UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

EVALUATION OF THE FLORIDA POWER AND LIGHT COMPANY'S

RESPONSE TO GENERIC LETTER 87-02

FOR ST. LUCIE UNIT 1 AND

TURKEY POINT UNITS 3 AND 4

DOCKET NOS.: 50-335/250/251

1.0 INTRODUCTION

In December of 1980, the NRC designated "Seismic Qualification of Equipment in Operating Plants" as an unresolved safety issue (USI A-46). The safety issue of concern was that equipment in nuclear plants for which construction permit applications had been docketed before about 1972 had not been reviewed according to the 1980-81 licensing criteria for seismic qualification of equipment (i.e. Regulatory Guide 1.100; IEEE Standard 344-1975, and Section 3.10 of the Standard Review Plan (NUREG 0800, July 1981)). Generic Letter (GL) 87-02 was issued in February of 1987 to implement the resolution to USI A-46 which concluded that the seismic adequacy of certain equipment in operating nuclear power plants should be reviewed against seismic criteria not in use when these plants were licensed.

On June 2, 1988, the licensee made a presentation to the staff, and concluded that, in light of the relatively low seismicity of their plant sites, the existing design basis ensured sufficient seismic margin, and there was no significant safety benefit to be gained by addressing the requirements in GL 87-02. The licensee supported its position with a plant-specific value-impact analysis, and requested that it be totally exempted from GL 87-02. The staff did not accept the licensee's position, but determined that their argument offered sufficient rationale to justify a scaled-back program to demonstrate that the FPL plants meet the original seismic licensing bases. Since that time, the staff and the licensee have had numerous dialogues, including meetings, conference calls, and written correspondence, but have not reached full agreement on the extent to which the program should be scaled-back. Although the staff never fully accepted the licensee's program, the licensee proceeded with the implementation of its proposed scaled-back program at St. Lucie Unit 1 and Turkey Point Units 3 and 4. References 5 through 17 contain the significant written correspondence between the staff and the licensee.

In a letter dated February 24, 1994 (Reference 1), the staff described general criteria which an implementation program should include to satisfy the intent of USI A-46 for facilities located in low seismic regions, and identified specific areas where the licensee's current program appeared deficient when evaluated against the criteria. The primary areas of concern involved the adequacy of the licensee's safe shutdown path, the extensive use of

engineering judgment for verifying equipment seismic adequacy, and the lack of an adequate relay evaluation. By letter dated May 24, 1994 (Reference 2), the licensee provided information on the above areas of concern. The licensee also referred to recently published information relating to the seismic hazard of their plant sites to further support its position that its current scaled-back program is adequate. Essentially, the new information involved the resolution of differences between two sets of seismic hazard curves; one developed by Electric Power Research Institute (EPRI) and endorsed by the nuclear utilities, and the other developed by Lawrence Livermore National Laboratory (LLNL) and endorsed by the NRC. Earlier LLNL curves reflected a higher seismic hazard for the FPL plants, whereas recently revised LLNL curves are in closer agreement with the EPRI hazard estimates.

The following evaluation is primarily based on the information presented in the licensee's September 8, 1992 (Reference 3), July 15, 1993 (Reference 4), and May 5, 1994 submittals, but also considered the supporting/clarifying information provided during several meetings and conference calls with the licensee, and the information provided in References 5 through 17. Specifically, this evaluation discusses each of the major program elements identified in GL 87-02, and assesses the effectiveness of the licensee's proposed scaled-back program for addressing each of the elements. GL 87-02 essentially requested that the affected licensees develop a seismic adequacy verification program which includes the following major elements: (1) a safe shutdown path ensuring that the plant can be brought to and maintained in a hot shutdown condition for a minimum of 72 hours, (2) the mechanical and electrical equipment associated with the path, (3) the tanks and heat exchangers associated with the path, (4) the cable tray and conduit raceway systems associated with the path, and (5) the essential relays associated with the path.

