ORIGINAL

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	Docket No. 50-275
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-323
	)	
Diablo Canyon Nuclear Power Plant Units Nos. 1 and 2	)	
	)	

APPLICANT PACIFIC GAS AND ELECTRIC COMPANY'S
ANSWERS TO
GOVERNOR GEORGE DEUKMEJIAN'S AND JOINT INTERVENORS'
FIRST SET OF INTERROGATORIES

INTERROGATORY NO. 1:

With respect to each ITR, including all revisions, except ITR 36 and ITR 38, state:

(a) What contractors and subcontractors to the IDVP worked on the ITR.

(b) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

(c) The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

D503

(i) data collection for the ITR;

(ii) analyses performed for the ITR;

(iii) the conclusions of the ITR;

(iv) documentation of the ITR.

(d) What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

(e) In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and, with respect to each category;

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

(f) What computer models were employed in performing analyses in connection with the ITR, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,

- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR.

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RESPONSE TO INTERROGATORY NO. 1:

See Attachment 8.

INTERROGATORY NO. 2:

With respect to the reassessment of the containment building of Diablo Canyon unit 1, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,

- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,

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- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

RESPONSE TO INTERROGATORY NO. 2:

(a) URS/Blume, Associates (URS/Blume).

(b) N. Tuholski, Engineering Supervisor, Bechtel Power Corporation (Bechtel)
Dr. K. Buchert, Consultant, Bechtel.
Dr. L. Malik, Engineer, URS/Blume.
Dr. W. H. White, Assistant Project Engineer - Seismic, Bechtel.
B. Sarkar, Engineering Supervisor, Bechtel.

(c) See Response to 2(b).

(d) (i) The computer code used was PGandE STRUDL. See Attachment 2.

(ii) The computer codes used were ANCON, ANSPLOT, ANSR, ANSRSTS, AXIDYN, BLUME SAP IV, BASP, BASP-POST, CECAP, CCOEFF, CHECK, DIAGONAL, ENVEL, ENVELOP FINEL, JAB/PLOT, JAB/FLSPEC, ME210, ME643, MODE, PROG, SECT, SMIS, SMPLOT, SMSPC3, SPEC1, SPEC2, SPEC3, SPECTH, SPECTRA, SRSS, STAND, TRANSFORT, UFACLS. See Attachment 1.

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INTERROGATORY NO. 3:

With respect to the reassessment of the containment building of Diablo Canyon unit 2, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,

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- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,

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- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

RESPONSE TO INTERROGATORY NO. 3:

(a) See Response to 2(a).

(b) See Response to 2(b).

(c) See Response to 3(b).

(d) (i) See Response to 2(d)(i).

(ii) See Response to 2(d)(ii). Also ENVEL 2. See Attachment 1.

INTERROGATORY NO. 4:

With respect to the reassessment of the fuel handling building of Diablo Canyon, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

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(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

RESPONSE TO INTERROGATORY NO. 4:

(a) URS/Blume.

(b) Dr. L. Malik, Engineer, URS/Blume.
D. Ovadia, Engineer, Bechtel.
Dr. W. H. White, Assistant Project Engineer - Seismic, Bechtel.

(c) See Response to 4(b).

(d) (i) The codes used were STARDYNE and PGandE STRUDL. See Attachment 2.

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(ii) The computer codes used were BLUME SAP IV, JAB/FLSPC, SPECTRA, DRAIN-2D, JAB/PLOT, DRNPLOT. See Attachment 1.

INTERROGATORY NO. 5:

With respect to the reassessment of the auxiliary building of Diablo Canyon, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,

- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,

- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

RESPONSE TO INTERROGATORY NO. 5:

(a) URS/Blume.

(b) Dr. L. Malik, Engineer, URS/Blume.
D. Ovadia, Engineer, Bechtel.
Dr. W. H. White, Assistant Project Engineer - Seismic, Bechtel.

(c) See Response to 5(b).

(d) (i) The codes used were BECHTEL STRUDL and EASE2/E2SPEC. See Attachment 2.

(ii) The computer codes used were INTERP, JAB/FLSPEC, MODE, SPECTRA, SMIS, BLUME SAP IV, BASP, BASP-POST, JAB/PLOT, PUNCH, PUNCHRS, READS, READTH, SPECTH, TEST, ZPAFOR. See Attachment 1.

INTERROGATORY NO. 6:

With respect to the reassessment of the turbine building of Diablo Canyon, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

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(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in

which data were read or displayed) after receipt and, if so, the nature of all such modifications,

- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

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RESPONSE TO INTERROGATORY NO. 6:

(a) URS/Blume.

(b) P. Chang-Lo, Engineer, Bechtel.
Dr. L. Malik, Engineer, URS/Blume.
Dr. W. H. White, Assistant Project Engineer - Seismic, Bechtel.

(c) See Response to 6(b).

(d) (i) The code used was BECHTEL STRUDL. See Attachment 2.

(ii) The codes used were AISCBM, ANSENV, ANSPLOT, ANSPST, ANSR, BLUME SAP IV, INTER, ENVELOP, FORCE, JAB?COMBINE, JAB/FLSPEC, JAB/PLOT, JAB/SAPOST 1, JAB/SAPOST2, JAB/SAPOST3, MODE, PART I, POSAP, SECTSTR, SMIS, SMPLOT, SPEC 1, SPEC 2, SPEC 3, SRSS, TAB4. See Attachment 1.

INTERROGATORY NO. 7:

With respect to the reassessment of the intake structure of Diablo Canyon, state:

(a) What contractors and subcontractors to the DCP worked on the reassessment.

(b) The person employed or retained by the DCP or its subcontractors most knowledgeable about the reassessment.

(c) The person employed or retained by the DCP or its subcontractors most knowledgeable about:

(i) data collection for the reassessment;

(ii) analyses performed for the reassessment;

(iii) conclusions of the DCP in connection with the reassessment;

(iv) documentation of the reassessment.

(d) What computer models were employed in performing analyses in connection with the reassessment, stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,

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- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the reassessment.

RESPONSE TO INTERROGATORY NO. 7:

(a) URS/Blume.

(b) Dr. L. Malik, Engineer, URS/Blume.
Dr. W. H. White, Assistant Project Engineer - Seismic, Bechtel.

(c) See Response to 7(b).

(d) (i) None.

(ii) The computer codes used were BLUME SAP IV, JAB/COMBINE, JAB/FLSPEC, MODE SMIS, SPEC1, SPEC2, SPEC3, RCCOLA, JAB/SAPOST1, JAB/SAPOST2, JAB/SAPOST3, FORCE, ENVELOP, JAB/PLOT, SRSS, DRAIN-2D. See Attachment 1.

INTERROGATORY NO. 8:

With respect to the IDVP Phase I Final Report, state:

(a) The person employed or retained by the IDVP or its sub-contractors most knowledgeable about the Final Report.

(c) [sic]

The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

(d) What computer models were employed in performing analyses in connection with the Final Report (excluding models employed in connection with the ITRs), stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,

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- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report.

RESPONSE TO INTERROGATORY NO. 8:

See Attachment 8.

INTERROGATORY NO. 9:

With respect to the IDVP Phase II Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

(c) [sic]

The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

(d) What computer models were employed in performing analyses in connection with the Final Report (excluding models employed in connection with the ITRs), stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,

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- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report.

RESPONSE TO INTERROGATORY NO. 9:

See Attachment 8.

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INTERROGATORY NO. 10:

With respect to the DCP Phase I Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

(c) [sic]

The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

(d) What computer models were employed in performing analyses in connection with the Final Report (excluding models employed in connection with the ITRs), stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,

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- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,

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- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report.

RESPONSE TO INTERROGATORY NO. 10:

(a) See Attachment 8.

(c) See Attachment 8.

(d) (i) The codes employed for analysis in the DCP Phase I Final Report are listed in Attachment 2. In addition, codes used for piping and pipe supports are shown in Attachment 3.

(ii) The codes employed for analysis in the DCP Phase I Final Report are listed in Attachments 1, 4, and 5.

INTERROGATORY NO. 11:

With respect to the DCP Phase II Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

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(c) [sic]

The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

(d) What computer models were employed in performing analyses in connection with the Final Report (excluding models employed in connection with the ITRs), stating as to each:

(i) If the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,

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- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report;

(ii) If the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the Final Report.

RESPONSE TO INTERROGATORY NO. 11:

(a) See Attachment 8.

(c) See Attachment 8.

(d) (i) The codes employed for analysis in the DCP Phase II Final Report were COCO, MARVEL, and RELAP4. See Attachment 6.

(ii) The codes employed for analysis in the DCP Phase II Final Report were FAULTX, FLUD, ME204, ME207, ME649, and VOLTANAL. See Attachment 7.

INTERROGATORY NO. 12:

How do you define "safety-related" for purposes of compliance with appendix B to part 50 of 10 C.F.R.?

RESPONSE TO INTERROGATORY NO. 12:

PGandE considers "safety-related" and "PGandE Design Class I" to be synonymous.

