FEB 11 1985

Docket Nos.: 50-498
and 50-499

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Docket File 50-498/499

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Mr. J. H. Goldberg
Vice President - Nuclear Engineering
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Houston Lighting and Power Company
Post Office Box 1700
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Dear Mr. Goldberg:

Subject: South Texas Project, Units 1 and 2 - Request for Additional Information

The NRC staff has determined that additional information is required for the safety review of the South Texas Project operating license application. Enclosed are the following Requests for Additional Information (RAIs):

Geosciences Branch (GSB) (230.05-.07) & (231.07-.19)
Environmental & Hydrologic Engineering Branch (EHEB) (240.1-.10) & (290.1-.9 questions from review of ER-OL)
Materials Engineering Branch (METB) (250.1-.7)
Accident Evaluation Branch (AEB) (450.02-.05)
Procedures and Systems Review Branch Branch (PSRB) (640.08, 640.22-.32)

The staff is available to discuss all of the above RAIs as may be required to provide any necessary clarification. Your responses to these RAIs should be forwarded to the NRC staff by March 1985. The Project Manager (Mr. V. Nerses 301-492-7238) is available to respond to any questions your staff may have.

Sincerely,

ORIGINAL SIGNED BY

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosure:
RAIs

cc: See next page

OELB#3	DL:LB#3
VNerses/yt	GWKnighton
1/28/85	2/7/85

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REQUEST FOR ADDITIONAL INFORMATION
SOUTH TEXAS PROJECT
HOUSTON LIGHT AND POWER
DOCKET NOS. STN 50-498 AND STN 50-499
SEISMOLOGY SECTION

230.05 Recent installations of seismic networks in the Central U. S. have resulted in significant additions to the history of the site area (cf East Texas Seismic Network operated by the University of Texas). Many of the earthquakes listed in Tables 2.5.2-3 and 2.5.2-4 of the STP PSAR have been relocated and/or reevaluated. For instance the 1964 earthquakes in the vicinity of Hemp hill, East Texas are considered a swarm of events with approximately the same epicenter, the largest of which had an estimated magnitude of 4.4 (m_b) (Reference 1). On November 5, 1963 an earthquake occurred in the Gulf of Mexico with a magnitude of m_b = 4.8 (determined from instrumental data).

Update the above earthquake listings and maps to show the most recent information regarding both historical and instrumental seismicity. Include magnitude estimates wherever possible. Sources include references 1, 2, 3 and 4.

230.06 Carlson (Reference 1) reports that the 1932 Mexia earthquake (31.7N96.4W; m_b = 3.9), the 1957 Gladewater earthquake (32.6N94.7W; M_b = 4.3) and the 1983 Fashing earthquake (28.83N98.19W; m_b = 3.0) occurred near large oil and/or gas fields, suggesting that a relation between seismicity and fluid withdrawal could exist. In what ways were the conditions which led to these or other "induced" earthquakes similar to or different from those in the oil/gas fields surrounding the site. What is the potential of ground motion at the site from induced shallow earthquakes.

230.07 The site is considered to be located in the Gulf Coast Seismotectonic province (FSAR Figure 2.5.2-4.) The historic earthquake with the highest intensity within this province was determined to be the October 19, 1930, Donaldsonville, Louisiana earthquake. Table 2.5.2-3 of the STP PSAR lists the intensity as VII (Rossi-Forel). Barstow (Reference 2) list the intensity as VI (Modified Mercalli) and the magnitude as 4.7 (mb). The largest instrumentally recorded earthquake within this province is the November 5, 1963 event located in the Gulf of Mexico (magnitude m_b = 4.8).

In discussing the maximum earthquake potential specific mention is made that local soil conditions probably influenced the reported intensities of the 1930, Donaldsonville earthquake (cf FSAR pp. 2.5.2-15, 19, 20). Ground motion estimates for the seismic design of the STP were based on intensity-peak acceleration relationships (Reference FSAR p. 2.5.2-18). Selecting the appropriate maximum earthquake based on magnitude estimates, and using distances of 10 to 15 Km, compare the South Texas Design Spectrum to spectra derived from published magnitude-acceleration/velocity relationships such as Nuttli et al (References 5 and 6). To obtain the appropriate spectral acceleration and velocity ordinates refer to amplification factors proposed by Newmark and Hall (Reference 7). Compare design spectra to the 84th percentile ground motion estimates and discuss the significance of exceedances if any.