2.0 DISCUSSION AND EVALUATION

The September 8, 1992, and July 15, 1993, submittals provided the USI A-46 implementation program summary reports for St. Lucie and Turkey Point respectively, and described the following: (1) the scope of the licensee's scaled-back program, (2) the walkdown procedures and evaluation criteria which the licensee used in its USI A-46 program, and (3) a summary of the implementation results. The May 5, 1994, submittal included the following information: (1) where applicable, a discussion as to how the implementation program satisfied the general criteria for plants located in areas with low seismic hazard, as described in the staff's letter dated February 24, 1994, (2) where applicable, a discussion as to why there was no safety concern in not fully meeting certain criteria, (3) a description of proposed changes to the program in order to address specific areas of concern identified by the staff, and (4) responses to the staff's Request for Additional Information (RAI) of June 23, 1993.

2.1 Adequacy of Safe Shutdown Path

In the September 8, 1992, and July 15, 1993, submittals, the licensee provided descriptions of how plant safe shutdown would be achieved and maintained at each site, and which plant systems would be needed. In addition, the licensee provided its safe shutdown equipment lists (SSEL) which identified the associated mechanical and electrical equipment. The licensee stated that the

safe shutdown paths chosen will ensure that hot shutdown is achieved and maintained for 8 hours rather than 72 hours as requested in GL 87-02. This issue was one of the major points of contention between the staff and the licensee, and its resolution is discussed below.

In the May 5, 1994, submittal, the licensee described additional non-seismic water sources and also use of the primary bleed and feed approach which can be used to maintain a hot shutdown condition for 72 hours at each site. However, the licensee indicated that the additional equipment associated with the non-seismic water sources would not be included in the SSEL and would not be seismically evaluated. The licensee's justification for not evaluating the equipment was that, because of the diversity of the available water sources for ensuring that hot shutdown can be maintained for 72 hours, and the low probability of an SSE, it can be assumed that at least one of the sources will be available following an SSE even if none are seismically verified. In addition, even if all of these sources are unavailable, the feed and bleed approach can be used which consists of equipment which has either been seismically qualified per the original plant design or else included in the USI A-46 verification program.

The licensee has identified a primary path and an alternate path to achieve hot shutdown. Both paths account for the following plant safety functions: reactivity control, inventory control, and residual heat removal. For both sites, decay heat removal is accomplished with the auxiliary feedwater system taking suction from the condensate storage tank, the steam generators and atmospheric steam dump valves. The steam generator code safety valves provide a back-up heat removal path should the atmospheric steam dump valves fail to function.

The licensee has provided various diverse water sources to remove reactor core decay heat at these plants. The first core decay heat removal cooling path is the auxiliary feedwater system (AFW) taking suction from the condensate storage tank (CST). The CST has a capacity of about 240,000 gallons which will last for the first 30 hours of core decay heat cooling for Turkey Point 3/4 and 19 hours for the St. Lucie plant. This period of time is sufficient to conduct post trip surveys and conduct contingency planning if required. Other operational cooling configurations available via this procedure are reestablishing main feed water flow, establishing feed flow using the standby steam generator feed pumps, and establishing feed flow from the other unit assuming it has not lost power. These are the long-term cooling sources that can provide indefinite decay heat removal.

If these cooling sources are unavailable, the operator will move to line up the numerous other non-seismic water sources located at the sites. These are:

Turkey Point 3/4

Raw water storage tank #1	500,000 gallons
Raw water storage tank #2	750,000 gallons
Demineralized water storage tank	500,000 gallons

St. Lucie Unit 1

City water tank #1	500,000 gallons
City water tank #2	500,000 gallons
Treated Water tank	500,000 gallons

Following 30 hours of cooling for Turkey Point Units 3 and 4 from the CST, and 19 hours of cooling for St. Lucie Unit 1 from the CST, an additional 190,000 gallons of cooling water is needed for Turkey Point Units 3 and 4, and 325,000 gallons of cooling water is needed for St. Lucie Unit 1 in order to provide core decay heat removal for 72 hours. In the unlikely event that all of these cooling sources are unavailable, the operator would implement the primary bleed and feed mode of cooling which uses the refueling water storage tank and the safety injection pumps. This emergency mode of cooling can provide indefinite decay heat removal. Components and equipment within this cooling path are either seismically qualified per original plant design or they were walked down by the GL-87-02 seismic review team and determined to be seismically adequate.

