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 AUTH. NAME AUTHOR AFFILIATION
 SAGER, D.A. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
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SUBJECT: Forwards suppl to 901220, 911206 & 920511 responses to GL
 90-06, "Resolution of Generic Issue 70, 'PORV & Block Valve
 Reliability' & Generic Issue 94, 'Addl Low Temp Overpressure
 Protection for LWRs," per NRC 920806 request.

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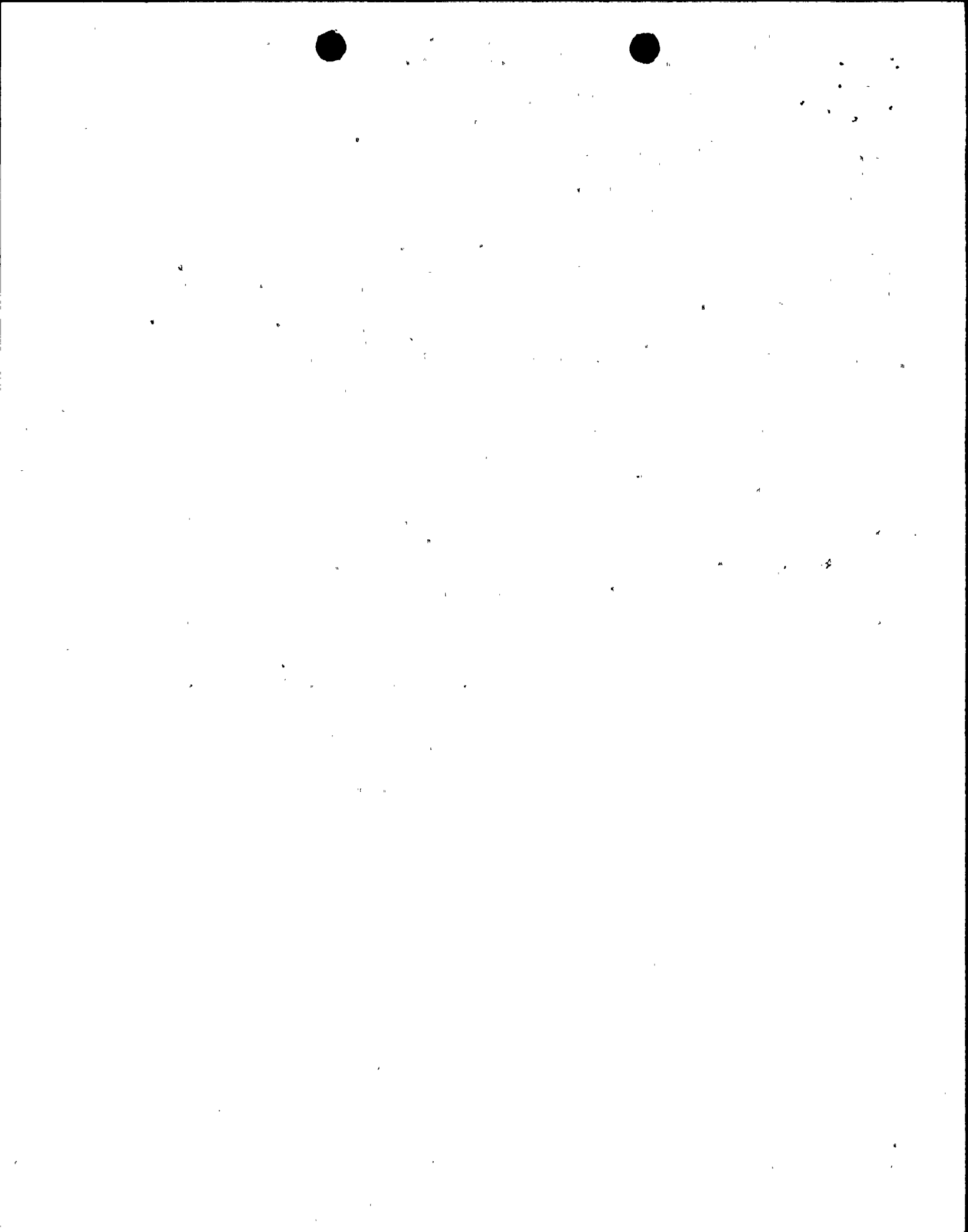
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October 9, 1992

