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SUBJECT: Provides written status of util efforts re main steam safety valves, per J Norris 890526 request.

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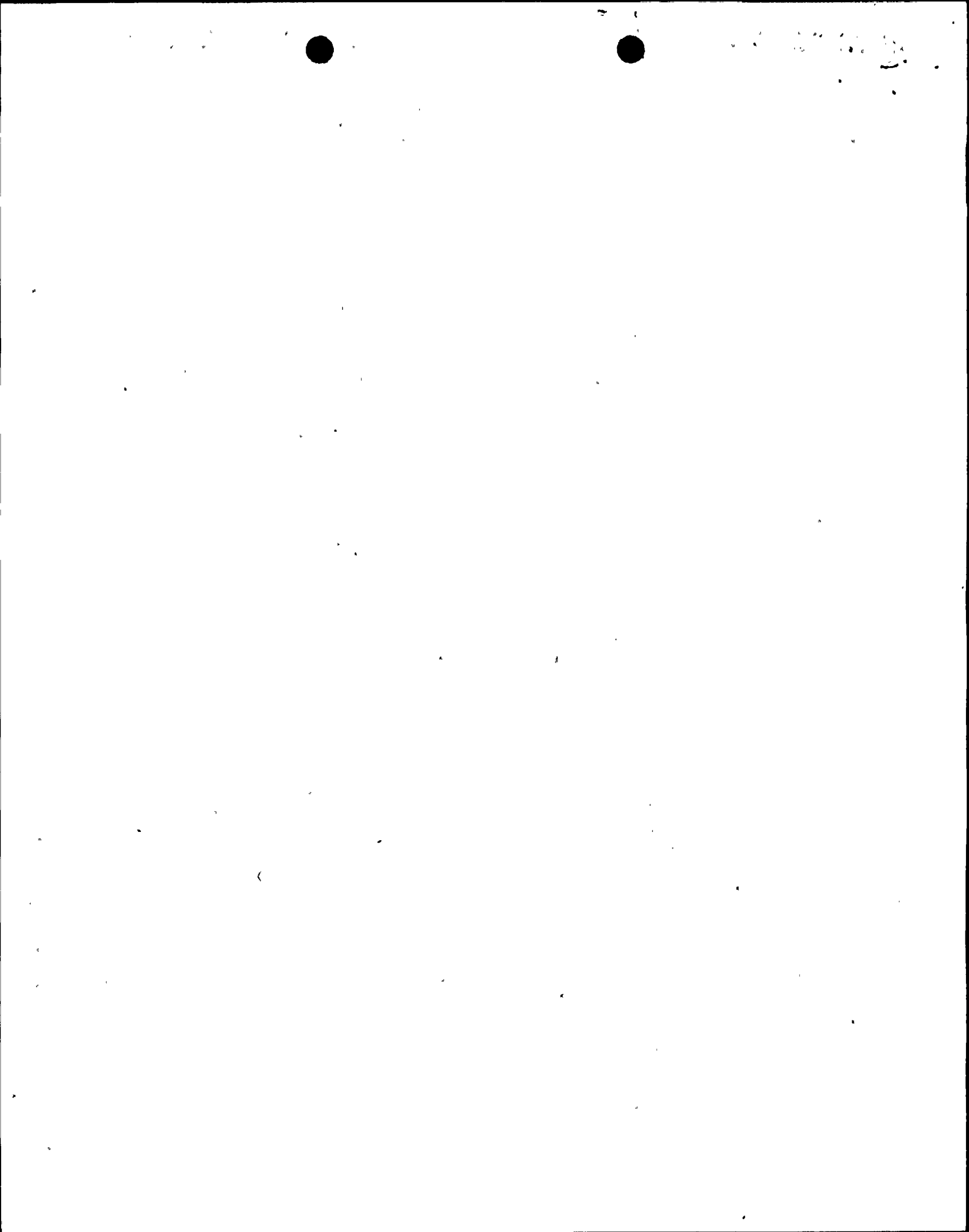
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AUGUST 16 1989

L-89-295  
10 CFR 50.72

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Re: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Request for Information - Main Steam Safety Valves

