



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001  
 October 26, 1998

*50-250/231*

Mr. Thomas F. Plunckett  
 President - Nuclear Division  
 Florida Power and Light Company  
 P. O. Box 14000  
 Juno Beach, Florida 33408-0420

**SUBJECT: GENERIC LETTER (GL) 97-01, "DEGRADATION OF CRDM/CEDM NOZZLE AND OTHER VESSEL CLOSURE HEAD PENETRATIONS," RESPONSES FOR TURKEY POINT PLANT, UNITS 3 AND 4 (TAC NOS. M98606 AND M98607)**

Dear Mr. Plunckett:

On April 1, 1997, the U.S. Nuclear Regulatory Commission (NRC) staff issued Generic Letter (GL) 97-01, "Degradation of CRDM [Control Rod Drive Mechanism/Control Element Drive Mechanism] Nozzle and Other Vessel Closure Head Penetrations," to the industry requesting in part that addressees provide a description of the plans to inspect the vessel head penetration (VHP) nozzles at their respective pressurized water reactor (PWR) designed plants. With respect to the issuance of the GL, the staff required the addressees to submit an initial response within 30 days of issuance informing the staff of the intent to comply with requested information and a follow-up response within 120 days of issuance containing the technical details to the staff's information requests. In the discussion section of the GL, the staff stated that "individual licensees may wish to determine their inspection activities based on an integrated industry inspection program. . .," and indicated that it did not object to individual PWR licensees basing their inspection activities on an integrated industry inspection program.

As a result, the Westinghouse Owners Group (WOG) determined that it was appropriate for its members to develop a cooperative integrated inspection program in response to GL 97-01. The WOG program is documented in two Topical Reports issued by the Westinghouse Electric Corporation (WEC), WCAP-14901, Revision 0, "Background and Methodology for Evaluation of Reactor Vessel Closure Head Penetration Integrity for the Westinghouse Owners Group," and WCAP-14902, Revision 0, "Background Material for Response to NRC Generic Letter 97-01: Reactor Vessel Closure Head Penetration Integrity for the Westinghouse Owners Group."

The WOG submitted the integrated programs described in WCAP-14901 and WCAP-14902 to the NRC staff on July 25, 1997.