L-92-288
10 CFR 50.4

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

RE: St. Lucie Units 1 and 2
Docket No. 50-335 and 50-389
Generic Letter 90-06 Supplemental Response

The Florida Power and Light Company (FPL) responses to Generic Letter 90-06 "Resolution of Generic Issue 70, Power-Operated Relief Valve and Block Valve Reliability, and Generic Issue 94, Additional Low Temperature Overpressure Protection for Light-Water Reactors, Pursuant to 10 CFR 50.54(f)," dated June 25, 1990, for St. Lucie Units 1 and 2 are supplemented by the attached. Attachment 1 supplements FPL's position on the Generic Issue (GI) 70 recommendations. Attachment 2 provides the FPL response to the three current staff positions in your letter of August 6, 1992.

The original FPL response (L-90-435) was dated December 20, 1990. FPL supplemented the response by letters (L-91-327) on December 6, 1991 and (L-92-134) on May 11, 1992. NRC letter dated August 6, 1992, provided three staff positions on the NRC proposed Technical Specifications and requested FPL to respond by October 19, 1992.

Please contact us if there are any questions about this submittal.

Very truly yours,

D. A. Sager
Vice President
St. Lucie Plant

DAS/GRM/kw

DAS/PSL #798-92

Attachments

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

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St. Lucie Units 1 and 2
Docket No. 50-335 and 50-389
Generic Letter 90-06 Supplemental Response

ATTACHMENT 1

FPL POSITION ON GENERIC ISSUE 70
"POWER-OPERATED RELIEF VALVE AND BLOCK VALVE RELIABILITY"

FPL has reviewed your letter of August 6, 1992, which provided generic information and current staff positions on the power operated relief valve (PORV) and PORV block valve Technical Specifications. FPL has implemented a significant number of the staff recommendations provided in GL 90-06 which should improve the reliability of the PORVs and the PORV block valves.

The allowed outage times and test conditions in the remaining staff positions do not affect the reliability of the PORV or the PORV block valves but only address valve availability. Additionally, these staff positions have the potential to significantly reduce the operating availability of units that currently do not have shutdown requirements in the Technical Specification Action Statements for PORVs and PORV block valves. In response to recommendation 3 of Enclosure A Section 3.1, FPL provided technical justification for not incorporating the proposed Technical Specifications for Modes 1, 2, and 3 proposed in GL 90-06, Enclosure A, Attachment A-1. The response was Attachment 2 of FPL Letter (L-90-435) dated December 20, 1990. The FPL Units at St. Lucie utilize a Combustion Engineering designed nuclear steam supply system and do not rely on the PORV for the mitigation of a design basis steam generator tube rupture. In addition, the original response provided a discussion of the applicability of and/or compliance with Branch Technical Position RSB 5-1 to SRP 5.4.7.

It is FPL's opinion that the regulatory analyses for GI-70 do not bound St. Lucie. Many of the technical positions in the original FPL response were not addressed by the staff. Feed-and-bleed capability is part of decay heat removal generic safety issue GSI A-45 which was subsumed into the individual plant evaluation (IPE) program and therefore is now more appropriately addressed within the scope of GL 88-20. As discussed in the original response (L-90-435), FPL has implemented a significant number of the staff recommendations that improve PORV and PORV block valve reliability. FPL considers that any benefit gained in availability of the valves from the Technical Specification changes to be offset by the potential increase in forced outage rate and decrease in the unit availability. FPL requests that the staff complete its review of the FPL generic letter response prior to recommending additional staff positions based on specific sections of the FPL response.