For the purpose of applying quality requirements PGandE has historically considered the term "safety-related" to be applicable to systems and components (and supporting design processes) that are necessary to assure;

(1) the integrity of the reactor coolant pressure boundary;

(2) the capability to shutdown the reactor and maintain it in a safe shutdown condition; or

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(3) the capability to prevent or mitigate the consequences of accidents which could result in potential off-site exposures comparable to the guideline exposures of 10 CFR 100.

INTERROGATORY NO. 13:

How do you define "important to safety" for purposes of compliance with General Design Criterion 1 of appendix A to part 50 of 10 C.F.R.?

RESPONSE TO INTERROGATORY NO. 13:

Historically PGandE has considered the terms "important to safety" and "safety-related" to be synonymous. Further, PGandE considers "safety-related" and "PGandE Design Class I" to be synonymous. (See answer to Interrogatory 12.) The H.R. Denton memorandum defining "important to safety" was issued long after "important to safety" was used in GDC1. Only recently has the NRC provided any indication that the definitions of "important to safety" and "safety-related" were not one and the same.

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Presently, for those structures, systems, and components which do not have safety-related functions PGandE applies a quality assurance program which is commensurate with the structure's, system's or component's importance to safety.

Respectfully submitted,

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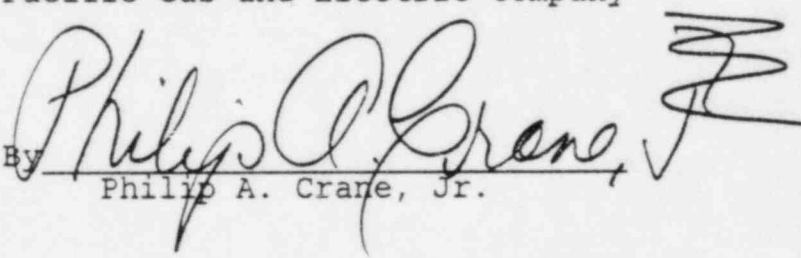
By 
Philip A. Crane, Jr.

DATED: May 23, 1983.

Attachment No. 8

May 20, 1983

Answers

Prepared by

Contractors and Subcontractors in the Independent Design Verification Program to Interrogatories 1(a) through (f); 8(a), (c), and (d); 9(a), (c), and (d); 10(a) and (c); and 11(a) and (c) of the "First Set of Interrogatories Propounded to Pacific Gas and Electric Company by Governor Deukmejian and Joint Intervenors" (May 6, 1983).

DS03

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ITR-16, Revision 0
Soils - Outdoor Water Storage Tanks

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Abendruh, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Dr. Robert McNeill, Consultant, Abendruh, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Dension, Dr. Robert McNeill

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

ITR-1 Revision 0
Additional Verification and Additional Sampling
Effective 5/27/82

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   R.L. CLoud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud, Associates, Inc.,
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

(iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud; Edward Denison; R. Wray, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

None; this ITR was prepared using information obtained with respect to other ITRs as of the date of preparation of this ITR.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

None; this ITR was prepared using information obtained with respect to other ITRs as of the date of preparation of this ITR.

f. What computer models were employed in performing analyses in connection with the ITR:

(i) if the model was obtained from an outside source,
- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR;

Answer:

STARDYNE
ADLPIPE
ANSYS

These were the computer models employed by R.L. Cloud and Associates to perform seismic analyses in connection with all of the ITRs. On occasion, other computer models were employed. However, in all cases in which a model other than the three listed above was employed, the calculations were verified by the checker using hand calculations.

(i)
- United Information Services (UIS)
- Same as above
- Static and dynamic structural analysis
- UIS uses object code
- Yes, verified as demonstrated in UIS Quality Assurance Records
- No

- The computer models were run on UIS computers. UIS utilizes three mainframe computers: CYBER-175 (APEX), CRAY, CYBER-176.

f.(ii) if the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR.

Answer:

On occasion internal computer models were employed. However, in all cases in which a model other than the three listed above was employed, the calculations were verified by the checker using hand calculations.

1-1-5

ITR-1, Revision 1
Additional Verification
And
Sampling Effective May 27, 1982

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud; Edward Denison; Ronald Wray, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

None; this ITR was prepared using information obtained with respect to other ITR's as of the date of preparation of this ITR.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

None; this ITR was prepared using information obtained with respect to other ITRs as of the date of preparation of this ITR.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

See response to ITR-1, Rev. 0.

ITR-2

Evaluation of the Quality Assurance Program
and Implementation Reviews

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   R.F. Reedy, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. William E. Cooper, IDVP Program Manager, Teledyne Engineering Services

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   R.F. Reedy, President, R.F. Reedy, Inc.; P.J. Herbert, W.S. Gibbons, Principals, R.F. Reedy, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Not Applicable

(iii) the conclusions of the ITR;

Answer:

Dr. W.E. Cooper

(iv) documentation of the ITR.

Answer

Dr. W.E. Cooper

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

d. and e. ITR-2 was prepared by Teledyne Engineering Services using information developed by R.F. Reedy, Inc. and presented in seven separate technical reports addressing quality assurance procedures for seven of PGandE's contractors on the DCP. The following reports and other information were obtained from the DCP in connection with the preparation of these seven technical reports.

Reedy Report and Date	Information
o EES/CYGNA March 3, 1982	EES work Proposal dated Feb. 18, 1977

Reedy Report and Date	Information
	Contract between PGandE and EES/CYGNA dated March 9, 1977 (Contract No. 5-16-77).
	EES Quality Assurance Manual Revisions 2-4.
o Wyle Laboratories March 1, 1982	Contracts between PGandE and Wyle Labs (Contract Nos. 5-61-77, 5-66-77).
	Purchase Orders 4294 and 4R4294.
	Letters, R.V. Bettinger (PGandE) to D. Smith (Wyle) dated September 28, 1977.
	Wyle Quality Control Manual SPP-518Q (April 30, 1977)
	Wyle Quality Control Procedures Manual SPP-518.
o URS/Blume March 5, 1982	URS/Blume Work List for PGandE on Diablo Canyon (App.B to Reedy Report dated March 5, 1982).
	URS/Blume Quality Assurance Manual Rev. 2 (Nov. 19, 1976).
o ANCO Engineers	ANCO-PGandE Contracts, Nos. 5-
o March 1, 1983	68-77, 5-82-77.
	ANCO Quality Assurance Manual (ANCO Spec. QAM-002)(May 1978).
o EDS Nuclear, Inc. Jan. 20, 1982	Summary of EDS experience with PGandE 1/5/82.
	EDS Quality Assurance Manual, Rev. 11 through 15.
o Harding Lawson Associates	Listing, HLA Jobs, Diablo Canyon, PGandE (App.B in 1/26/82 Reedy Report).
	HLA Quality Assurance Manual and Operating Procedures.

Reedy Report and Date	Information
o PGandE March 16, 1982	PGandE QA Manual (Jan. 1970) PGandE QA Manual Vol. I (Policy), Vol II (QA Procedures), Rev. 3 through Manual Change Notice No. 36.

R.F. Reedy, Inc. relied on this information in connection with the seven subject technical reports. For each of the seven entities, information was verified during the audits performed as described in the technical reports. Dates, attendance, and subjects at meetings are given in each of the referenced reports.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

1-3-1

ITR-3, Revision 0
Tanks

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Engineering Decision Analysis Corporation

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.; Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 8, 9, 14, 26, 28, 40, 41, 42, 43, 47, and 50 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Boric acid tank drawings	Yes; field verified.
o Diesel oil priming tank drawings	Yes; field verified.
o Starting air receiver vertical tank drawings	Yes; field verified.
o Anchor bolt drawings	No.

Information	Verification
o Schematics for piping attached to the tanks.	Yes; field verified.
o Design criteria memorandum	No.
o Level indicator weight data for priming tank	No.
o Nozzle load data	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

ANSYS

See response to Interrogatory 1(f) for ITR-1 Rev. 0.