Reference 1: Carslon, Steven M., "Investigations of recent and historical seismicity in East Texas."
MA thesis May 1984 University of Texas at Austin

Reference 2: Barstow, N.L., K. G. Brill, O. W. Nuttli, P. W. Pomeroy. "An Approach to Seismic Zonation for Siting Nuclear Electric Power Generating Facilities in the Eastern United States" (NUREG/CR-1577)., May 1981.

Reference 3: NOAA "Earthquakes of the United States" Publication 41-1, revised edition (Throng 1970). 1982 Reprint with Supplement (1971-1980) U. S. Department of Commerce.

Reference 4: Pennington, W. D. and S. M. Carlson "Observations from the East Texas Seismic Network" Bureau of Economic Geology, University of Texas, Austin, Texas.

Reference 5: Nuttli, O. W. and R. B. Herrmann
"Strong Ground Motion of Mississippi Valley Earthquakes"
Journal of Technical Topics in Engineering Vol. 110 No. 1, May 1984.

Reference 6: Nuttli. O. W., R. Rodriquez, and R. B. Herrmann
"Strong Ground Motion Studies for South Carolina Earthquakes"
NUREG/CR-3755. April 1984.

Reference 7: Newmark, N.M and W. J. Hall
"Development of Criteria for Seismic Review of Selected Nuclear Nuclear Power Plants"
NUREG/CR-0098. May 1978.

REQUESTS FOR ADDITIONAL INFORMATION
SOUTH TEXAS PROJECT
HOUSTON LIGHTING AND POWER
DOCKET NOS. STN 50-498, STN 50-499

231.07 (2.5.1.1) Please designate and identify on an appropriate FSAR figure the locations of the post-Construction Permit Safety Evaluation Report oil and gas exploration holes within five miles of the plant site. Provide appropriate FSAR text descriptions of these holes (well numbers, designation, completion dates, etc.) such as have been provided for other wells included in FSAR Section 2.5.1.1.6.6.7.2.

231.08 (2.5.1.1) Provide a general summary of the near site oil and gas exploration/production that has taken place in the site area since December, 1982. Designate by appropriate text and FSAR figure revision the locations of any completed or newly-permitted exploratory test wells and seismic reflection lines and any changes in the structural interpretation of the site area resulting from these new data. Include in this response the completion dates of all post-CP exploratory wells and seismic reflection surveys including the four TXO/Seis Pros Inc. lines shown on FSAR Figure 2.5.1-6.

231.09 (2.5.1.1) Did HL&P's consultant, Miller and Lents, consider the post-CP SER reflection lines (Seis Pros. Inc. and TXO) in their assessment of the hydrocarbon potential within the STP site boundaries? Has any hydrocarbon exploration been conducted within five miles of the STP plant site since completion of the Miller-Lents report?

231.10 (2.5.1.1) Please provide or make available for staff review, the following documents/data:

1. The Miller and Lents final report assessing STP site hydrocarbon potential.

2. The most recent Cambe Geological Services map covering the STP site area.

3. Post-CP SER seismic reflection lines (including all background information required to interpret the reflection data) within five miles of the STP site.

231.11 (2.5.1.1) The structural interpretation shown on FSAR Figure 2.5.1-8 (Contour Map of Horizon at Approximately 5,400 Foot Depth) differs from that shown on PSAR Figure 2.5.1-42I (Fault Plane Contour Map). For example, the east-west trending fault shown in the PSAR as extending within 1,000 feet of the ground surface (and consequently cutting the plane of the 5,400 foot depth FSAR figure) about two miles north of the plant site is not shown on FSAR Figure 2.5.1-8. Please discuss, making all text and figure revisions as appropriate.

231.12 (2.5.1.1) Based upon reflection and well log data, provide structural interpretation cross sections along those portions of the post-CP seismic reflection lines (Seis Pros. Inc. Line 4M ad TXO Lines 1 and 2) located within five miles of the plant site.