The numerous water sources, flow paths and time available for achieving the operational alignments provide reasonable assurance that adequate decay heat removal capability is available in the event of a seismic event. Symptom-based normal and emergency operating procedures for lining up cooling sources are available at these sites. Therefore, the staff concludes that the licensee's approach to achieve and maintain hot shutdown for 72 hours during a seismic event is acceptable.

2.2 Adequacy of In-structure Response Spectra

In Section 4.2.1 of attachments to Refs. 3 and 4, the licensee indicated that the floor response spectra for all equipment whose natural frequencies were less than 8 Hz, and all the equipment located significantly above about 40 ft. above grade were compared against 1.5 times the bounding spectrum, and the capacities of the equipment were found to be acceptable. The licensee did not discuss how the floor response spectra were generated. The pertinent parameters affecting the floor response spectra are ground response spectrum, structural damping, parameters used in soil structure interaction analysis, equipment damping, etc. The staff will review the adequacy of the floor response spectra during the planned site inspection.

2.3 Seismic Adequacy of Mechanical and Electrical Equipment

The licensee's procedures and criteria for verifying the seismic adequacy of mechanical and electrical equipment, and associated anchorage, was somewhat similar to that approved for the generic resolution of USI A-46. The licensee used a Seismic Review Team (SRT) to conduct a walkdown and evaluation of the SSE. The SRT consists of three members who are knowledgeable and experienced in seismic design, seismic analysis and test qualification practices for nuclear power plants. The program was based on a combination of experience data and plant walkdowns to demonstrate seismic adequacy, and referenced some of the same documents that are referenced in GIP-2 insofar as the criteria used to verify the equipment adequacy. The program included a review of the seismic adequacy of the equipment, its anchorage, and a check for seismic interaction concerns. The major difference between the licensee's program and

a GIP-2 program, however, was the extensive reliance on the expert judgment of the SRT, rather than performing explicit calculations, to demonstrate adequacy. In addition, the licensee's program produced minimal documentation as to what specific equipment and anchorage attributes were evaluated during the walkdown process. Also, the licensee stated that it considered safe shutdown valves, which are included in the scope of GL 87-02, to be inherently rugged, and therefore, did not include them in the seismic verification process. The staff considers that the verification of seismic adequacy of valves for safe shutdown an important part of the USI A-46 program. The staff will review the licensee's basis for determining the ruggedness of selected safe shutdown valves during the site inspections.

The licensee's application of the experience database is a good example of the extent to which the licensee employed SRT judgment. In order to use the experience database to verify equipment seismic capacity, it must first be demonstrated that the equipment item is similar to a general class of equipment included in the database. This is accomplished by comparing several physical attributes (e.g., size, weight, general configuration, etc.), and also applying specific caveats, which describe equipment-specific seismic vulnerabilities. The licensee stated that it had used the Senior Seismic Review and Advisory Panel (SSRAP) Report, Revision 4, to verify the applicability of the experience database. However, the staff's previous review of this report determined that it did not provide a complete description for each equipment category. This concern was communicated to the licensee in the June 23, 1993 RAI. The licensee responded that the SRT consisted of individuals intimately involved in the development of the criteria and caveats in GIP-2 for applying the database, and, as such, it was confident that the equipment and caveat descriptions in Rev. 4 of the SSRAP report, augmented by the SRT knowledge, provide sufficient bases for assessing equipment construction adequacy or equipment categories and/or anomalies addressed in the specific caveats (referred to in Rev. 2 of the GIP). In addition, the licensee stated that it performed a subsequent review of its walkdown data sheets and confirmed this conclusion. Because of the lack of documentation to demonstrate that the appropriate criteria are satisfied, the staff will confirm the adequacy of this part of the program during the site inspection.