ITR-4, Revision 0
Shake Table Testing

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge
   Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator,
   Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager,
   Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 6-14, 18 and 22 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

No other information was obtained in connection with the subject ITR.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-5-1

ITR-5, Revision 0
Design Chain

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison; and Mark Revett, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Reports obtained from the DCP consisted of References 4-11 in the subject ITR. In addition, the design analyses for each of the initial samples were examined to verify the originating organization. These design analyses are identified in the answers to Interrogatory 1 for the following ITRs:

ITR	Rev.	ITR	Rev.
3	0	30	0
4	0	31	0
5	0	32	0
6	0	32	1
7	0	33	0
10	0	33	1
12	0	37	0
13	0	39	0
15	0	40	0
16	0	43	0
17	0	44	0

These reports were relied upon by the IDVP.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-6-1

ITR-6, Revision 0
Auxiliary Building

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Hansen, Holley & Biggs, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Vince Stephens, Building Coordinator, Robert L. Cloud Associates, Inc.
   Myles Holley, Principal, Hansen, Holley & Biggs, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Vince Stephens, Myles Holley

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 4-7 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for FOIs listed in Appendix A of the ITR	Yes.
o Auxiliary Building Soil Spring Calculations, J. A. Blume Associates, 1973, P105-4-441-020	No.
o Auxiliary Building Slab Analysis, 1/28/74, P105-4-431-010	No.
o Auxiliary Building Hosgri Seismic Evaluation, I. Sokoloff (PGandE), P105-4-431-006	No.
o Auxiliary Building Slab Analysis, 11/30/76, I. Sokoloff, P105-4-431-007	No.
o Analyses and Unsmoothed Floor Spectra for the 1977 and 1979 Auxiliary Building Reports	No.
o Allowable Stresses for Earthquake Performance, J. A. Blume, P105-4-441-001	No.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Lift pour drawings	No.
o Building concrete drawing	Yes; field verified.
o Building steel reinforcing drawings	No.
o Steel drawings	Yes; field verified.
o Steel fabrication drawings and data	Yes; field verified.
o Major equipment location drawings	Yes; field verified.
o Minor equipment location drawings	No.
o Equipment weights	No.
o PGandE field information for minor equipment weight	No.
o Soil spring data	No.
o Time history data	No.
o Program listing of DYBOX 2	No.
o Program listing of SHERWAL 5 and verification	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

ANSYS, STARDYNE

See response to Interrogatory 1(f) for ITR-1 Rev. 0.

ITR-7, Revision 0
Electrical Raceway Supports

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 1 and 2 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o Raceway Calculations	Yes.

No.	Date	RLCA Tab No.
S-197	12/17/81	005
S-60 A&B	12/12/81	006
S-387	12/14/81	007
S-563	12/30/81	008
S-18	11/29/81	009
S-594	1/7/82	010
S-7	12/19/81	011
S-1B	12/23/81	012
S-4B	1/7/82	013
S-235	1/19/82	014
S-36	1/12/82	015
S-88	12/10/81	016
S-90	12/9/81	017
S-288	12/30/81	018
S-202	1/27/82	019
S-98	2/1/82	020
S-242	2/2/82	021

o Testing Reports for S-6 Brace, 1979 and 1982, P105-4-434-025, 026 and 028	Yes.

Report	Relied On
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Raceway weights	No.
o Raceway and cable listings	No.
o Raceway and support drawings	Yes; field verified.
o Raceway installation specifications	Yes; field verified.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-8, Revision 0
Verification Program For PGandE Corrective Action

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison; Ronald Wray, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o Phase I Final Report - Design Verification Program, PGandE, 9/1/82	Yes.

The IDVP also received and relied upon reports as designated for other ITRS.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o General PGandE program information was obtained through meeting minutes and telecons	No.
o The ITR was also prepared using information obtained with respect to other ITRs	See other ITRs.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

ITR-9

Development of the Service-Related
Contractor List for Non-Seismic Design Work Performed
for DCNPP-1 Prior to June 1, 1978

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   R. F. Reedy, Inc.
   Other persons were retained by Roger F. Reedy, Inc. to perform work on this ITR under the direction and supervision of R. F. Reedy, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Roger F. Reedy, President, R. F. Reedy, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Roger F. Reedy; Paul J. Herbert, Principal, R. F. Reedy, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Roger F. Reed,; Paul J Herbert

(iii) the conclusions of the ITR;

Answer:

Roger F. Reedy; Paul J. Herbert; Mark Revett, Assistant Project Manager, Teledyne Engineering Services.

(iv) documentation of the ITR.

Answer:

Roger F. Reedy, Paul J. Herbert

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

None.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Diablo Canyon Project, Consultants Contract List	Yes; verified by reviewing contracts and change orders for contracts of the various consultants.
o Contracts between PGandE and their consultants on the Diablo Canyon Project	Yes; same.
o Information obtained orally in meetings with the DCP and other IDVP participants	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-10, Revision 0
Verification Of Design Analysis Hosgri Spectra

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge
   Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager
   Robert L. Cloud Associates Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

See response to Interrogatory 1(d) for the following ITRs:

ITR	Rev.	ITR	Rev.
3	0	30	0
4	0	31	0
6	0	32	0
7	0	32	1
12	0	33	0
15	0	33	1
17	0	37	0
		43	0

Report	Relied On
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the subject ITR	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

See response to Interrogatory 1 for the following ITRs:

ITR	Rev.	ITR	Rev.
3	0	30	0
4	0	31	0
6	0	32	0
7	0	32	1
12	0	33	0
15	0	33	1
17	0	37	0
		43	0

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

ANSYS, STARDYNE, ADLPIPE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

ITR-11, Revision 0
PGandE - Westinghouse Seismic Interface Review

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud and Associates

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Ronald Wray, Assistant Project Manager, Teledyne Engineering Services

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Ronald Wray

   (ii) analyses performed for the ITR;

   Answer:

   Ronald Wray

   (iii) the conclusions of the ITR;

   Answer:

   Ronald Wray

   (iv) documentation of the ITR.

   Answer:

   Ronald Wray

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

	Report	Relied On
o	References 1-3 and 6-8 in the subject ITR.	Yes.
o	PGandE documents listed in Appendix A of the ITR	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

	Information	Verification
o	Westinghouse calculation sheets and packages referred to in ITR text	No.
o	DCP Completion and Resolution Sheets for EOI files referenced in (not generated by) ITR	No.
o	DCP trip report of IDVP Westinghouse Audit.	No.
o	Documents reviewed at Westinghouse offices.	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-12-1

ITR-12, Revision 0
Piping

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Charles Browne, Piping Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Charles Browne

   (iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud, Charles Browne

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 5, 50, 50a, and 83-95 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix G of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o SAM displacements	No.
o Component drawings and data	No.
o Equipment specifications	No.
o Flued head drawings	No.

o Design criteria memorandum	No.
o Valve index	No.
o Instrument Reference	No.
o Piping isometrics	Yes; field verified.
o Piping schematics	No.
o Valve drawings	Yes; field verified.
o Valve qualification summaries	No.
o Valve weights	No.
o Equipment location drawings	Yes; field verified.
o Flange drawings	No.
o Piping layout drawings	No.
o Equipment drawings	No.
o Pipe support drawings	No.
o Equipment foundation and support drawings	No.
o Equipment math models and stiffnesses	No.
o Design change order for equipment	No.
o Building drawings	No.
o System descriptions	No.
o Nozzle drawings and values	No.
o Equipment nozzle drawings	No.
o Equipment weights	No.
o Insulation weights	No.
o Heat tracing cable weights	No.
o Piping walkdown procedures	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

ADLPIPE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

ITR-13, Revision 0
Soils - Intake Structure

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Abendruh, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Dension, Project Manager, Robert L. Cloud Associates, Inc.
   Dr. Robert McNeill, Consultant, Abendruh, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert NcNeill, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert NcNeill

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert NcNeill

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o Reference 6,7, and 9-11 in the subject ITR.	Yes
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR.	Yes
o FSAR	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Building concrete drawings	Yes; field verified.
o Topographical drawings	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests.	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-14

Verification of the Pressure, Temperature, Humidity, and Submergence Environments used for Safety-Related Equipment Specification Outside Containment for Auxiliary Feedwater System and Control Room Ventilation and Pressurization System

---

1. With respect to each ITR, including all revisions, except ITR-36 and ITR-38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Charles Frances Bergeron, Lead Nuclear Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Charles Frances Bergeron

   (iii) the conclusions of the ITR;

   Answer:

   John Edward Krechting

(iv) documentation of the ITR.

Answer:

Charles Frances Bergeron

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o Evaluation for Effect of Postulated Pipe Break Outside Containment for Diablo Canyon Unit 1, PGE-01-02 Revision 3	Yes.
o Thermal Hydraulic Analyses of Postulated Pipe Break Outside Containment at Diablo Canyon Unit 1, PGE-01-27, Revision 1	Yes.
o PGandE letter to NRC, dated 1/28/80, re: auxiliary feedwater flow rate	Yes.
o Nuclear Services Corporation (NSC) calculation: Compartment Pressurization Analysis, 1-15-74, File No. 1.37.12, 33.5	Yes.
o NSC calculation: Long-term Environment Analysis Revised, 2-20-74, File No. 137.12, 33.421	Yes.
o NSC calculation: Environmental-Pressurization Other High Energy Lines, 4-1-74, File No. 33.423	Yes.
o NSC calculation: Flooding Analysis of G Area and Auxiliary Building, File No. 33.440	Yes.
o Westinghouse letter to PGandE, 1-2-79, Mass and Energy Release Rate	Yes.
o Report 411-82.221, 8-25-82, Diablo Canyon Blowout Panels and Fire Door Test	Yes.