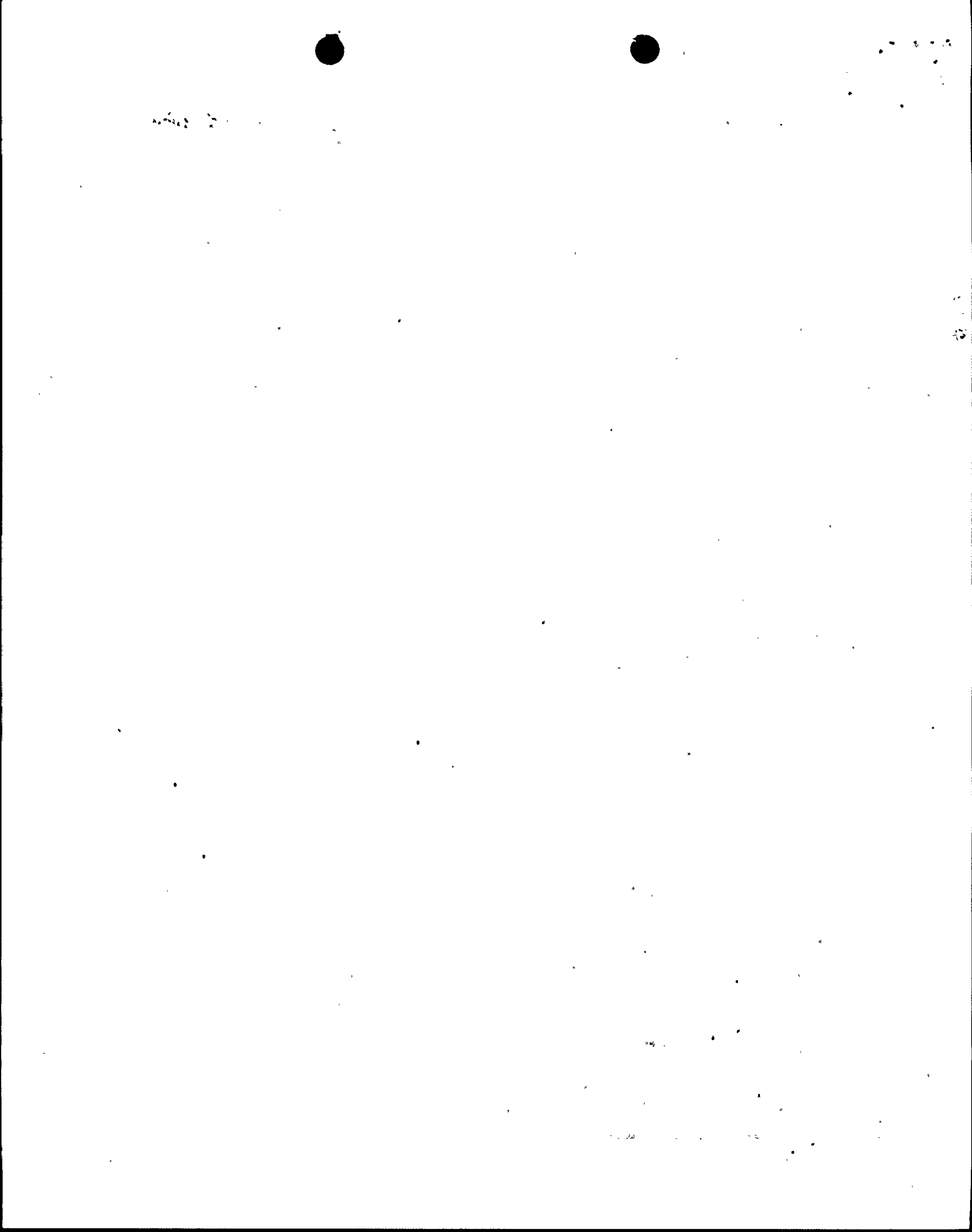
The staff has determined by your letters dated April 25 and July 28, 1997, that you were a member of the WOG and a participant in the WOG integrated program that was developed to address the staff's requests in GL 97-01. In your letters of April 25 and July 28, 1997, you also indicated that the information in WEC Topical Report WCAP-14902 is applicable with respect to the assessment of VHP nozzles at Turkey Point Plant, Units 3 and 4.

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*DFol*

The staff has reviewed your responses to GL 97-01, dated April 25 and July 28, 1997, and requires further information to complete its review of your responses as they relate (1) to the WOG's integrated program for assessing VHP nozzles at WOG member plants, and (2) to the contents of Topical Report No. WCAP-14902. The enclosure to this letter forwards the staff's inquiries in the form of a request for additional information (RAI).

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October 26, 1998

It should be noted that similar staff requests have been issued to other WOG member utilities. As was the staff's position before, the staff encourages you to address these inquiries in integrated fashion with the WOG and the Nuclear Energy Institute; however, the staff also requests that you identify any deviations from the WOG's integrated program that may be specific to your facility. The staff appreciates the efforts expended with respect to this matter.

The enclosed RAI has been discussed with Olga Hanek of your staff. A target date for your response has been agreed upon to be 120 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

/s/

Kahtan N. Jabbour, Senior Project Manager  
Project Directorate II-3  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

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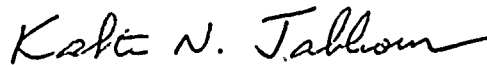
Thomas F. Plunkett

- 2 -

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Information

cc w/encl: See next page



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Florida Power and Light Company

**TURKEY POINT PLANT**

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Request for Additional Information Regarding Utilities Participating  
in the Westinghouse Owners Group Response to Generic Letter 97-01  
Topical Report No. WCAP-14902, Revision 0  
"Background Material for Response to NRC Generic Letter 97-01  
Reactor Vessel Closure Head Penetration Integrity  
for the Westinghouse Owners Group"