For verifying the adequacy of the equipment anchorage, the licensee committed to the criteria in EPRI NP-5228-SL, Revision 1, which is the same criteria utilized in GIP-2. Seismic verification of equipment anchorage was accomplished through two screening reviews. Equipment anchorage had to pass both screens in order to be considered adequate without performing a seismic capacity calculation. The first level screen was a "design basis" screen; the equipment anchorage was reviewed to determine if it was in conformance with design basis drawings. The licensee stated that, regardless of whether the existing equipment anchorage could be shown to meet the EPRI NP-5228-SL, Revision 1 criteria, the anchorage was restored to the "as designed" configuration. The second level screen involved a determination by the SRT as to whether the anchorage was "obviously rugged" based on the EPRI criteria. A calculation demonstrating conformance with the EPRI criteria was performed for any equipment anchorage not judged to be "obviously rugged." Because of the lack of supporting documentation, the staff is not able to evaluate the technical adequacy of the SRT's judgments. Therefore, the staff will verify the adequacy of the SRT's judgments by performing detailed anchorage

inspections of a sample of SSE items during the aforementioned site inspection.

The licensee's program also did not include a check for adequate anchor bolt torque tightness, which is considered one of the most important attributes for ensuring the integrity of bolted expansion anchors. This issue was raised in the staff's RAI of June 23, 1993. The licensee responded that its program was based on utilizing a non-intrusive walkdown, and that it was not aware of any data comparing the capacity of bolts failing this test to bolts passing the test. Therefore, the licensee concluded that there was no justification to augment its program to include anchor bolt torque tightness testing. The staff maintains that torque tightness testing is an important part of the anchorage inspection criteria to which the licensee committed (EPRI NP-5228-SL), and will assess anchor bolt torque tightness of selected SSE items during the site inspection.

The licensee indicated that its programs included a review of potential seismic interactions primarily based on the procedures and criteria in EPRI NP-6041, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin." The licensee's program addressed potential interactions due to seismic II over I concerns, proximity of equipment, and flexibility of attached lines. Any unresolved interaction which could possibly prevent an equipment item from performing its safe shutdown function resulted in the equipment being identified as an outlier. The staff finds that the licensee's methodology for assessing seismic interactions is consistent with the methodology approved for the generic resolution of USI A-46 and is, therefore, acceptable. However, in the submittal for St. Lucie Unit 1, the licensee indicated that the SRT found many examples of poor seismic housekeeping such as unanchored temporary equipment, unlatched latches and unsecured drawers, lighting, gas bottles, ceilings, etc., which were noted by the SRT on the data sheets. The licensee's report did not discuss the resolution of these concerns. The adequacy of the licensee's implementation of this part of its program will be verified during the site inspection.

2.4 Seismic Adequacy of Tanks and Heat Exchangers

2.4.1 Turkey Points Unit 3 and 4

The licensee has evaluated a number of safety-related vertical steel tanks. The staff's review of the procedures and calculations indicate that the calculations are focused on demonstrating seismic margins (to be used for IPEEE program) and not on the design basis calculations required for resolution of USI A-46. Even after the implementation of the upgrades recommended by its consultants, the level of seismic margin earthquake that the tanks (Refueling Water Storage Tank and Condensate Storage tank) can withstand without exceeding the corresponding acceptance criteria has been calculated to be 0.11g. This is less than the SSE at the plant of 0.15g peak ground acceleration. Also, the Component Cooling Water Surge Tank and the Boric Acid Storage Tank have not been screened by the SRT. The staff will assess the licensee's resolution of concerns relating to tank capacities below demand level to satisfy the minimum requirements for stability of these tanks and safety functions of the attached piping. The staff review will focus on the methods of resolving these outliers during the site inspection.

2.4.2 St. Lucie Unit 1

The licensee's procedure for evaluating safe shutdown tanks and heat exchangers specified checking the number and size of anchor bolts and chairs, and determining whether the anchorage satisfied the applicable design basis requirements. The specific methodology and criteria for performing the assessment was not provided in the procedure. The licensee indicated that the majority of the items were determined to be acceptable based on conservative anchorage calculations which were reviewed and accepted by the SRT. The Component Cooling Water Tank Platform was found unacceptable, and was subsequently modified to include several additional bracing members. In addition, the SRT raised concerns with rusting on the anchor bolts of both Diesel Oil Storage Tanks. Subsequent calculations demonstrated that the degraded bolts were adequate to carry SSE loads. To prevent further bolt degradation, the licensee implemented a repair modification which included removing all corrosion products from the anchor bolts, application of protective coatings, installation of cover plates to enclose each anchor bolt pocket, and the application of a filler material which will protect the anchor bolts from future corrosion.