Report	Relied On
o PGandE calculation: Maximum Allowable Pressure for Doors 265, 348, 357, and 358, 7-26-82	Yes.
o PGandE Environmental Qualification Report 9-81	Yes.
o Computer Program CONTEMPT Output, Title: Diablo Canyon Unit 1 - Area GW - Main Steam Break - Steam Valve Failure, 5-2-74	Yes.
o Computer Program CONTEMPT Output, Title: Diablo Canyon Unit 1 - Turbine - Main Steam Break - Steam Valve Failure, 5-24-76	Yes.
o Computer Program CONTEMPT Output, Title: Diablo Canyon Unit 1 - GE at 115-Ft Elevation-Leakage from M.S. in GW area, 4-29-74	Yes.
o Computer Program PRTHRUST Output, Title: Diablo Canyon Long-Term Blowdown Analysis Steam Check Valve Failure	Yes.
o Technical Specifications	Yes.
o PGandE resolution and/or completion packages to EOI Files 8001, 8002, 8003, 8004, 8005, 8006, 8033, 8034, and 8040	Yes.
o Identification and description of computer program used for generation of pressure-temperature environment outside containment	Yes.
o Letter from AEC to PGandE, "General Information Required for Consideration of the Effects of a Piping System Break Outside Containment," 12-18-72	Yes.
o Letter from AEC to PGandE "General Information Required for Consideration of the Effects of a Piping System Break Outside Containment," 1-29-73	Yes.
o Information from PGandE which described opening to atmosphere from 8-inch gap between containment and area GE/GW	Yes.
o Information from PGandE providing turbine building galbestos siding data	Yes.

Report	Relied On
o NSC computer program output for FLUD used in the Flooding Analysis "G" Area and Auxiliary Building	No.
o Information from PGandE providing data on bird screen located in turbine building roof monitor	Yes.
o Information from PGandE that provided data on blowout panel in area GW	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment Location	Yes; general locations of equipment, compartment arrangements, and compartment openings in areas GE, GW, and the turbine building (el 140') were field verified for development of geometric models.
o Concrete drawings	Yes; same.
o Drawings which show building penetrations	Yes; same.
o Main steam piping schematic	Yes; general location of main steam system in areas GE, GW, and the turbine building were field verified for development of geometric models.
o Piping and mechanical drawings	Yes; same.

Information	Verification
o Structural steel drawings	Yes; general locations of steel and siding in areas GE, GW, and the turbine building (el 140') were field verified for development of geometric models.
o Turbine building siding drawings	Yes; same.
o PGandE Drawing No. 049021-18 Piping Specification Index	No.
o Drawing No. 69-XA-25-9 assembly of 28-inch x 24-inch x 28-inch Main Steam Line Valve	No.
o PGandE Drawing No. 102040-9 Line Designation Table	No.
o Westinghouse Steam Generator Drawings Nos. 1097J74, 7175360	No.
o Letdown Line orifice specification data sheet for RO 27, 28, 29	No.
o PGandE drawings which show the locations of temperature detectors in areas outside containment for the temperature monitoring program	No.
o CRVP system duct drawings	Yes; field verified for general location of equipment ducts.
o PGandE Drawing No. 59650 Roof Access Details-Turbine Building	Yes; field verified general location of opening in roof
o Air Conditioning Control Room Pressurization System Ducting Details Drawings	Yes; field verified general location in turbine building for development of geometric nodalization.

Information	Verification
o DCVP-TES-934 (83/03/28)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

(i) if the model was obtained from an outside source,

Answer:

None

f.(ii) if the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR.

Answer:

- SWEC
- Version 12, Level 03, NU092A, Subcompartment Transient Response code (THREED)
- The program calculates the transient pressure, temperature, and humidity in subcompartments following a postulated rupture in a moderate or high energy pipeline.
- FORTRAN IV - 98 percent
  BAL - 2 percent
- Benchmarked with industry codes RELAP 4 Mod 5 and COMPARE MOD 0 and manual verification of various phenomena.
- IBM 370/3033

ITR-15, Revision 0
HVAC Duct and Supports Report

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud, Edward Denison

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 3, 4, and 8-10 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix B of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o HVAC installation specification	No.
o HVAC layout drawings	Yes; field verified.
o Pyrocrete weight	No.
o HVAC duct material list	No.

o HVAC duct and supports mounting details	No.
o HVAC support fabrication drawings	Yes; field verified.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

ITR-16, Revision 0
Soils - Outdoor Water Storage Tanks

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Abendruh, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Dr. Robert McNeill, Consultant, Abendruh, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Dension, Dr. Robert McNeill

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 6-10, 12, 14, 15, 18, and 20 in the subject ITR	Yes.
o PGandE Resolution and Completion Reports for EOIs listed in Appendix A of the ITR	Yes.
o FSAR	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o OWST structural drawings	No.
o OWST excavation drawings	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-17-1

ITR-17, Revision 0
Piping - Additional Samples

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Charles Browne, Piping Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Charles Browne

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Charles Browne

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Charles Browne

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 4, 29, 30, and 49-53 in the subject ITR.	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix G of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o SAM displacements	No.
o Component drawings and data	No.
o Equipment specifications	No.
o Flued head drawings	No.
o Design criteria memorandum	No.
o Valve index	No.

Information	Verification
o Instrument Reference	No.
o Piping isometrics	Yes; field verified.
o Piping schematics	No.
o Valve drawings	Yes; field verified.
o Valve qualification summaries	No.
o Valve weights	No.
o Equipment location drawings	Yes; field verified.
o Flange drawings	No.
o Piping layout drawings	No.
o Equipment drawings	No.
o Pipe support drawings	No.
o Equipment foundation and support drawings	No.
o Equipment math models and stiffnesses	No.
o Design change order for equipment	No.
o Building drawings	No.
o System descriptions	No.
o Nozzle drawings and values	No.
o Equipment nozzle drawings	No.
o Equipment weights	No.
o Insulation weights	No.
o Heat tracing cable weights	No.
o Piping walkdown procedures	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

ADLPIPE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

1-18-1

ITR-18

Verification of the Fire Protection Provided for Auxiliary Feedwater Systems, Control Room Ventilation and Pressurization System, Safety-Related Portion of the 4160 V Electric System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC),
   Tech/Ed Services

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Karl Andrew Swenson, Lead Power Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Karl Andrew Swenson

(iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer

Karl Andrew Swenson

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o Technical Specifications	No.
o Design criteria for sprinklers, detectors, and fire barrier construction	No.
o Supplementary information for fire protection review November 13, 1978	Yes.
o PGandE letters to the NRC addressing NRC fire protection questions (2-6-78, 8-3-78, 11-13-78)	Yes.
o PGandE Resolution and/or Completion packages for EOI Files 8019, 8020, 8021, 8032, 8035, 8036, 8037, 8038, 8039	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	No.
o Ventilation system flow diagrams	No.
o Fire protection piping drawings	No.
o Fire loading adjacent to AFW pump room	No.
o Fire barrier construction for AFW pump rooms	Yes; field verified that barrier installed in accordance with licensing commitment.
o Ventilation drawings showing fire dampers in HVAC system for AFW pump rooms	Yes; field verified locations.
o Drawings showing H_2 piping locations in vicinity of AFW pump room	Yes; field verified general location of H_2 lines.
o Fire protection sprinkler drawings	Yes; field verified sprinkler locations in areas containing the sample systems.
o Documentation of electrical conduit locations in AFW pump room	Yes; field verified AFW conduit locations.
o Drawings of fire hose reel locations	Yes; field verified locations in areas containing the sample systems.
o Drawings of portable fire extinguisher locations	Yes; same.
o Fire Detector Drawings	Yes; same.
o PGandE response identifying control room breathing apparatus	Yes; same.
o Architectural drawings showing fire barrier construction	Yes; same.

Information	Verification
o Electrical raceway drawings	Yes; same.
o DCNs, electrical elementary diagrams, and raceway information for FCV-95	Yes; field verified conduit routing.
o Fuse characteristics for fuses associated with dc control of FCV-95	No.
o Letters to/from PGandE and NRC	No.
o DCM-M-6 Rev 5	Yes; field verified hydrogen line enclosures in AFW pump rooms.
o DC-0-E-M-208	Yes; same.
o DCO-EE-550 R10	Yes; field verified conduit routing.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

ITR-19

Verification of the Post-LOCA Portion of the Radiation Environments Used for Safety-Related Equipment Specification Outside Containment Auxiliary Feedwater System and Control Room Ventilation and Pressurization System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   General Dynamics, Electric Boat Division, Reactor Plant Services

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Charles Francis Bergeron, Lead Nuclear Technology Engineer, SWEC

   (ii) analyses performed for the ITR;

Answer:

Charles Francis Bergeron

(iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Charles Francis Bergeron

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o Radiation Research Associates (RRA); RRA Job Record No. RRA-4273-004-001	Yes.
o RRA-4273-004-002	Yes.
o RRA-4273-006-001	No.
o RRA-4273-006-002	No.
o RRA-4273-006-003	No.
o RRA-4273-006-004	No.
o RRA-4273-006-005	No.
o RRA-4273-006-008	Yes.
o RRA-4273-006-009	No.
o RRA-4273-006-010	No.
o RRA-4273-006-011	No.
o RRA-4273-006-013	No.
o RRA-4273-006-014	No.
o RRA-4273-006-019	No.
o RRA-4273-006-020	No.