231.13 (2.5.1.1) Since considerable subsurface exploration (at least four seismic reflection lines and numerous oil/gas exploratory wells) has been conducted within five miles of the plant site and beyond since the CP Safety Evaluation Report please revise PSAR Figure 2.5.1-42I (Fault Plane Contour Map) for inclusion as a FSAR figure.

231.14 (2.5.1.2) Provide the basis for terminating the surfaceward projection of the fault shown on reflection line 2M, shot point 140, (FSAR Figure 2.5.1-12) at an approximate depth of 1,400 feet rather than projecting the fault plane closer to the ground surface.

231.15 (2.5.1.1) Since the minimum age of the growth fault north of the plant site is based upon the depth of the Pleistocene Beaumont-Lissie contact (p. 2.5.1-108), provide the on-site basis for concluding that this contact occurs above a depth of 1,000 feet. The 1,000 foot thickness is not in agreement with the staff's Construction Permit Safety Evaluation Report (NUREG-75/075, page 2-20) which states that the "thickness of the Beaumont underlying the site is estimated at 1,400 feet."

231.16 (2.5.1.2) Has an age determination been made of the horizon represented by the 0.255s seismic reflector located between wells #5 and #108 on FSAR Figure 2.5.1-7? If so, provide the basis for this determination.

231.17 (2.5.1.1) It would seem more appropriate that an exploratory well such as #12, which is located within 1,000 feet or less of the structural cross section should be shown on FSAR Figure 2.5.1-7, rather than well #108 which is located approximately five miles to the east of the line. Discuss.

231.18 (2.5.1.2) Since much of the information presented in Appendix 2.5.C, Geotechnical Monitoring, has not been amended for some time (for example, Figure 2.5.C-25B, Regional Subsidence and Deep Aquifer Piezometer Differential Decline, has not been revised since March, 1983), please update this appendix and other appropriate FSAR sections to reflect the most current data and conclusions.

231.19 (2.5.3) Using guidance contained in the Standard Review Plan conduct a lineament analysis of an area within at least five miles of the site using imagery derived from Landsat, Skylab and other appropriate sources not included in the PSAR lineament study (PSAR Figure 2.5.1-44). In addition to identification, discuss the possible origin and address the safety significance of any lineament which may be structurally controlled. Conduct field truth investigations as required. As indicated by the Standard Review Plan, provide the staff with a copy of the imagery used in your analysis.

South Texas Project
Hydrologic Engineering Issues

240.1
Sec 2.4.2.2
Page 2.4-10

Your reference to Regulatory Guide 1.59 on page 2.4-10 lists the August 1973 version. Revision 2 dated 1977 is the latest revision to the regulatory guide and will be used for the review of the STP Operating License application. Your reference should be revised accordingly and you should insure that your evaluation conforms to Revision 2 of Regulatory Guide 1.59. If the plant design does not allow compliance with the suggested criteria you should provide a full discussion of any deviations for staff review and consideration.

240.2
Sec 3.4.1.2
Page 3.4-2

In the last full paragraph on page 3.4-2 you discuss the provisions for flood protection for all exterior seismic Category I building openings below the maximum steady state flood level. Are there any interior openings (for example; openings from non-Category I structures) to seismic Category I structures that are below the maximum steady-state flood level? If there are such openings, provide an analyses to show how flood waters are prevented from entering safety-related areas.

240.3
Sec 3.4.1.2
Page 3.4-3

You state that external flood water cannot enter through drains in seismic Category I structures. This statement is too general. You should at least identify the drain systems in seismic Category I structures that have external discharge capability and briefly describe how external flood water is prevented from entering safety-related areas and reference the FSAR section that contains a complete description. The valves would have to be normally closed since the design basis flood event does not give any warning time. This discussion should also be cross-referenced in FSAR Section 2.4.10.