The licensee indicated that its scaled-back USI A-46 resolution program for safe shutdown tanks and heat exchangers also resolves concerns raised by USI A-40, "Seismic Design Basis," as it applies to tanks and heat exchangers. However, the resolution of USI A-40 required more than an assessment of the anchorage. This issue was raised in the staff's June 23, 1993 RAI, which requested that the licensee provide an assessment of the buckling mode of failure of tank shells, and also provide an assessment of anchor bolt and tank shell shear stresses considering the vertical component of the SSE. The licensee's May 5, 1994, response essentially stated that the conservative methodology used to evaluate the anchorage ensured that buckling of the tank shell would not occur. The licensee also stated that it has performed calculations to demonstrate the adequacy of the tanks with respect to bolt and shell shear stresses due to the vertical component of the SSE.

Based on the staff's review of the program summary report, it is not clear that the licensee's calculations are sufficient to demonstrate the overall adequacy of the tanks and heat exchangers for USI A-46 and USI A-40. Therefore, the staff will verify the adequacy of the licensee's program for assessing the overall adequacy of the safe shutdown tanks and heat exchangers, including any supplemental calculations to demonstrate the adequacy of the as-found condition of the tanks, during the site inspection.

2.5 Seismic Adequacy of Raceway Systems

The licensee stated that, based on the low seismicity of the plant sites, and the inherent ruggedness of raceway systems as evidenced by experience data, it did not include a specific evaluation of raceway systems in its programs. The licensee further stated that raceways were reviewed for inclusion in the scaled-back program, but were determined to be low contributors to seismic risk; as such, there was no apparent cost-benefit to including raceways in the seismic verification program for either Turkey Point Units 3 and 4, or St. Lucie Unit 1. The staff acknowledges that raceway systems have performed well in past earthquakes, but maintains that some limited review should be performed to ensure that there are no gross plant-specific design or

installation problems. Therefore, the St. Lucie Unit 1 and Turkey Point Units 3 and 4 raceway systems will be inspected and evaluated on a sampling basis during the site inspections. The staff will also ensure that the licensee has properly considered the weights of the fire barriers (attached to raceways) in establishing the seismic adequacy of the supports and anchorages of the raceway systems.

2.6 Evaluation of Essential Relays

The licensee's program for evaluating relays at each plant site included a screening process to determine if the plant utilized any of the low seismic ruggedness, or "Bad Actor" relays as listed in Appendix E of EPRI NP-7148-SL, in its safe shutdown path. The licensee indicated that of the 23 relay types identified in the EPRI document, only 13 were used in any application at St. Lucie or Turkey Point. Two additional relay types were eliminated from the list because it was determined that they could not possibly be used in safe shutdown equipment. Of the remaining 11 relay types, the licensee determined that 7 had been fully seismically qualified to IEEE 344-1975 either at St. Lucie Unit 2 or else at the Turkey Point facility.

The licensee indicated that it would perform further reviews to determine if its USI A-46 safe shutdown paths utilized any of the remaining four types of relays. If any are found, the licensee would determine if potential relay chatter could be addressed by plant procedural changes or through the use of operator action to reset the relay. If this is unsuccessful, the licensee indicated that the relay would be replaced with a seismically qualified relay. The staff finds this procedure acceptable for addressing "Bad Actor" relays. During the site inspection, the staff will review the specific seismic qualification documents (i.e., test results demonstrating conformance to IEEE 344-1975) for the seven relay types discussed above which were determined to be fully qualified, and the staff will also review the adequacy of procedural changes and/or operator actions for resetting relays.

With regard to essential relays other than "Bad Actors," the licensee indicated that, based on the low probability of a seismic event occurring at either the St. Lucie or Turkey Point site, and the lack of evidence to suggest that there has been or may be a problem with the anchorage of any relays installed in the plants, it does not feel that there will be any benefit gained by using its resources to verify the proper mounting of essential relays. The staff maintains that the evaluation of potential relay chatter is a major issue in the resolution of USI A-46. Further, even considering the low seismicity of the FPL sites, it is possible that in-cabinet amplification of SSE loads could be sufficient to cause relay chatter, especially if the relay is not properly mounted. Chatter in essential relays could potentially cause problems with the operability of safe shutdown equipment. Therefore, it is important that the relays be properly mounted to ensure that chatter would not likely occur. Consequently, the staff will verify, through sampling during the inspection effort, that relays in SSE are properly mounted per design/installation drawings and/or the manufacturer's recommendations.

