowdown line. During normal operation, the vent lines are capped and the vent valves are locked closed. The vents are capable of manual operation, as required, for pump startup.

As required during pump startup, personnel will be present at the vent valves to allow air to escape and then to close the valve when the line fills with water. Any spillage shall be contained and properly disposed. The radwaste discharge line will be isolated during pump startup. Leak detection of the blowdown pipe will be accomplished by ground water monitoring and periodic walk down of the vent valves in accordance with NEI 08-08A, and these vent valves shall be included in the site's routine maintenance program. This reduces the potential for undetected leakage from this discharge to the environment to support compliance with 10 CFR 20.1406.

Associated LNP COL Application Revisions:

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

In FSAR Subsection 11.2.1.2.4, Controlled Release of Radioactivity, the second paragraph with LMA LNP SUP 11.2-1 will be modified from:

> The exterior radwaste discharge piping is enclosed within a guard pipe and monitored for leakage. The radwaste discharge piping connects to the cooling tower blowdown piping. The double wall radwaste discharge piping terminates at this connection. Dilution of the radwaste with cooling tower blowdown occurs at this connection. Beyond this point of connection, the cooling tower blowdown piping is single-walled, buried and constructed of High Density Polyethylene. The accessible appurtenances of the blowdown line include vacuum breakers, vent lines, and manways. Leak detection of the cooling tower and radwaste mixture will be accomplished by ground water monitoring and periodic walk down of the accessible appurtenances. The cooling tower blowdown with the diluted radwaste is discharged to the Crystal River Energy Complex discharge canal.

to:

> The exterior radwaste discharge piping is enclosed within a guard pipe and monitored for leakage. The radwaste discharge piping connects to the cooling tower blowdown piping. The double wall radwaste discharge piping terminates at this connection. Dilution of the radwaste with cooling tower blowdown occurs at this connection. Beyond this point of connection, the cooling tower blowdown piping is single-walled, buried and constructed of High Density Polyethylene. Downstream of the radwaste discharge connection will be one vent valve on each blowdown line. The vents shall be capped and locked closed to prevent inadvertent operation and are capable of manual operation as required for pump startup. The radwaste discharge line will be isolated during pump startup. As required during pump startup, personnel will be present at the vent valves to allow air to escape and then to close the valve when the line fills with water. Any spillage shall be contained and properly managed in accordance with Radiation Protection and ALARA Program requirements. Leak detection of the cooling tower and radwaste mixture will be accomplished by ground water monitoring and periodic walk down of the vent valves in accordance with NEI 08-08A. This reduces the potential for undetected leakage from this discharge to the environment to support compliance with 10 CFR 20.1406. The cooling tower blowdown with the diluted radwaste is discharged to the Crystal River Energy Complex discharge canal.

Attachments/Enclosures:

None.