Report	Relied On
o RRA-4273-006-021	No.
o RRA-4273-006-030	No.
o RRA-4273-006-031	No.
o RRA-4273-005-015	No.
o FSAR	No.
o Diablo Canyon Radiation Shielding Review	Yes.
o QADMOD Computer Run ID=2B13; Output for RRA; Job Record # RRA-4273-006-008	Yes.
o QADMOD Computer Code User's Manual	Yes.
o ORIGEN Computer Code User's Manual	No.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Fluid system piping schematics	No.
o PGandE piping drawings	Yes; field verified the general locations of radioactivity piping targets and shield walls used in SWEC dose analysis
o Isometric drawings (pipes)	Yes; same.

Information	Verification
o PGandE piping and mechanical drawings	Yes; same.
o PGandE concrete drawings	Yes; same.
o PGandE piping specification index	No.

f. What computer models were employed in performing analyses in connection with the ITR:

(i) if the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR;

Answer:

- Los Alamos Scientific Laboratory. SWEC version developed under contract to SWEC by Radiation Research Associates (RRA)
- QAD P-5 (Los Alamos) Version 00, Level 03, NU-137, Point Kernal Gamma Transport (QADMOD)
- The program calculates the dose rates at a series of detector locations for a number of different source points representing volumetric sources

- Source code
- SWEC version developed under contract to SWEC by RRA was qualified by hand calculation
- The QAD P-5 program has been updated to include: 1) the FASTER geometry routines, 2) a point source option, 3) a translated cylindrical source volume option and 4) internal library data for conversion factors, buildup factor coefficients, and mass attenuation factors for several materials and composition. The program was also modified to 1) reduce and simplify the required card input, 2) simplify the printed output and 3) include an option to have the summary table punched on cards.
- IBM 370/3033

f.(ii) if the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,
- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR.

Answer:

- SWEC
- Version 01, Level 01, Nu014, Fission Products in Nuclear Reactor (ACTIVITY 2)
- The program computes the fission products inventory in the fuel and concentrations in coolant and waste gas decay tanks in a nuclear power plant
- FORTRAN IV

- "Manual Qualification." NUO14 was qualified by hand calculations and checked against a Westinghouse RESAR
- IBM 370/3033

Answer:

- SWEC
- Version 01, Level 00, NU007, Radioisotope
- The program calculates the activity of isotopes in the primary coolant of a shutdown reactor by solving the appropriate decay-purification equations
- FORTRAN IV
- "Manual Qualification." NUG07 was qualified by hand calculation
- IBM 370/3033

ITR-20, Revisions 0 and 1
Verification Of The Mechanical/Nuclear
Design Of The Control Room
Ventilation And Pressurization System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Foster-Miller Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Karl Andrew Swenson, Lead Power Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Karl Andrew Swenson

(iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Karl Andrew Swenson

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o "Seismic Evaluation for Postulated 7.5M Hosgri Earthquake"	Yes.
o Technical Specifications	Yes.
o Vendor heat load data for all equipment in control room envelope cooled by the CRVP system	Yes.
o Vendor-certified CRVP fan performance curves at design conditions	Yes.
o Control room radiation and toxic gas buildup calculations	Yes.
o CRVP system vendor damper drawings data sheets and pressure loss test data at design flow	Yes.
o Calculations which establish control room envelope heat losses	Yes.
o Calculations which establish CRVP system design air flows	Yes.
o Preoperational test results verifying design flows	Yes.

Report	Relied On
and proper damper operational sequencing for all modes of CRVP system operation	
o The CRVP system design criteria	Yes.
o PGandE analyses used for sizing the CRVP and handling units	Yes.
o CRVP startup procedures	Yes.
o Plumbing layout of control room and CRVP mechanical room to identify floor drains and the PGandE analyses to indicate whether loss of trap priming has any impact on control room pressurization	Yes.
o Air balance test reports	Yes.
o Calculation for CO_2 buildup from mode 3 operation of the CRVP system in the control room	Yes.
o Calculation indicating system pressure drop for flow of 800 cfm through each carbon filter serving the control room and 1600 cfm through one filter when either unit is off-line	Yes.
o Documentation concerning location of HEPA and carbon filters serving control room	
o EDS design review of the control room HVAC which was completed 9/80	Yes.
o Certified control room pressurization test report verifying control room envelope can be maintained at 1/8 in. W.G.	Yes.
o Basis for the assumption of a control room infiltration rate of 500 cfm as indicated in FSAR, page 9.4-6	Yes.
o Basis for the term "2+0.6x2" shown in a formula in FSAR, page 9.4-6c	Yes.
o Basis for statement "Flow characteristics of the damper are such that the average flow over the closure time is less than 60 percent of full flow" indicated in FSAR, page 9.4-3	Yes.
o PGandE Resolution and/or Completion Packages to EOI Files 8012 and 8016	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	Yes; field verified CRVP equipment location.
o CRVP System schematic	Yes; field verified items such as number and sequence of fans, ducts, dampers and air-conditioning equipment.
c CRVP system vendor damper drawings, data sheets and pressure loss test data at design flow	No.
o CRVP system vendor filter drawings and data sheets	No.
o Vendor drawings and data sheets for the CRVP system air conditioning (chiller) units and cooling coils	No.
o PGandE/EDS correspondence which establishes the CRVP design criteria	No.
o CRVP system chilled water or refrigerant piping drawings	Yes; field verified to ensure that no significant differences exist that could affect operation as described in licensing documents.
o Duct pipe specifications	No.

Information	Verification
o Line designation tables	No.
o Equipment location drawings	Yes; field verified equipment located per drawings.
o CRVP system duct drawings	Yes; field verified to ensure that no significant differences exist that could affect operation as described in licensing documents.
o CRVP system chlorine and radiation monitoring instrumentation purchase specification manufacturer data sheets and installation requirements	No.
o Leakage rate and pressure drop curves for the bubble-tight dampers	No.
o Drawings showing location of chlorine and radiation monitor on the inlet of the control air conditioning system	Yes; confirmed field location to be in accordance with drawings.
o Equipment purchase information	No.
o Letters to/from PGandE and NRC	No.
o DCVP-TES-928(83/03/25)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-21, Revisions 0 and 1
Verification Of The Effects Of High Energy Line Cracks And Moderate Energy Line Breaks For Auxiliary Feedwater System And Control Room Ventilation And Pressurization System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Karl Andrew Swenson, Lead Power Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Karl Andrew Swenson

(iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Karl Andrew Swenson

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o "Seismic Evaluation for Postulated 7.5M Hosgri Earthquake"	Yes.
o Technical Specifications	Yes.
o Nuclear Services Corporation Report, PGE-01-29	Yes.
o Resolution and Completion packages from PGandE for EOI Files 8011, 8014, 8028, 8029, 8030, 8031 and 8050	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	Yes; field verified general location of AFW

Information	Verification
	and CRVP Class I equipment.
o Line designation tables	No.
o Condensate system piping drawings	Yes; drawings were used as guides to identify and locate piping in the field. Piping general location was verified.
o Auxiliary feedwater piping drawings	Yes; same.
o Fire protection system piping drawings	Yes; same.
o Makeup water system piping drawings	Yes; same.
o Turbine steam supply piping, including main steam piping, steam generator blowdown piping, and steam piping to the turbine driven auxiliary feedwater pump	Yes; same.
o Extraction steam and heater drip system	Yes; same.
o Chemical and volume control system	Yes; same.
o Turbine and generator associated systems	Yes; same.
o Auxiliary steam system	Yes; same.
o Safety injection system	Yes; same.
o Residual heat removal system	Yes; same.
o Fire protection system	Yes; same.
o PGandE letters to/from NRC	No.
o DCVP-TES-931(83/03/25)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None

ITR-22, Revisions 0 and 1
Verification Of The Mechanical/Nuclear Portion
Of
The Auxiliary Feedwater System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Foster-Miller Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Karl Andrew Swenson, Lead Power Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Karl Andrew Swenson

   (iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Karl Andrew Swenson

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o "Seismic Evaluation for Postulated 7.5M Hosgri Earthquake"	Yes.
o Technical Specifications	Yes.
o Condensate Storage Tank Sizing Calculations	No.
o Calculations which establish AFW system design flows	No.
o AFW pumps NPSHA calculations	No.
o AFW system parameters inputs (temperature, press, pipe schedule, pipe material) to stress analysis calculations	Yes.
o AFW system files of design information	Yes.
o AFW system pre-op test procedures	Yes.
o Operating procedures indicating the operator actions in response to low AFW pump suction pressure alarm and low condenate storage tank level alarm	Yes.
o Operating procedure for AC power operation and realigning to secondary water sources	Yes.
o PGandE basis for selecting the "maximum operating pressure" for the AFW piping	Yes.
o Report clarifying the acceptance of the fire water	Yes.