240.4
Sec 2.4.10

Provide a discussion of flood protection measures employed at STP to preclude floodwater from entering safety-related buildings or areas; i.e. flood doors, hatches, covers, vent pipes (fuel oil), etc. The design basis flood for STP results from the failure of the MCR embankment which would not allow any warning time to implement flood protection. Therefore, an alarm system is required to insure that flood closure mechanisms are normally closed. Provide a discussion of the alarm system. Also, all closure mechanisms must open into the direction of the flood water such that the force of the flood water will hold the door or cover in the closed position. Please discuss. Are there any emergency procedures associated with the flood protection measures? If so, please discuss.

240.5 Sec 2.4.3	Considering the existing or proposed reservoirs upstream of STP with storage capacities (top of dam) of 400,000 ac-ft or more, are there any of these dams that cannot safely pass (without overtopping) 40% of the PMF (or SPF) followed in 3 to 5 days by a PMF? If any of the larger upstream dams would be overtopped during the above postulated scenario, then you need to discuss the effects on other downstream reservoirs and/or STP, considering concurrent rainfall (or SPF) on the intervening drainage areas.
240.6 Sec 2.4.13	The groundwater contour maps shown in Figures 2.4.13-17 and 2.4.13-19 for the lower and upper portions of the shallow aquifer zone are based on 1973 and 1974 data. Revise these figures to include the more recent data from the STP groundwater monitoring program.
240.7 Sec 2.4.13.3.2 Page 2.4-78	Provide a reference for your statement that well no. 42 "...is reported to not be in use as a domestic source of water." Alternatively, delete the statement.
240.8 Sec 2.4.13.5	Furnish the design basis groundwater level that is used with combined seismic events. Current staff criteria requires the approximate 25-year groundwater level with an SSE.
240.9 Sec 9.2.5	Provide the numerical value of the heat rejected to the Essential Cooling Pond (ECP) during normal operation (100% power) and the pond temperature that was assumed for the start of the transient analysis (normal operation 20 days prior to accident) for pond temperature.
240.10 Sec 2.4.2.3	Provide drawings (or reference existing drawings) that show the roofs of safety-related buildings with the location of parapets and PMP scuppers. Provide a master plan that shows the relative locations of safety-related roofs (to evaluate PMP drainage between roofs). Show on the drawings where PMP scupper discharge is directed to an adjoining safety-related roof. An outline sketch, to scale, may be sufficient, possibly just the master plan, as long as it allows computation of roof surface areas and shows the requested information. We note that for STP the design rainfall was taken from Hydrometeorological Report (HMR) #33. However, current guidance requires the staff to review STP using HMR 51 and 52. Should the staff evaluations using the more recent procedures indicate significant concerns, then additional discussions with the applicant may be required.

Environmental Engineering Section, EHEB
Requests for Additional Information
on South Texas Project
Environmental Report-OL Stage
Draft Amendment 7

290.1 (ER-OL Sec 3.9.1)	Page 3.9-1 - All the substations mentioned in text need to be shown on Figure 3.9-1, and 4.2-1.
290.2 (ER-OL Sec 3.9)	It is not stated that the transmission lines will be built according to the National Electrical Safety Code. If this is the case it should be so stated.
290.3 (ER-OL)	Figures 4.2-2, 4.2-3a, 4.2-3c should have the name of the appropriate substation indicated.
290.4 (ER-OL)	Figure 2.7-8 prime farmland is missing; also 2.7-7.
291.1 (ER-OL Sec 2.7.2)	Update the description of aquatic ecology on the basis of new data and information collected since issuance of the FES-CP.
291.2 (ER-OL Sec 2.7.2)	Update the description of threatened and endangered aquatic species included on the State of Texas and the Federal lists.
291.3 (ER-OL Sec 2.7.2)	Update the estimates of annual commercial and recreational finfish and shellfish harvests in the vicinity of the STP. The estimates should be based on an average of the five most recent years of available data and encompass surface waters 80 km (50 miles) downstream of the site.
291.4 (ER-OL Sec 2.7.2)	Describe the distribution and current abundance of the Asiatic clam, Corbicula, in the Colorado River in the vicinity of the STP and in the STP cooling reservoir and essential cooling pond.
291.5 (ER-OL Sec 3.4)	During times of collection of excessive amounts of fish on the traveling water screens, the fish are to be sluiced to the River according to the ER-OL. Provide the location of the sluice return at the river in relation to the intake and discharge, and provide the design specifications of the sluice-return system.
291.6 (ER-OL Sec 5.1)	Update the assessment of entrainment and impingement impacts on the basis of the ASLB required studies (see LBP-75-46, ASLB Findings No. 44 and No. 48).