2.7 Resolution of Outliers

2.7.1 Turkey Point Units 3 and 4

The licensee stated that every equipment item for which a concern or recommendation to improve the seismic capacity was made by the SRT was identified as an outlier. As a result, 35 equipment outliers were identified at Turkey Point Units 3 and 4. Each outlier was tracked until final resolution. In general, the outliers consisted of the following: (1) degraded/deficient equipment anchorage issues, (2) a potential seismic interaction concern, and (3) identification of seismically vulnerable details on specific equipment. For many of the equipment outliers, the licensee implemented hardware modifications, which were documented in Plant Change/Modification (PC/M) Packages, to increase the seismic resistance of the equipment. In addition, the as-found condition of each outlier was immediately evaluated for operability and none were determined to be potential plant operability concerns.

In its May 5, 1994, submittal, the licensee stated that all but two of the outliers at Turkey Point Units 3 and 4 had been completely resolved, and that the remaining two would be resolved by September 30, 1994. The staff finds that, if adequately implemented, the licensee's actions should be sufficient to resolve each of the outliers identified during the program implementation. During the site inspection, the staff will verify, on a sample basis, that the outliers have been adequately resolved.

2.7.2 St. Lucie Unit 1

The licensee reported that three equipment outliers were identified and evaluated during the walkdowns at St. Lucie Unit 1, and that none were determined to be potential plant operability concerns. The three outliers included the platform for the Component Cooling Water (CCW) Surge Tank, a 480V Motor Control Center (MCC), and a 480V Load Center for the Pressurizer Heater. The concern with the tank platform involved the strength of the platform support structure as well as potential seismic interactions. The MCC and the load center were identified as outliers because of potential anchorage concerns. The licensee indicated that all three outliers were resolved by implementing hardware modifications.

The licensee also indicated that, because of some concerns identified during the walkdowns, it felt it was prudent to implement modifications for three other items identified as non-conformances even though the items had passed the screening reviews and were judged adequate by the SRT. These three items included the anchor bolts for the Diesel Oil Storage (DOS) Tanks, a battery charger, and a 125V DC Bus. For the DOS tanks, the licensee implemented a modification to remove corrosion from the anchor bolts, and provide for the application of protective coatings, cover plates, and filler material to protect the bolts from future corrosion. For the battery charger, the licensee stated that it upgraded the anchorage even though the existing anchorage capacity was determined to be acceptable for the seismic demand. For the 125V DC Bus, the welds which attach this cabinet to its base angle iron were found to have burned through the cabinet wall. The licensee stated that this item was not considered an outlier because it determined that the anchorage would be acceptable if the welds were repaired. The licensee's

resolution was to provide supplemental anchorage. The licensee stated that the modifications for all of the outliers and non-conformances were implemented during a subsequent outage in accordance with FPL Minor Engineering Package (MEP) PCM 152-190M.

The staff finds that the licensee has taken adequate actions to resolve outliers and non-conformances identified during the program implementation. However, it is not clear why the 125V DC Bus was not identified as an outlier in its USI A-46 program. Nonetheless, since the licensee has indicated that a modification was implemented to resolve any anchorage concerns with the anchorage for this equipment item, the staff considers it resolved.

3.0 SUMMARY OF MAJOR STAFF CONCERNS

Based on the discussion above, the staff has identified several concerns which must be further evaluated in order to confirm the adequacy of the licensee's program implementation. These issues will be the primary focus of future staff inspections at St. Lucie Unit 1 and Turkey Point Units 3 and 4, and are described below:

1. The staff will review the methods used to develop the in-structure response spectra for performing equipment evaluations.

2. The staff will verify, by sampling, that the SSE is similar to equipment in the experience database.

3. The staff will review selected SSE items (e.g., valves, raceway systems, etc.) which were excluded from the seismic verification process based on the licensee's position that these items are inherently rugged.