St. Lucie Units 1 and 2
Docket No. 50-335 and 50-389
Generic Letter 90-06 Supplemental Response

ATTACHMENT 2

RESPONSE TO NRC STAFF POSITIONS

NRC POSITION 1:

Staff Guidance on Mode for 18-Month PORV Stroke Test

Our position requires the 18-month PORV stroke test to be performed during Mode 3 (HOT STANDBY) or Mode 4 (HOT SHUTDOWN) and in all cases prior to establishing conditions where the PORVs are used for LTOP. Your submittal did not adequately meet this staff position. We [NRC] are not accepting Mode 5 (COLD SHUTDOWN) testing simply because it is allowed by ASME Code or that the NRC-approved In-service Testing (IST) program includes Mode 5 for this particular test.

The requirement to perform stroke tests of PORVs during Modes 3 or 4 is a new position for some licensees. The basis for this position lies in the uncertainty introduced by stroke testing the PORVs at lesser system temperature conditions and then expecting them to perform adequately at operating system conditions. If this recommendation is not adopted, a sound technical basis should be provided (e.g., that such testing cannot be performed without significant system modifications or that the intent of such testing is accomplished by some other means). We [NRC] note one licensee has proposed the option to bench test the PORVs. This would be acceptable, provided tests are performed at conditions simulating Mode 3 or 4 conditions or greater and provided the proper reinstallation of the PORVs and controls is verified. In another case, we accepted an argument from a licensee that the physical distance between the PORV and the pressurizer maintained the same temperature at the PORV in Modes 3, 4 or 5 such that there is not difference from the valve's perspective of testing in different modes. In this case the facility had an air-operated PORV and was able to perform the PORV stroke test with the PORV block valve closed such that the PORV would be primarily influenced by the ambient room conditions.

Additionally, the GL required that PORVs be stroke tested in all cases prior to establishing conditions where the PORVs are used for LTOP. This could be interpreted to mean that PORVs should be stroke tested during every shutdown and again during

every startup. However, the inclusion of the PORVs in the IST program requires the valves to be tested no more frequently than every 3 months (unless valve maintenance is performed) to demonstrate operability.

In summary, we maintain our position that the PORVs should be stroke tested during Modes 3 or 4 in order to verify the capability to function in an environment more representative of operating conditions. In your revised response, discuss how PORV stroke testing provides assurance that the PORVs will perform all necessary safety functions adequately at the required system operating conditions.

FPL RESPONSE:

FPL does not concur with the staff position for testing the PORV in MODES 3 or 4. FPL has committed to test the PORVs and the PORV block valves in accordance with ASME Section XI, subsection IWV-1100 and the existing Technical Specifications.

The PORV is a pilot operated valve that uses system pressure as the motive force for the main valve. The amount of stored steam between the PORV block valve and the PORV is marginally sufficient to full stroke the PORV. The plant conditions proposed by the NRC for testing would require the PORV block valve to be open during the stroke test. This test is tantamount to giving the plant a small break loss-of-coolant-accident (SBLOCA) to verify valve stroke and stroke time. It is preferable to test the PORVs at the lowest pressurizer pressure and temperatures consistent with valve design operating pressures. This limits the rate of energy discharge into the quench tank should the PORV or the PORV block valve fail to close. Since the PORVs at the St. Lucie Units are pilot operated valves that use system pressure as the motive force for operation of the main valve, valve operation is enhanced at higher system pressures. Successful testing at lower temperatures and pressures would provide reasonable assurance that the valves will function properly at higher pressures. Therefore, FPL does not consider testing at the increased system operating temperatures and pressures of MODE 3 and 4 to be in the best interest of public health and safety or the protection of plant equipment.

In addition to ASME Section XI testing, St. Lucie Unit 2 has a Technical Specification Surveillance Requirement for cycling the PORV at 18 month intervals. Unit 1 is tested in accordance with ASME Section XI, subsection IWV-1100. The PORVs of both units (V-1402, V-1404, V-1474, and V-1475) are stroke tested each cold shutdown (unless the valve has been tested within the last three months) and every two years in accordance with the pump and valve test programs.

NRC POSITION 2:

Staff Guidance on PORV and Block Valve TS Upgrades

Our [NRC] position for the resolution of Generic Issue 70 required TS upgrades as presented in the GL. Our [NRC] review of your submittal indicates that you have declined our position. We [NRC] will not accept, without sufficient justification, the position that TS upgrades are unnecessary because the PORVs are not the primary means of dealing with the three safety functions identified in the GL.