291.7 Provide a copy of the information submitted by the H.L.&P on June 28, 1982 regarding the Clean Water Act Section 316(b) Demonstration (see NPDES Permit Part III, "Other Conditions" No. 11).

291.8 Provide a bibliographic listing and reprint copies of all journal and professional conference proceedings publications (by applicant and applicant's consultants) that have resulted from aquatic studies and monitoring of the STP site vicinity.

291.9 Provide a bibliographic listing of all technical papers that have been prepared by state and Federal agencies and private organizations that resulted from studies or concerns with aquatic resources of the STP site vicinity.

SOUTH TEXAS PROJECT, UNITS 1 AND 2
DOCKET NUMBERS 50-498/499

MATERIALS ENGINEERING BRANCH
INSERVICE INSPECTION SECTION

REVIEW OF FSAR AND REQUEST FOR ADDITIONAL INFORMATION

I. Scope/Status of Review

Review of the inservice inspection (ISI) programs are based on the requirements of 10 CFR Part 50, Paragraph 50.55a(g) as defined in Section XI of the ASME Code, "Rules for Inservice Inspection of Nuclear Power Plant Components." ISI includes a preservice inspection (PSI) prior to the initial plant startup. The ISI Section of the Materials Engineering Branch is responsible for review of the ISI/PSI program for compliance to the requirements of 10 CFR 50.55a(g). The staff has reviewed the available information in the FSAR.

In order to complete the input to Sections 5.2.4, 5.4.2.2, and 6.6 of the SER, the staff requires the following additional information.

II. Request for Additional Information Regarding the Preservice Inspection (PSI) Program

250.1 The Applicant's response to FSAR question 121.1 dated October 9, 1978 and question 121.5 dated May 4, 1979, regarding the staff's request for submittal of the PSI program, states that "Upon completion of it's development, the preservice plan will be submitted to the NRC six months prior to commercial operation."

The Applicant's response is not acceptable. In order to complete the input to SER Sections 5.2.4, 5.4.2.2, and 6.6, the staff requires that the PSI program be submitted for review prior to starting examinations. The PSI program should include reference to the ASME Code Section XI Edition and Addenda that will be used for the selection of components for examinations, lists of the components subject to examination, a description of the components exempt from examination by the Code exclusion criteria in IWB-1220 and IWC-1220, the examination isometric drawings for ASME Code Class 1 and 2 components and a detailed description of the inspection plan for component supports.

Paragraph 50.55a(b)(2)(iv) requires that ASME Code Class 2 piping welds in the Residual Heat Removal Systems, Emergency Core Cooling Systems, and Containment Heat Removal Systems shall be examined. These systems should not be completely exempted from preservice volumetric examination based on Section XI exclusion criteria contained in IWC-1220. To satisfy the inspection requirements of General Design Criteria 36, 39, 42, and 45, the PSI program must include volumetric examination of a representative sample of welds in the RHR, ECCS, and Containment Heat Removal Systems.

250.2 Inservice inspection and maintenance access considerations may not have been given adequate attention during the design and analysis of pipe whip restraints. During the PSI, the Applicant should document all ASME Code, Section XI examination requirements that are impractical to perform, should identify the limitation to examination of specific welds, and should provide the staff with a technical justification.

250.3 Plans for preservice examination of the reactor pressure vessel welds should address the degree of compliance with Regulatory Guide 1.150. Discuss the near-surface examination, the resolution of the system with regards to detection of service-induced flaws, and the use of electronic gating.

250.4 If the reactor coolant pipe and/or fittings are fabricated from SA351, Grade CF8A (centrifugal cast stainless steel), discuss the effectiveness of your ultrasonic examination procedures and the ability of the instrumentation to detect flaws, if they exist, in the volume of the cast stainless steel weldments required to be examined by the regulations.