Applicability of Topical Report No. WCAP-14902, Revision 0,  
to the Plant-specific Responses to Generic Letter 97-01 for Participating  
Member Utilities and Plants in the WOG

I. Relationship and Applicability of WCAP-14902, Revision 0, to GL 97-01 and the WOG

On April 1, 1997, the U.S. Nuclear Regulatory Commission (NRC) staff issued Generic Letter (GL) 97-01, "Degradation of CRDM/CEDM [Control Rod Drive Mechanism/Control Element Drive Mechanism] Nozzle and other Vessel Closure Head Penetrations," to the industry requesting, in part, that addressees provide a description of the plans to inspect the vessel head penetration (VHP) nozzles at their respective pressurized water reactor (PWR) designed plants. With respect to the issuance of the GL, the staff required the addressees to submit an initial response within 30 days of issuance informing the staff of the intent to comply with the requested information and a follow-up response within 120 days of issuance containing the technical details to the staff's information requests. In the discussion section of the GL, the staff stated that "individual licensees may wish to determine their inspection activities based on an integrated industry inspection program..." and indicated that it did not object to individual PWR licensees basing their inspection activities on an integrated industry inspection program.

As a result, the Westinghouse Owners Group (WOG) determined that it was appropriate for its members to develop a cooperative integrated inspection program in response to GL 97-01. The WOG program is documented in two Topical Reports issued by the Westinghouse Electric Corporation (WEC), WCAP-14901, Revision 0, "Background and Methodology for Evaluation of Reactor Vessel Closure Head Penetration Integrity for the Westinghouse Owners Group," and WCAP-14902, Revision 0, "Background Material for Response to NRC Generic Letter 97-01: Reactor Vessel Closure Head Penetration Integrity for the Westinghouse Owners Group."

The technical content provided in WCAP-14902, Revision 0, is basically the same as that provided in WCAP-14901, Revision 0. The difference with regard to the reports is that WOG member plants subscribing to the content of WCAP-14901 have opted to rank the susceptibility of their vessel head penetrations according to a probabilistic Weibull analysis method that was developed by WEC. In contrast, the WOG member plants subscribing to the content of WCAP-14902, Revision 0, have opted to rank the vessel head penetrations for their facilities according to a probabilistic methodology that was developed by another vendor of choice. The staff has determined by letters dated April 25 and July 28, 1997, that you were a member of the WOG and a participant in the WOG integrated program that was developed to address the staff's requests in GL 97-01. In your letters dated April 25 and July 28, 1997, you also indicated that the conclusions in WEC Topical Report WCAP-14902 is applicable with respect to the assessment of VHP nozzles at Turkey Point Plant, Units 3 and 4.

Enclosure



The NRC staff has reviewed your responses to GL 97-01, dated April 25 and July 28, 1997, and requires further information to complete its review of your responses as they relate to the WOG's integrated program for assessing VHP nozzles at WOG member plants, and to the contents of Topical Report No. WCAP-14902, Revision 0. The staff requests that the following information be submitted with respect to the content of your responses to GL 97-01, dated April 25 and July 28, 1997, and to the content of WCAP-14902, Revision 0, as it relates to these responses:

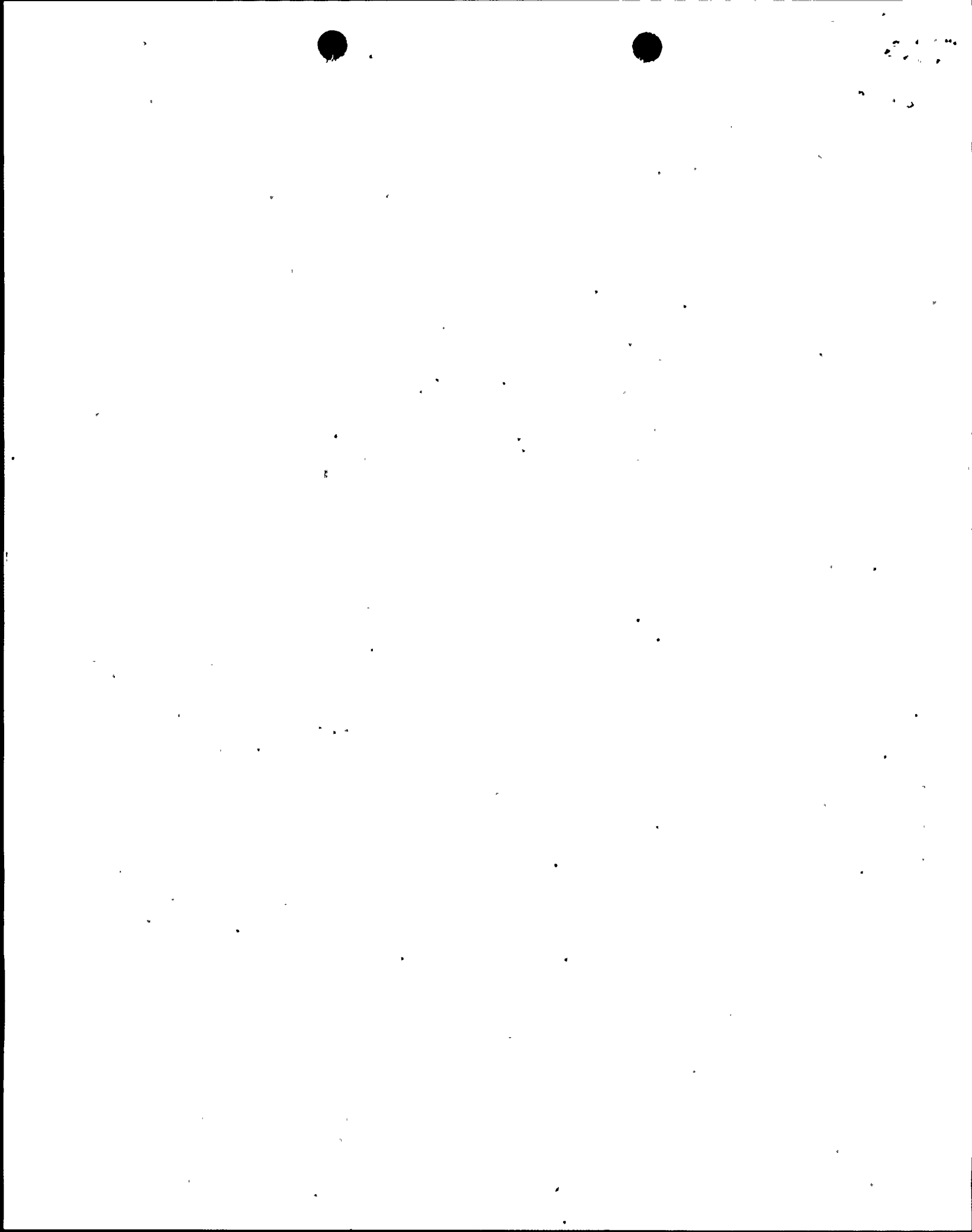
1. WEC and the WOG did not provide a description of the crack initiation and growth susceptibility model used for the assessment of WEC VHP nozzles in plants endorsing WCAP-14902, Revision 0. Provide a description of the crack initiation and growth susceptibility model used for assessment of the VHP nozzles at your plant.
2. In WCAP-14902, Revision 0, WEC did not provide any conclusions as to what the probabilistic failure model would lead the WOG to conclude with respect to the assessment of primary water-stress corrosion cracking (PWSCC) in WEC-designed VHP nozzles. With respect to the probabilistic susceptibility model (e.g., probabilistic failure model) provided in WCAP-14902, Revision 0:
  - a. Provide the susceptibility ranking of your plant as compiled from the crack initiation and growth analysis of the VHP nozzles for your plant to that compiled for the other WOG member plants for which WCAP-14902, Revision 0, is applicable. Include the basis for establishing the ranking of your plant relative to the others.
  - b. Describe how the probabilistic failure (crack initiation and growth) model in used for the assessment of the VHP nozzles at your plant was bench-marked, and provide a list and discussion of the standards the model was bench-marked against.
  - c. Provide additional information regarding how the probabilistic failure (crack initiation and growth) models for the assessment of VHP nozzles at your plant will be refined to allow the input of plant-specific inspection data into the model's analysis methodology.
  - d. Describe how the variability in product forms, material specifications, and heat treatments used to fabricate each CRDM penetration nozzle at the WOG member utilities are addressed in the probabilistic crack initiation and growth models described or referenced in Topical Report No. WCAP-14902, Revision 0.
3. Table 1-2 in WCAP-14902, Revision 0, provides a summary of the key tasks in WEC's nozzle assessment program. The tables indicate that the tasks for (1) Evaluation of PWSCC Mitigation Methods, (2) Crack Growth Data and Testing, and (3) Crack Initiation Characterization Studies have not been completed and are still in progress. In light of the fact that the probabilistic susceptibility models appear to be dependent in part on PWSCC crack initiation and growth estimates, provide your best estimate when these tasks will be completed by WEC, and describe how these activities relate to and will be used to update the probabilistic susceptibility assessment of VHP nozzles at your plant.
4. In the Nuclear Energy Institute (NEI) letters of January 29 (Ref. 1) and April 1, 1998 (Ref. 2), NEI indicated that inspection plans have been developed for the VHP nozzles at the Farley Unit 2 plant in the year 2002, and the Diablo Canyon Unit 2 plant in the year 2001, respectively. The staff has noted that although you have decided to apply an alternate probabilistic susceptibility model to the assessment of the VHP nozzles at your plant(s), other WOG member licensees, including the Southern Nuclear Operating Company and the Pacific Gas and Electric Company, the respective licensees for the Farley units and the Diablo Canyon units, have selected to apply the susceptibility model described in