As discussed in NUREG-1326, most of the safety enhancement for the proposed value/impact is derived from the increase in feed-and-bleed capability. Therefore, for those facilities that can accomplish the three safety functions identified in the GL without relying on the PORVs for the feed-and-bleed function, the allowed outage time (AOT) for an inoperable PORV (for reasons other than excessive leakage) may be increased from the recommended 72 hours to 7 days. In addition, for those facilities that have three safety-related PORVs and can accomplish the three safety functions and feed-and-bleed with only two, the AOT for one inoperable PORV may be increased to 7 days while the AOT for the two inoperable PORVs remains at 72 hours.

Therefore, based on the additional guidance above, we request that you resubmit your response to the GL.

FPL RESPONSE:

FPL has reviewed the staff position on the proposed Technical Specifications and does not concur with the staff's recommended actions. The original FPL response (L-90-435) provided technical justification for not implementing the Technical Specification upgrades. The staff stated that most of the safety enhancement for the proposed Technical Specification backfit is derived from increased feed-and-bleed capability, which was not one of the three safety functions identified as being within the scope of GL 90-06.

It is FPL's opinion that the feed-and-bleed value/impact analyses are improperly addressed in GI-70. Feed-and-bleed capability was part of generic safety issue (GSI) A-45, Decay Heat Removal Requirements, which was subsumed into GL 88-20, *Individual Plant Evaluations for Severe Accident Vulnerabilities*, in 1988. NUREG 1316, *Technical Findings and Regulatory Analysis Related to Generic Issue 70*, also states that feed-and-bleed is not within the scope of GI-70 or the work done by Brookhaven National Laboratory. The NRC staff recommendations on GSI A-45 are included in section 2.4 of SECY-88-147 dated May 25, 1988. The staff recommendations concluded there is no cost effective generic solution to GSI



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A-45, based on existing Commission backfit guidance, and cost effective improvements can only be realized on a plant specific basis.

The value/impact analysis in NUREG 1316 is incomplete per 10 CFR 50.109 since it uses the assumed financial benefit of reduced forced outage times to the utility instead of calculating the health benefit of the potentially reduced radiation exposure to the general public within the 50 mile radius by implementing the GI 70 actions. In addition, NUREG 1316, section 3.2, states that the Brookhaven National Laboratory Report (NUREG/CR-4999) concluded the impact of PORV and block valve failures on core melt frequencies to be relatively insignificant and a small fraction of the total core melt frequency. The feed-and-bleed capability for St. Lucie Plant was specifically evaluated by Sandia National Laboratory as part of the decay heat removal analysis conducted for resolution of GSI A-45. The results of this review were contained in NUREG/CR 4710, *Shutdown Decay Heat Removal Analysis of a Combustion Engineering 2-Loop Pressurized Water Reactor*, dated July 1987. The feed-and-bleed capability was credited in that analysis and there were no modifications or enhancements identified relative to this issue.

In response to GL 88-20, FPL is currently in the process of preparing a plant specific probabilistic risk assessment (PRA) for the St. Lucie Units. PORV and PORV block valve failures will be in its fault trees and will be evaluated to determine if "vulnerabilities" as described in GL 88-20 exist.

Since significant time and resource have been committed to preparation of our PRA, it is prudent for FPL to utilize the insights gained to address the importance of feed-and-bleed capability to core damage frequency (CDF) for the St. Lucie Units. FPL plans to utilize the results of the St. Lucie PRA to address any potential reduction in risk due to the implementation of additional administrative controls. FPL will provide the results of our evaluation related to the importance of feed-and-bleed capability to the staff within 90 days of the IPE submittal which is currently scheduled for December 1993.