250.5 The ASME Code, Section XI, 1977 Edition with Addenda through Summer 1978 and 1980 Edition specified the use of Appendix III of Section XI for ferritic piping welds. If this requirement is not applicable (for example, for austenitic piping welds), ultrasonic examination is required by Section XI to be conducted in accordance with the requirements of Article 5 of Section V, as amended by IWA-2232. A technical justification is required when any alternatives are used. If Section XI, Appendix III, Supplement 7, will be used for the examination of austenitic piping welds, discuss the following:

1. all modifications permitted by Supplement 7,

2. methods of qualifying the procedure for examination through the weld if complete examination is to be considered for an examination conducted with only one side access.

When using either Article 5 of Section V or Appendix III of Section XI for examination of either ferritic or austenitic piping welds, the following should be incorporated into the examination procedure:

1. Any crack-like indication, regardless of ultrasonic amplitude, discovered during examination of piping welds or adjacent base metal materials should be recorded and investigated by a Level II or Level III examiner to the extent necessary to determine the shape, identity, and location of the reflector.

2. The Owner should evaluate and take corrective action for the disposition of any indication investigated and found to be other than geometrical or metallurgical in nature.

250.6 All preservice examination requirements defined in Section XI of the ASME Code that have been determined to be impractical must be identified and a supporting technical justification must be provided. The relief requests should include at least the following information:

1. For ASME Code Class 1 and 2 components, provide a table similar to IWB-2500 and IWC-2500 confirming that either the entire Section XI preservice examination was performed on the component or relief is requested with a technical justification supporting your conclusion.

2. Where relief is requested for pressure retaining welds in the reactor vessel, identify the specific welds that did not receive a 100% preservice ultrasonic examination and estimate the extent of the examination that was performed.

3. Where relief is requested for piping system welds (Examination Category B-J, C-F, and C-G), provide a list of the specific welds that did not receive a complete Section XI preservice examination including drawing or isometric identification number, system, weld number, and physical configuration (e.g., pipe-to-nozzle weld, etc.). Estimate the extent of the preservice examination that was performed. When the volumetric examination was performed from one side of the weld, discuss whether the entire weld volume and the heat-affected-zone (HAZ) and base metal on the far side of the weld were examined. State the primary reason that a specific examination is impractical (e.g., support or component restricts access, fitting prevents adequate ultrasonic coupling on one side, component-to-component weld prevents ultrasonic examination, etc.). Indicate any alternative or supplemental examinations performed and method(s) of fabrication examination.

250.7 Paragraph 6.6.8 of the FSAR addresses augmented ISI to protect against postulated piping failures in high energy fluid system piping. High-energy fluid system piping between containment isolation valves should receive augmented ISI in accordance with NUREG-0800, Standard Review Plan, Section 6.6, Paragraphs I.7 and II.7. Confirm that the augmented inspection requirement is planned for high energy system piping until after the outboard restraint. If the restraint is located at the isolation valve, a classification change at the valve interface is acceptable. Confirm that welds between outboard containment isolation valves and piping restraints are included in the PSI and ISI program plan.

Accident Evaluation Branch

SOUTH TEXAS PROJECT OL STAGE QUESTIONS

450.02 Please provide the basis for using the dilution volumes shown in Table 15.7-9 of the FSAR in the analyses of the radiological consequences of fuel handling accidents inside containment and in the fuel handling building.

450.03 Identify those portions, if any, of the control room envelope HVAC system's duct work which are exposed to negative pressure relative to unfiltered surroundings during emergency conditions (e.g., duct with charging fan located outside the control room envelope). Assess the contribution to control room personnel doses from this additional source of infiltration.

450.04 Please provide the time to isolation of the control room envelope upon detection of high concentrations of hazardous chemicals at the outside air intake.

450.05 Section 6.4.1.7 of the FSAR states that a supply of self-contained breathing apparatus is provided within the control room envelope. How many units are available for use? How does this number meet the guidance of Regulatory Guide 1.78 (position C.14)?

STAFF POSITIONS AND REQUEST
FOR ADDITIONAL INFORMATION

SOUTH TEXAS PROJECT, UNITS 1 AND 2

640.08 (14.2.12) The response to Regulatory Guide 1.68, Appendix A.5.w, is to be provided later. Provide either the information or a schedule for its delivery.