4. Because of the extensive use of SRT judgment for screening out equipment anchorage, and the lack of documentation to support the judgments, the staff will verify, by sampling, that the criteria in EPRI NP-5288-SL, Revision 1 has been adequately addressed.

5. The staff will verify, during the site inspection, the adequacy of the licensee's implementation of the methodology for assessing seismic interactions.

6. The staff will review the capacity versus demand evaluations for selected equipment items to confirm the appropriateness of the licensee's method of comparing capacity and demand at the plant level rather than for each individual equipment item.

7. The staff will review the licensee's evaluation of tanks and heat exchangers to verify the adequacy of the licensee's calculations, and to ensure that the program adequately resolves the outliers and concerns identified in Section 2.4. This will resolve the seismic adequacy of tank issues for USI A-40 and USI A-46.

8. During the site inspection, the staff will review the specific seismic qualification documents for the "Bad Actor" relays and the adequacy of procedural changes and/or operator actions for resetting relays.

9. The staff will verify, by sampling, the installation adequacy of relays in SSE.

10. The staff will review the licensee's methods for resolving outliers, including any needed revisions to plant procedures to address the several issues involving poor housekeeping.

4.0 CONCLUSIONS

Based on the information provided in the licensee's submittals dated September 8, 1992, July 15, 1993, and May 5, 1994, and the supporting and clarifying information provided in References 5 through 17 and during several meetings and conference calls, the staff finds that, pending staff verification of the appropriateness of the licensee's many program assumptions and adequacy of the implementation activities, the licensee's scaled-back program is, in general, adequate to resolve the primary concern of USI A-46. However, as discussed in Section 3.0 of this evaluation, the staff has identified several areas of concern which must be further evaluated before a final determination can be reached regarding the overall program adequacy. Consequently, the staff intends to conduct site inspections in order to fully evaluate the licensee's USI A-46 program implementation, with special emphasis on each of the concerns noted in Section 3.0 of this report. It is noted that the site inspections will not be limited to the areas described in Section 3.0, but will be used to verify the adequacy of the entire program. The closure of USI A-46 for each FPL plant will be documented in separate supplements to this Safety Evaluation following the resolution of all of the above concerns, and any additional issues which may be identified during the site inspections.

5.0 REFERENCES

1. Letter from J. Norris and L. Raghavan, USNRC, to J.H. Goldberg, FPL, dated February 24, 1994.

2. Letter from W. H. Bolke, FPL, to USNRC, dated May 5, 1994.

3. Letter from W. H. Bolke, FPL, to USNRC, dated September 8, 1992.

4. Letter from W. H. Bolke, FPL, to USNRC, dated July 15, 1993.

5. "Summary of Meeting Held With Florida Power and Light Company (FPL) on June 2, 1988, Regarding Seismic Qualification of Equipment (USI A-46 Generic Letter 87-02)," June 16, 1988.

6. Letter from W. F. Conway, FPL, to USNRC, dated August 4, 1988.

7. Letter from J. A. Norris and G. E. Edison, USNRC, to C. O. Woody, FPL, dated August 4, 1989.

8. Letter from J. H. Goldberg, FPL, to USNRC, dated October 2, 1989.

9. Letter from J. H. Goldberg, FPL, to USNRC, dated December 13, 1989.

10. Letter from USNRC, to J. H. Goldberg, FPL, dated January 23, 1991.

11. Letter from W. H. Bolke, FPL, to USNRC, dated February 27, 1991.

12. "Summary of Meeting Between FPL and NRC Staff," dated March 18, 1992.

13. Letter from W. H. Bolke, FPL, to USNRC, dated May 15, 1992.

14. Letter from J. A. Norris and L. Raghavan, USNRC, to J. H. Goldberg, FPL, dated July 28, 1992.

15. Letter from USNRC, to FPL, dated June 23, 1993.

16. "Seismic Qualification of Mechanical and Electrical Equipment - USI A-46 (summary of July 20, 1993, meeting)," dated July 28, 1993.

17. Letter from W. H. Bolke, FPL, to USNRC, dated September 15, 1993.