Report	Relied On
tank as the backup water source for the AFW system	
o PGandE description of the purpose of the AFW system "fill line" shown on the piping schematic diagram	No.
o Procedure documenting the SG water hammer test was performed hot	Yes.
o Test data showing required auxiliary feedwater flow can be provided	Yes.
o PGandE letter to the NRC transmitting test procedures and results of 48 hr endurance test for motor driven AFW pumps	Yes.
o Written description by PGandE concerning isolating auxiliary feedwater after a feedwater line break accident	Yes.
o PGandE Resolution and/or Completion packages for EOI Files 8009, 8010, 8015, 8027, 8048, 8060, and 8062	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	Yes; field verified AFW equipment location.
o Fluid system piping schematics	Yes; field verified to assure no significant differences exist from a hydraulic operational view point.
o PGandE Drawing No. 04902 Valve Specifications	No.

Information	Verification
PGandE/Westinghouse correspondence on AFW system design interface criteria	No.
o Piping specifications	Yes; calculation of pipe minimum wall thickness.
o Valve specification	Yes; field verified as installed per specification and piping schematic.
o AFW pump-certified vendor test curves for MD and TD pumps	No.
o AFW System flow control valve characteristics (Cv versus % open) from vendor	No.
o AFW system installed orifice data sheets indicating orifice diameter from vendor	No.
o Vendor valve drawing and data sheets for AFW system valves	Yes; field verified as installed per specification and piping schematic.
o Condensate storage tank vendor drawing	Yes; sizing calculation
o Condensate storage tank specification	No.
o AFW pump (MD and TD) specification	No.
o AFW Pump (MD and TD) vendor drawings	No.
o Condensate system piping drawings	Yes; drawings were field verified to compare the as-built configuration to piping schematics and to assure no significant differences exist from a hydraulic operational viewpoint.

Information	Verification
o Feedwater system piping drawings	Yes; same.
o Steam system piping drawings	Yes; same.
o Auxiliary feedwater piping drawings	Yes; same.
o Fire protection system piping drawings	Yes; same.
o Makeup water system piping drawings	Yes; same.
o Containment penetration drawings	Yes; same.
o Piping specifications index, general notes, and services (PGandE Drawing No. 049021)	Yes; same.
o AFW with Project Letter No. 1630 concerning steam system criteria compliance	No.
o AFW system E-H actuator vendor data sheets	No.
o AFW system piping isometric drawings	No.
o Vendor letter responding to PGandE question regarding pump drainage	No.
o Steam flow rate for AFW pump turbine	No.
o Letters to/from PGandE and NRC	No.
o Drawings showing raw water reservoir and piping to the AFW pumps	Yes; field verification of piping configuration which did not include detailed dimensional measurements.
o Westinghouse curve indicating AFW flowrate required for remaining at hot standby and for cooling down	No.
o Manufacturer's data showing required flow/temperature/pressure for the AFW turbine bearing cooling system	No.
o Manufacturers data showing required design pressure and temperature for the AFW turbine bearing heat exchangers	No.

Information	Verification
o Purchase specifications and information for control valves 95, 106, 107, 108, 109, 110, 111, 113, and 115	No.
o Vendor data listing maximum differential pressure that the valves are designed to open and close for 95, 37, 38, 436, 437, 106, 107, 108 110, 111, and 115	No.
o DCO-E-M-0476, Rev. 0-3	Yes; field verification of installation.
o Valve specification 1166	No.
o Valve specification 0722	No.
o Specification for valve 46.5	No.
o Manufacturer data for FI-9, 10, and 12	No.
o Valve specification for G-0218	No.
o Vendor data for design pressure and temperature for the turbine governor cooling unit	No.
o PGandE Drawing No. 663183-27 - (Fischer & Porter Co. Flow Indicator outline drawing	Yes, field verified.
o DCVP-TES-946(83/04/04)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

(i) if the model was obtained from an outside source,

Answer:

None.

f.(ii) if the model was not obtained from an outside source,

- the identity of the person or persons having overall responsibility for developing the model,

- the name or names by which the model is known,
- the general function of the model,
- the computer language in which the model was written,
- in general, what measures were taken to verify the accuracy of the model,
- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR.

Answer:

- SWEC
- Version 0, Level 04, HY-66, Piping System Analysis Program (PSAP).
- The program performs a comprehensive hydraulic analysis and design of a network piping system. Any parameter such as flow, diameter, or form loss coefficient of each pipe in the system can be determined if the other two are known.
- FORTRAN IV
- "Comparision Qualification" with HY-63 was performed. HY-63 is "Steady State Pipe Network Analysis Program-Linear" and was qualified by comparison to hand calculations.
- IBM 370/3033.

ITR-23, Revisions 0 and 1
Verification Of High Energy Line Break And
Internally Generated Missile Review Outside
Containment For Auxiliary Feedwater System And
Control Room Ventilation And Pressurization System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Stephen Patrick Sekerak, Lead Engineering Mechanics Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Stephen Patrick Sekerak

   (iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Stephen Patrick Sekerak

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o Nuclear Services Report-PGandE-01-26, Rev. 1	Yes.
o Nuclear Services Report-PGandE-01-27, Rev. 1	No.
o Nuclear Services Report-PGandE-01-28, Rev. 1	Yes.
o Nuclear Services Report-PGandE-01-29, Rev. 1	Yes.
o Environmental Qualification Report for Safety-Related Electrical Equipment, June 1981	Yes.
o Description of a method for determining pipe internal diameter and wall thickness	Yes.
o Letter identifying break locations and types for condensate, extraction steam and heater drip, and turbine generator and associated systems (DCVP-SWEC-144 response to document Rev. #12)	Yes.
o PGandE responses to IDVP questions as a result of background exchange meetings	Yes.
o Resolution and/or completion packages for EOI Files 8007, 8008, and 8049	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Condensate system piping area drawings	Yes; drawings were field verified to compare only the general routing of the as-built piping configuration with the piping drawings to assure no significant differences in routing exist which might affect postulated high energy line rupture locations.
o Feedwater system piping area drawings	Yes; same.
o Main steam system area drawings	Yes; same.
o Steam generator blowdown area drawings	Yes; same.
o Steam piping to auxiliary feed pump turbine drawings	Yes; same.
o Extraction steam and heater drip drawings	Yes; same.
o Chemical and volume control system drawings	Yes; same.
o Turbine and generator associated system drawings	Yes; same.
o Auxiliary feedwater system drawings	No.
o Safety injection system drawings	No
o Residual heat removal system drawings	No.

Information	Verification
o Auxiliary feedwater piping isometrics	No.
o Air conditioning drawings - control room	No.
o Concrete drawings for auxiliary building	No.
o Concrete drawings for containment	No.
o Concrete drawings for fuel handling building	No.
o Concrete drawings for control room	No.
o Equipment location drawings for auxiliary building	Yes; drawings were field verified only to the extent necessary to verify the as-built locations of components identified as sources of postulated internally generated missiles.
o Equipment location drawings for fuel handling building	Yes; same.
o Equipment location drawings for turbine building	Yes; same.
o Equipment location drawings for containment	No.
o Cable tray and conduit layout drawings for AFW and CRVP systems	No.
o Line designation table (PGandE Drawing No. 102040-9)	No.
o Piping specification index, general notes, and services (PGandE drawing No. 049021-18)	No.

Information	Verification
o AFWPT missile shield drawing	Yes; field verified that shield is in place.
o Fluid system piping schematics	No.
o Change sheets for piping area drawings	No.
o Letters to/from PGandE and NRC	No.
o DCVP-TES-930 (83/03/25)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-24, Revisions 0 and 1
Verification Of The 4160V Safety-Related
Electrical Distribution System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Tech/Ed Services

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Edward Francis Heneberry, Lead Electrical Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Edward Francis Heneberry

   (iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Edward Francis Heneberry

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o PGandE/NRC letters	Yes.
o Technical Specifications	Yes.
o Identification of safety-related systems	Yes.
o Maximum and minimum values of operating voltage, MVA, x/r ratio and power factor for 500 kV, 230 kV, and 25 kV (generator) systems	Yes.
o Relay information and settings for:	
Diesel generators	Yes.
4 kV circuit breakers	Yes.
4 kV and 480 V bus undervoltage	Yes.
4 kV and 480 V Coordination	Yes.
Largest 4kV motor (charging pump)	Yes.
o Design Criteria:	
4160 V system	No.
480 V system	No.
115 V ac system	No.
125 V dc system	No.
o Voltage Profile and Short Circuit Calculations:	
4160 V safety-related systems	No.