640.22 (14.2.7) (14.2.12) Modify FSAR Table 3.12-1 (Regulatory Guide Matrix), Section 14.2.7 (Conformance of Test Program with Regulatory Guides), Section 14.2.12.2, test description 71 (Instrument Air System Preoperational Test Summary), and the responses to Items 423.17 (2) and 423.23 (z), as appropriate, to demonstrate conformance with Regulatory Guide 1.68.3, Preoperational Testing of Instrument and Control Air Systems.

640.23 (14.2.12) The response to Item 423.23 (dd) is inadequate. Modify FSAR Section 14.2.12.2, test description 76, (Safety Injection System Train A, B, and C Preoperational Test Summary) to demonstrate that containment sump recirculation performance is in accordance with Regulatory Guide 1.79, Preoperational Testing of Emergency Core Cooling Systems for Pressurized Water Reactors, Position 1.b(2).

640.24 (14.2.1) (14.2.4) (14.2.5) The response to Item 423.31 is inadequate. FSAR Sections 14.2.1.2 (Phase II Testing - Preoperational Tests) and 14.2.4.1 (Test Program Administrative Controls) state that certain preoperational tests will be conducted following fuel loading. FSAR Section 14.2.5 (Review, Evaluation, and Approval of Test Results) states that all preoperational tests are planned to be completed prior to fuel loading. If any test summarized in FSAR Section 14.2.12.2 (Phase II Testing) will not be completed prior to fuel loading, identify those tests and provide the information requested in Item 423.5. If all preoperational tests are planned to be completed prior to fuel loading, modify FSAR Sections 14.2.1.2 and 14.2.4.1 accordingly.

640.25 (14.2.4) FSAR Sections 14.2.4.1 (Test Program Administrative Controls) and 14.2.11.2 (Overlap of Unit 1 Test Program with Unit 2 Test Program) reference FSAR Figure 14.2-1, identified in the FSAR Chapter 14 Table of Contents as Level 1 Startup Schedule. Either provide this figure, or delete it and modify the aforementioned sections accordingly.

640.26 (14.2.12) The response to Item 640.7 is not acceptable. Modify existing preoperational and startup test abstracts to indicate the source of acceptance criteria to be used in determining test adequacy.

640.27 (14.2.12) The response to Item 640.10 is not appropriate. Verify that the essential cooling pond is tested to verify adequate NPSH and the absence of vortexing over the range of pond level from maximum to the minimum calculated 30 days following LOCA.

640.28 (14.2.12) The response to Item 640.14 (1) is inadequate. Modify appropriate test abstracts to verify that installed DC loads will function at the minimum allowable battery terminal voltage for the discharge load test.

640.29 (14.2.12) The response to Item 640.15 is inadequate. FSAR Section 14.2.12.2, test description 2 (Unit Standby Transformer Preoperational Test Summary), testing of the automatic transfer feature should be modified to test the capability to accept transfer of the other unit's ESF loads while supplying its own unit's normal loads, not while supplying its own unit's ESF loads. Alternatively, provide information which demonstrates the current testing method is technically justified.

640.30 (14.2.12) The response to Item 640.16 is incomplete.

a. Performance testing of pressurizer PORVS will be addressed later via response to item II.D.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements." Provide a schedule for the response.

b. Describe the manufacturer's test of valve capacity as described in response to Item 423.29 in sufficient detail or provide a test abstract to demonstrate that the maximum capacity of any single steam dump or relief valve is less than the value assumed in FSAR Section 15.1.4 (Inadvertent Opening of a Steam Generator or Safety Valve Causing a Depressurization of the Main Steam System).

640.31 (14.2.12) The response to Item 640.19 (5)(b) is inadequate. Modify FSAR Section 14.2.12.3, test description 20 (Plant Response to Load Changes Test), to include plant dynamic response to design ramp load changes.

640.32 (App. 7A) (14.2.12) FSAR Appendix 7A (Post-TMI Requirements to NUREG-0737 "Clarification of TMI Action Plan Requirements"), Section I.G.1 (Training Requirements) should include or reference the information contained in response to Item 640.21.