On May 26, 1989, Jan Norris, the St. Lucie NRC Project Manager, requested information concerning Florida Power & Light Company's (FPL) efforts to reduce challenges to the Main Steam Safety Valves (MSSV) during normal plant trips. This request was based on a 10 CFR 50.72 notification that some MSSVs had opened following a St. Lucie Unit 1 trip which occurred on April 22, 1987. Between the dates of April 22, 1987 and May 26, 1989, FPL and the NRC have had various conversations discussing FPL's efforts in this area. The purpose of this letter is to provide a written status of FPL's efforts as requested by the NRC Project Manager.

In November 1986, FPL initiated a study to evaluate the current situation and to provide a root cause and countermeasures analysis for post-reactor trip MSSV openings. The result of this study was a comprehensive engineering evaluation which included both short and long term recommendations.

A conclusion in the root cause analysis of the engineering evaluation was that plant operation at a stretch power rating of 2700 megawatts thermal (MWth) had reduced the margin between post-reactor trip peak secondary pressure and the lower bank MSSV setpoint. Additionally, another conclusion in the root cause analysis was that the operating characteristics of the Steam Dump and Bypass Control System (SDBCS) had contributed to increased challenges to the MSSVs.

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Section 10.4.4 of the St. Lucie Units 1 and 2 Updated Final Safety Analysis Reports (UFSARs) provides a description of the SDBCS. One of the design bases of the SDBCS is to limit the pressure rise in the steam generators to avoid lifting the MSSVs under conditions of a turbine trip-reactor trip or to prevent reactor trip up to a maximum loss of electrical load of 45% of full power. Other primary heat-up events such as complete loss of load, loss of feedwater, loss of offsite power, etc., were not considered as design basis transients for the SDBCS since the MSSVs are expected to operate during these transients to limit the secondary system pressure peak.

A review of plant records indicated that difficulties had been experienced in the past in maintaining the SDBCS. Since this review, a significant effort has been devoted to improving the operation of the SDBCS. All of these efforts have improved the SDBCS; however, no turbine trip-reactor trip transients from 100% power have occurred subsequent to these improvements.

As stated above, it was concluded in the root cause analysis that both the stretch power operating parameters and the condition of the SDBCS have directly contributed to increased challenges to the MSSVs. As a result, several potential countermeasures were identified:

- 1) increasing the MSSV setpoints,
- 2) upgrading to allow automatic operation of the atmospheric dump valves during Mode 1,
- 3) reducing steam generator operating pressure by reducing RCS temperature, and
- 4) modifying the SDBCS.

Each of the countermeasures was reviewed and evaluated (Note: In the case of reducing steam generator pressure by reducing RCS temperature, a plant test was actually performed) to determine whether it addressed root cause and, based on this evaluation, it was recommended that St. Lucie Plant personnel continue to concentrate their maintenance efforts in ensuring that the steam dump and bypass valves of the SDBCS are operational at all times. These efforts have included bringing the vendor of the SDBCS valves to the plant site for both a Unit 1 and Unit 2 outage. The countermeasures evaluation also showed that modifications to the SDBCS provided the greatest contribution toward avoiding MSSV openings while maintaining operating efficiency. Therefore, it was recommended that FPL's Engineering Staff estimate the cost of enhancing the SDBCS. FPL is proceeding with conceptual designs for system modification. Implementation plans have not yet been finalized.

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FPL is continuing to place emphasis on the efforts to reduce the challenges to the MSSVs and maintains a positive and aggressive attitude toward the safe and efficient operation of its nuclear units. St. Lucie Units 1 and 2 have experienced only three (3) plant trips (2 on Unit 1 and 1 on Unit 2) in the last twelve months. This, in conjunction with a future goal of reducing plant trips to one trip per unit per year, is a positive step toward reducing challenges to the MSSVs.

We hope this status has provided you with the necessary information. Should there be any questions, please contact us.

Very truly yours,



C. O. Woody  
Acting Senior Vice President - Nuclear

COW/MSD/gp

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, St. Lucie Plant