WCAP-14901, Revision 0, to the assessment of VHP nozzles at their plants. The WOG's proposal to inspect the CRDM penetration nozzles at Farley Unit 2 and Diablo Canyon Unit 2 appears to be based on a composite assessment of the VHP nozzles at all WOG member plants. Verify that such a composite ranking assessment has been applied to the evaluation of VHP nozzles at your plant. If composite rankings of the VHP nozzles at WOG member plants have been obtained from the composite results of the two models, justify why application of the alternate probabilistic susceptibility model being for the assessment of VHP nozzles at your plant would yield the same comparable relative rankings as would application of the probabilistic susceptibility model used by the WOG member plants subscribing to the contents of WCAP-14901, Revision 0. Comment on the susceptibility rankings of the VHP nozzles at your plant relative to the susceptibility rankings of the VHP nozzles at the Farley Unit 2 and Diablo Canyon Unit 2 plants.

#### REFERENCES

1. January 19, 1998 - Letter from David J. Modeen, Director of Engineering, Nuclear Generation Division, NEI, to Mr. G.C. Lainas, Acting Director, Division of Engineering, Office of Nuclear Reactor Regulation, NRC (Untitled).
2. April 1, 1995 - Letter from David J. Modeen, Director of Engineering, Nuclear Generation Division, NEI to Mr. G.C. Lainas, Acting Director, Division of Engineering, Office of Nuclear Reactor Regulation, NRC "SUBJECT: Generic Letter 97-01, 'Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Head Penetrations.' "



PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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SUBJECT: GENERIC LETTER (GL) 97-01, "DEGRADATION OF CRDM/CEDM NOZZLE AND OTHER VESSEL CLOSURE HEAD PENETRATIONS," RESPONSES FOR TURKEY POINT PLANT, UNITS 3 AND 4 (TAC NOS. M98606 AND M98607)

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The WOG submitted the integrated programs described in WCAP-14901 and WCAP-14902 to the NRC staff on July 25, 1997.

The staff has determined by your letters dated April 25 and July 28, 1997, that you were a member of the WOG and a participant in the WOG integrated program that was developed to address the staff's requests in GL 97-01. In your letters of April 25 and July 28, 1997, you also indicated that the information in WEC Topical Report WCAP-14902 is applicable with respect to the assessment of VHP nozzles at Turkey Point Plant, Units 3 and 4.