Report	Relied On
480 V safety-related systems	No.
o PGandE practice for loading 4160-480 V load center transformers	Yes.
o Lists of equipment supplied by diesel generators for various loading conditions	Yes.
o Diesel generator motor starting test data	Yes.
o Protective relay settings	Yes.
o 4160 V ground resistor calculation	Yes.
o DCNs outstanding prior to 11/30/81	Yes.
o Brake horsepower of reactor coolant pump	Yes.
o Equipment line-up on 12 kV and 4 kV buses	Yes.
o Equipment current level relative to relay coordination curves	Yes.
o kW and kVA loadings on diesel generators for various operating conditions	Yes.
o Schedules for automatic sequential loading of the emergency diesel generators	Yes.
o Results of qualification tests run by diesel generator manufacturer	Yes.
o 480 V bus loading summaries	Yes.
o Transformer tap settings	Yes.
o Brake horsepower of 4kV and 12 kV non-safety motors	Yes.
o kW and kVA test loadings applied to diesel generators when PGandE Test Procedure 21.1 was performed	Yes.
o Documentation of input data used in short circuit and voltage profile calculations	Yes.
o Additional test data to verify the capabilities of the diesel generator	Yes.
o Oscillograph 5M SS4A-5007645 diesel generator test results	Yes.
o Voltage profile documentation for full load, low voltage conditions, auxiliaries being supplied from main generator 25 kV bus	Yes.
o Short-circuit calculations for 480 V safety-related	Yes.

Report	Relied On
buses	
o PGandE Resolution and/or Completion packages for EOI Files 8013, 8022, 8023, 8024, 8025, 8026, and 8045	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Vendor Data - power transformers	No.
o Vendor Data - main generator	No.
o Vendor Data - diesel generator	No.
o Vendor Data - motors larger than 100 hp.	No.
o Vendor Data - medium voltage switchgear	No.
o Vendor Data - 480 V safety-related MCCs	No.
o Manual circuit schedules	
12 kV circuits	No.
4 kV circuits	No.
o Schematic diagrams - diesel generators	No.
o Schematic diagrams - 4 kV main circuit breakers	No.
o Schematic diagrams - 115 V ac and 125 V dc systems	No.
o Index of PGandE electrical drawings	No.
o Vendor data for electrical equipment in 4160 V System	No.
o Letters to/from PGandE and NRC	No.

Information	Verification
o Switchgear and breaker locations	No.
o Vendor kW and kVA ratings of diesel generators	No.
o Design and construction of diesel generator main cables	No.
o Raceway information for diesel generator cables	No.
o Vendor defined minimum starting voltage for safety system motors	No.
o Specifications for 4 kV safety-related switchgear and emergency diesel generators	No.
o Vendor defined 4 kV switchgear capability	No.
o DCVP-TES-945 (83/04/04)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

(i) if the model was obtained from an outside source,

- the identity of that source,
- the name or names by which the model is known,
- the general function of the model,
- whether the model was received in source code or object code,
- whether the version received had been certified for accuracy and, if so, the nature of the certification,
- whether the model (i.e., the computer program) was modified in any way (excluding modifications solely to alter the format in which data were read or displayed) after receipt and, if so, the nature of all such modifications,

- the manufacturer and model number of the computer or computers on which the computer model was run in connection with the ITR;

Answer:

- Electric Power Research Institute (EPRI)
  Dow Engineering Company
- Version 00, Level 00, EL-067, Station Service Optimization and Analysis Program (SSOAP)
- The program calculates the maximum and minimum allowable station service transformer impedances at various load levels and identifies the optimum impedance. It also investigates the steady state operation of auxiliary system conditions including motor starting transient conditions. It calculates symmetrical and asymmetrical currents and MVA for an auxiliary system under faulted conditions.
- Source code.
- A) The EPRI Transient/Midterm Stability Program (EL-063) - Power Flow Module was qualified by comparing test cases run on the Stone & Webster computer with computer output of test case results provided by EPRI.
  B) The Dow Engineering Short-Circuit Program (EL-028) was qualified by performing manual calculations using test case input data and then comparing the results with the test case computer output.
- 1) The program is known as "Station Service Optimization and Analysis Program" or more simply as "Station Service Program."

2) It is an enhancement and incorporation of two previously qualified programs:
   a) The EPRI Transient/Midterm Stability Program (EL-063) - Power Flow Module
   b) The Dow Engineering Short-Circuit Program (EL-028).
3) Modifications were made to a copy of each of these two programs (i.e., the qualified versions of EL-028 and EL-063 were not disturbed) to include the following options for EL-067:

   a) Induction motor equivalent circuits
   b) Branch impedance data input
   c) Station service transformer data input
   d) Synchronous machine data input
   e) Circuit breaker data input.
4) EL-067 was qualified by comparing runs made with EL-067 to the previously qualified programs as follows:

   - Load flow runs compared with output of EL-063 runs made with the same test data input
   - Short-circuit runs compared with output of EL-028 runs made with the same test data input

   The added options were qualified by performing manual calculations using the test case input data and comparing the results with the test case computer output.

- IBM 370/3033

f.(ii) if the model was not obtained from an outside source,

Answer:

None.

ITR-25, Revisions 0 and 1
Verification Of The Auxiliary Feedwater System
Electrical Design

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Tech/Ed Services

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Edward Francis Heneberry, Lead Electrical Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Edward Francis Heneberry

   (iii) the conclusions of the ITR;

   Answer:

   John Edward Krechting

(iv) documentation of the ITR.

Answer

Edward Francis Heneberry

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o Technical Specifications	Yes.
o List of Electrical Safety-Related AFW Equipment	Yes.
o List of AFW Electrical Equipment Requiring Qualification and Environmental Conditions	Yes.
o Environmental Qualification Reports for AFW Electrical Equipment	Yes.
o PGandE Criteria for cable installation in tray	Yes.
o PGandE Resolution and/or Completion Packages for EOI Files 8011, 8042, 8043, 8044, 8061, and 8063	Yes.
o Relay Protection Settings	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Electrical one-line drawings	No.
o Wiring diagrams	No.

Information	Verification
o Circuit schedules and data	No.
o Raceway schedules and data	No.
o Vendor motor data	No.
o PGandE purchase specifications	No.
o Design change notices prior to 11/30/81 for one-line drawings	No.
o PGandE electrical drawing list	No.
o Vendor breaker data	No.
o PGandE design and test data	No.
o PGandE marked-up drawings of raceway and electrical equipment in AFW system	Yes; field verification of raceway routing and equipment location.
o Power cable design and construction	No.
o Cable block diagrams	No.
o Electrical schematics	No.
o Circuit listings	No.
o Raceway listings	No.
o Equipment location code	No.
o Manual power circuit and raceway listing for the AFW System	No.
o Letters to/from PGandE and NRC	No.
o DCVP-TES-944 (83/04/04)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None

1-26-1

ITR-26, Revisions 0 and 1
Verification Of The Control Room Ventilation
And Pressurization System Electrical System

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Edward Francis Heneberry, Lead Electrical Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Edward Francis Heneberry

   (iii) the conclusions of the ITR;

   Answer:

   John Edward Krechting

(iv) documentation of the ITR.

Answer:

Edward Francis Heneberry

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o Technical Specifications	Yes.
o List of Electrical Safety-Related CRVP Equipment	Yes.
o List of CRVP Electrical Equipment Requiring Qualification and Environmental Conditions	Yes.
o Environmental Qualification Reports for CRVP Electrical Equipment	Yes.
o PGandE criteria for cable installation in tray	Yes.
o PGandE Resolution and/or Completion packages for EOI Files 8011, 8041, 8042, 8044, 8061	Yes.
o Relay Protection Settings	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Electrical one-line drawings	No.
o Wiring diagrams	No.

	Information	Verification
o	Circuit schedules and data	No.
o	Raceway schedules and data	No.
o	Vendor motor data	No.
o	PGandE purchase specifications	No.
o	Design change notices prior to 11/30/81 for one-line drawings	No.
o	PGandE electrical drawing list	No.
o	Vendor breaker data	No.
o	PGandE design & test data	No.
o	PGandE marked-up drawings of raceway and electrical equipment in CRVP system	Yes; field verification of raceway routing and equipment location.
o	Power cable design and construction	No.
o	Cable block diagrams	No.
o	Electrical schematics	No.
o	Circuit listings	No.
o	Raceway listings	No.
o	Equipment location code	No.
o	Manual power circuit and raceway listing for the CRVP system	No.
o	Letters to/from PGandE and NRC	No.
o	DCVP-TES-973 (83/04/13)	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-27, Revisions 0 and 1
Verification Of The Instrument And Control Design
Of
The Auxiliary Feedwater System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Foster-Miller Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Frank James Rezendes, Lead I&C Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Frank James Rezendes

   (iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Frank James Rezendes

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o PGandE Environmental Qualification Report	Yes.
o PGandE Resolution and/or Completion packages for EOI Files 8018, 8032, 8047, 8051, 8052, 8054, 8055, 8057, 8058, 8059, 8060, 8064	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	Yes; field verified Class I equipment location for CRVP and AFW Systems.