NRC POSITION 3:

Staff Guidance on LTOP TS Upgrades

Our [NRC] position for the resolution of Generic Issue 94 included the TS upgrades as presented in the GL. Our [NRC] review determined that you have declined the staff position. We will not accept, without significant technical justification, statements that the maximum AOT will not support flexible plant operations. In addition, we will not accept PRA-based arguments to expand AOTs. Only differences

in plant hardware relative to that assumed in our cost/benefit analysis will be considered. It is our position that in view of the recently completed regulatory analysis supporting the proposed outage times, and the uncertainties inherent in PRA analyses, that consideration of PRA-based arguments (which is tantamount to re-opening the issue) is not warranted.

The intent of the resolution of Generic Issue 94 was to decrease the probability of cold overpressurization while in a solid-water condition by increasing the availability of the LTOP system. Generic Issue 94 did not apply to Babcock & Wilcox (B&W) facilities because they maintain a nitrogen bubble in the pressurizer and do not operate in a water-solid condition. Similarly, we would be receptive to extending the recommended 24-hour AOT with an inoperable LTOP channel to 7 days provided the plant is not water-solid. For such cases, the licensee must identify a pressurizer level which provides a level of protection against cold overpressurization comparable to that provided by the nitrogen bubble in B&W facilities.

Therefore, based on the additional guidance provided above, we request that you resubmit your response to the GL.

FPL RESPONSE:

FPL has reviewed the staff position on the proposed Technical Specifications but does not completely concur with the staff's recommended actions. FPL provided technical justification in the supplemental responses to the GL (L-91-327 and L-92-134). FPL currently has LTOP Technical Specifications for the PORV in both the St. Lucie Unit 1 and Unit 2 Technical Specifications. FPL considers the current Technical Specifications to provide adequate protection of the public health and safety.

FPL notified the staff in our original GL response, Attachment 2 of FPL Letter, L-90-435, dated December 20, 1990, that we planned to perform an evaluation of plant specific potential reduction in risk of an LTOP event which is engendered by limiting the allowed outage time for the PORVs. The original response included a schedule for completing the assessments. The plant specific evaluation for Unit 1 was submitted by FPL letter, L-91-327, on December 6, 1991. The Unit 2 plant specific evaluation was submitted by FPL Letter, L-92-134, on May 11, 1992. Since the staff used generic PRA based arguments to justify the proposed GL recommendations in the value impact analysis and had not clarified its position on PRA based arguments prior to FPL expending its time and resources, FPL considered it tacit approval by the NRC of the FPL plan provided in December 1990.

Both of the evaluations showed the plant specific CDF estimate due to LTOP to be less than the $1E-6/Rx-Yr$ screening value assumed by the NRC and thus the recommended actions would not

be cost beneficial. The staff generic estimate of CDF due to an LTOP event was $3.24E-6/Rx-Yr$. After the implementation of all the GL 90-06 recommendations the staff estimated CDF would be reduced to $3.5E-7/Rx-Yr$. The St. Lucie plant specific analyses estimated that prior to implementation of the recommended GL actions the Unit 1 and Unit 2 CDFs due to an LTOP event were $3.01E-7/Rx-Yr$ and $3.24E-7/Rx-Yr$ respectively. The St. Lucie estimated CDF due to an LTOP event is therefore on the same order of magnitude as the expected industry value after the staff's recommendations are implemented. With the exception of certain Technical Specification recommendations, FPL has implemented most of the staff recommendations contained in the GL.

Since St. Lucie Unit 2 received its operating license in 1983, the LTOP Technical Specifications are similar to the staff recommendations. St. Lucie Unit 2 uses the shutdown cooling relief valves for a portion of the LTOP protection, consequently, there are some plant specific differences between the recommended LTOP Technical Specifications and the Unit 2 LTOP Technical Specifications. FPL does not plan to modify the existing Technical Specifications for St. Lucie Unit 2.

St. Lucie Unit 1 was licensed in 1976 and has LTOP Technical Specifications that are similar to an earlier version of the CE Standard Technical Specifications. FPL will submit a change to the LTOP Technical Specifications similar to the GL recommendations for St. Lucie Unit 1 within one year of receipt of the staff acceptance of the FPL proposed plans for implementation of the GL recommendations.