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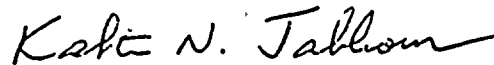
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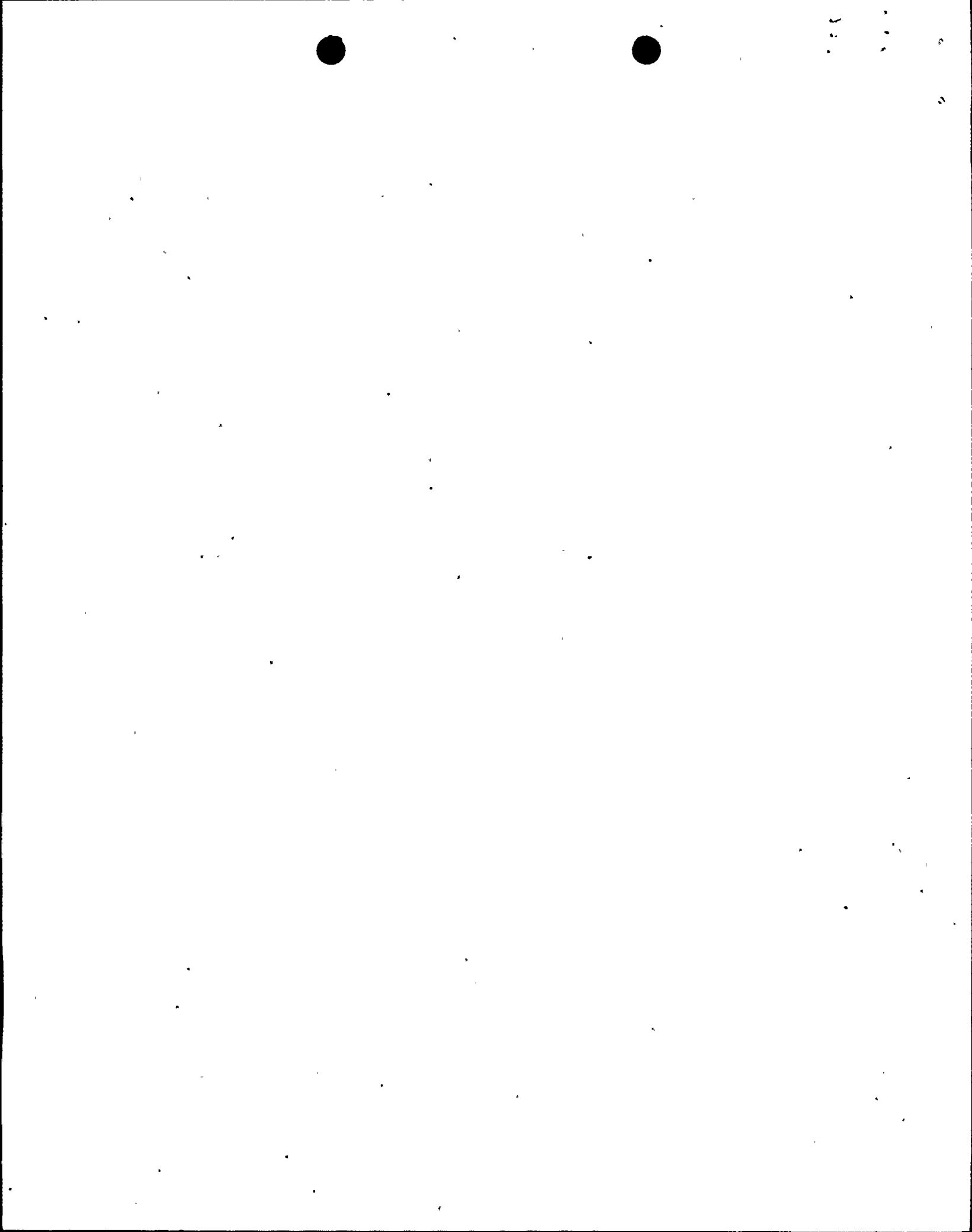


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Florida Power and Light Company

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Mr. Joe Myers, Director  
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**TURKEY POINT PLANT**

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Request for Additional Information Regarding Utilities Participating  
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Enclosure



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  - c. Provide additional information regarding how the probabilistic failure (crack initiation and growth) models for the assessment of VHP nozzles at your plant will be refined to allow the input of plant-specific inspection data into the model's analysis methodology.
  - d. Describe how the variability in product forms, material specifications, and heat treatments used to fabricate each CRDM penetration nozzle at the WOG member utilities are addressed in the probabilistic crack initiation and growth models described or referenced in Topical Report No. WCAP-14902, Revision 0.
3. Table 1-2 in WCAP-14902, Revision 0, provides a summary of the key tasks in WEC's nozzle assessment program. The tables indicate that the tasks for (1) Evaluation of PWSCC Mitigation Methods, (2) Crack Growth Data and Testing, and (3) Crack Initiation Characterization Studies have not been completed and are still in progress. In light of the fact that the probabilistic susceptibility models appear to be dependent in part on PWSCC crack initiation and growth estimates, provide your best estimate when these tasks will be completed by WEC, and describe how these activities relate to and will be used to update the probabilistic susceptibility assessment of VHP nozzles at your plant.
4. In the Nuclear Energy Institute (NEI) letters of January 29 (Ref. 1) and April 1, 1998 (Ref. 2), NEI indicated that inspection plans have been developed for the VHP nozzles at the Farley Unit 2 plant in the year 2002, and the Diablo Canyon Unit 2 plant in the year 2001, respectively. The staff has noted that although you have decided to apply an alternate probabilistic susceptibility model to the assessment of the VHP nozzles at your plant(s), other WOG member licensees, including the Southern Nuclear Operating Company and the Pacific Gas and Electric Company, the respective licensees for the Farley units and the Diablo Canyon units, have selected to apply the susceptibility model described in



WCAP-14901, Revision 0, to the assessment of VHP nozzles at their plants. The WOG's proposal to inspect the CRDM penetration nozzles at Farley Unit 2 and Diablo Canyon Unit 2 appears to be based on a composite assessment of the VHP nozzles at all WOG member plants. Verify that such a composite ranking assessment has been applied to the evaluation of VHP nozzles at your plant. If composite rankings of the VHP nozzles at WOG member plants have been obtained from the composite results of the two models, justify why application of the alternate probabilistic susceptibility model being for the assessment of of VHP nozzles at your plant would yield the same comparable relative rankings as would application of the probabilistic susceptibility model used by the WOG member plants subscribing to the contents of WCAP-14901, Revision 0. Comment on the susceptibility rankings of the VHP nozzles at your plant relative to the susceptibility rankings of the VHP nozzles at the Farley Unit 2 and Diablo Canyon Unit 2 plants.

#### REFERENCES

1. January 19, 1998 - Letter from David J. Modeen, Director of Engineering, Nuclear Generation Division, NEI, to Mr. G.C. Lainas, Acting Director, Division of Engineering, Office of Nuclear Reactor Regulation, NRC (Untitled).
2. April 1, 1995 - Letter from David J. Modeen, Director of Engineering, Nuclear Generation Division, NEI to Mr. G.C. Lainas, Acting Director, Division of Engineering, Office of Nuclear Reactor Regulation, NRC "SUBJECT: Generic Letter 97-01, 'Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Head Penetrations.' "

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Thomas F. Plunckett

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October 26, 1998

It should be noted that similar staff requests have been issued to other WOG member utilities. As was the staff's position before, the staff encourages you to address these inquiries in integrated fashion with the WOG and the Nuclear Energy Institute; however, the staff also requests that you identify any deviations from the WOG's integrated program that may be specific to your facility. The staff appreciates the efforts expended with respect to this matter.

The enclosed RAI has been discussed with Olga Hanek of your staff. A target date for your response has been agreed upon to be 120 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

/s/

Kahtan N. Jabbour, Senior Project Manager  
Project Directorate II-3  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

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