Information	Verification
o System piping schematics	Yes; field verified component redundancy and functional location.
o Instrument schematics	Yes; verified instrument classification to FSAR.
o Control logic diagram	Yes; verified logic to FSAR description.
o Electrical schematics	Yes; verified to logic diagrams.
o Electrical connection diagrams	No.
o Instrument design criteria Memo M-3	No.
o Purchase order	No.
o Vendor data	No.
o Equipment specs	No.
o Letters to/from PGandE and NRC	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

1-28-1

ITR-28, Revisions 0 and 1
Verification Of The Instrument And Control
Design Of The Control Room Ventilation
And Pressurization System

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   Foster-Miller Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John Edward Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Frank James Rezendes, Lead I&C Engineer, SWEC

   (ii) analyses performed for the ITR;

   Answer:

   Frank James Rezendes

   (iii) the conclusions of the ITR;

Answer:

John Edward Krechting

(iv) documentation of the ITR.

Answer:

Frank James Rezendes

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o FSAR	Yes.
o SER	Yes.
o PGandE Environmental Qualification Report	Yes.
o Technical Specifications	Yes.
o PGandE Resolution and/or Completion packages for EOI Files 8017, 8046, 8053, 8056, 8057, 8059	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Equipment location drawings	Yes; field verified Class I equipment location for AFW and CRVP Systems.
o System piping schematics	Yes; Class I component redundancy and functional

Information	Verification
	location for AFW and CRVP Systems.
o Instrument schematics	Yes; verified instrument classification to FSAR and elec schematics.
o Control logic diagram	Yes; verified to FSAR description.
o Electrical schematics	Yes; verified to logic diagrams and FSAR description.
o Electrical connection diagrams	No.
o Design criteria memoranda	No.
o Purchase orders	No.
o Vendor data	No.
o Equipment and Installations Specs	No.
o Letters to/from PGandE and NRC	No.
o DCN-EE-446	No.
o Main control board drawings	Yes; field verified for AFW and CRVP Systems instrumentation and control arrangement.
o Installation contract	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-29, Revision 0
Design Chain Initial Sample

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1. With respect to each ITR, including all revisions, except ITR 36 and ITR 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)
   R. F. Reedy, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   John E. Krechting, Project Engineer, SWEC
   Mark A. Revett, Assistant Project Manager, Teledyne Engineering Services

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   John E. Krechting; Roger F. Reedy, President, R. F. Reedy, Inc.; Paul J. Herbert, Principal, R. F. Reedy, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Not applicable.

   (iii) the conclusions of the ITR;

   Answer:

   John E. Krechting, Mark A. Revett

Answer:

John E. Krechting, Mark A. Revett

(iv) documentation of the ITR.

Answer:

John E. Krechting; Mark A. Revett

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

None

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and, with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Diablo Canyon Project Consultants Contract List	Yes; verified by reviewing contracts and change orders for contracts of the various consultants.
o Information obtained orally in meetings with DCP and other IDVP participants	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

1-30-1

ITR-30, Revision 0
Small Bore Piping

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Charles Browne, Piping Co-ordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Charles Browne

(iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud, Charles Browne

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Charles Browne

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 2, 5, 6, 8, 9, 10, 11, and 14 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix C of the ITR	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Piping isometrics	Yes; field verified.
o Design criteria memorandum	No.
o Piping walkdown procedures	No.
o Piping support drawings	Yes; field verified.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

ADLPIPE

See response to Interrogatory 1 (f) for ITR-1, Rev. 0.

ITR-31, Revision 0
HVAC Components

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 3, 4, 6-8, and 11 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix B of the ITR	Yes.
o Review of Seismic Qualification of HVAC Equipment Diablo Canyon, EDS Nuclear Inc., 2/22/79 and 8/19/79 (P105-4-436-002 and 004)	Yes.
o Buffalo Forge Calculations 1085 BLA Fan, SA-A-36/0 DC-663399-29-1, 1973	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Fan drawings	Yes; field verified.
o Damper drawings	Yes; field verified.

Information	Verification
o Actuator instruction book	No.
o Actuator weights	No.
o Ventilation layout drawings	No.
o HVAC installation specification	No.
o HVAC duct thickness	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests.	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

1-32-1

ITR-32, Revision 0 and 1
Pumps

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 4, 5, 7, 9 and 11 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix D of the ITR	Yes.
o Auxiliary Feedwater Pump and Motor, Seismic Qualification, 3/18/83 (P105-4-435-050 SQE-1.1 Rev. 0 21.10G)	Yes.
o Diesel Fuel Oil Transfer Pump and Motor, Seismic Qualification, 3/4/83 (P105-4-435-051 SQE-8.2 Rev. 0 21.10G)	Yes.
o Seismic Capability of RCIC Turbines (GS-1 and GS-2) Keith Feibusch Associates, Engineers, 4/71 and 2/73 (P105-4-420-008)	Yes.
o Seismic Analysis 4 x 6 x 9D stage DVMX Auxiliary Feedwater Pump for PGandE, 6/72, DC-663056-58-1, (P105-4-420-007)	Yes.
o ASW Pump Review Calculations, March 31, 1978	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Pump nozzle data	No.
o Vendor information on subject pumps	No.
o Design criteria memorandum	No.
o Isometrics and schematics for piping attached to pumps	No.
o Equipment mounting drawings for subject pumps	No.
o Equipment drawings for subject pumps	Yes; field verified.
o Material lists for subject pumps	No.
o Vendor instruction manual for auxiliary saltwater pump	No.
o CCW pump mounting details	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests.	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

ITR-33, Revision 0 and 1
Electrical Equipment Analysis

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 4, 5, 10, and 13 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o Instrument Panels - Areas F, G, J, and K, Seismic Qualification, 1/17/80, 1.288.13	Yes.
o Instrument Panel 64, Seismic Qualification, 11/19/81, M-42	Yes.
o Instrument Panel 69, Seismic Qualification, 11/19/81, M-43	Yes.
o Instrument Panels 163, 164, 165, 166, and 168, Seismic Qualification, 11/24/81, M-44	Yes.
o Resonant Frequency Tests of Enclosed Panel-Mounted Pressure Transducers for Diablo Canyon Units 1 and 2, Seismic Qualification Report, 5/7/78, 7333. 142-76, C.B: Scott/Mechanical Engineer, H.K. McCluer/ Supervisor Mechanical Engineer	Yes.
o Class I instruments located in panels 64, 69, 163, 164, 165, 166, and 168, Seismic Qualification, 11/30/81, M-46 (P105-4-437-009)	Yes.
o "Seismic Integrity Analysis of Hot Shutdown Remote Control Panel," prepared by C.E.S. Ueng, GIT, 7/12/72 (663106-10-1)	Yes.

- o Seismic Qualification Analyses: PY-22, Power AC Panel-boards, Circuit Breakers; 2/9/83 (P105-4-437-031) — Yes.
- o FSAR — Yes.
- o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004 — Yes.
- o PGandE DCP Semi-Monthly Reports — Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Main annunciator cabinet drawings	Yes; field verified.
o Hot shutdown panel drawings	Yes; field verified.
o Local instrument panel drawings	Yes; field verified.
o Instrument AC panel drawings	Yes; field verified.
o Equipment mounting details for above described equipment	Yes; field verified.
o Instrumentation weights	No.
o Anchor bolt drawing	No.
o Vendor instruction book	No.
o Panel thicknesses for local instrument panels	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR-1, Rev. 0.

ITR-34, Revision 0 and 1
Verification of Diablo Canyon Project Efforts
by Stone & Webster Engineering Corporation

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Stone & Webster Engineering Corporation (SWEC)

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dean C. Stratouly, Assistant Project Manager, Teledyne Engineering Services
   John E. Krechting, Project Engineer, SWEC

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   John C. Krechting

   (ii) analyses performed for the ITR;

   Answer:

   None performed.

   (iii) the conclusions of the ITR;

   Answer:

   Dean Stratouly, John E. Krechting

(iv) documentation of the ITR.

Answer:

Dean Stratouly, John E. Krechting

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Information	Relied On
o DCVP-TES-729 (83/01/24)	Yes.
o DCVP-TES-748 (83/1/31)	Yes.
o DCVP-TES-869 (83/3/8)	Yes.

In addition, this ITR was prepared using information obtained with respect to ITRs 14, 20, 22, 27, 28, and 42 as of the date of preparation of this ITR.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

None.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-35, Revision 0
IDVP Verification Plan for Diablo Canyon Activities

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Dension, Project Manager, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Dension

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison; Ronald Wray, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o Reference 1 of the subject ITR.	Yes.
o Letter, DCVP-RLCA-616 (April 25, 1983)	Yes.
o Letter, DCVP-TES-911 (March 22, 1983)	Yes.
The IDVP also received and relied upon reports as designated for other ITRs	

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o General PGandE program information was obtained through meeting minutes and telecons.	No.
o This ITR was also prepared using information obtained with respect to other ITRs.	See other ITRs.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-37-1

ITR-37, Revision 0 and 1
Valves

---

1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o Reference 4, 5, 9 of the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o Velan Valves FCV-37, 38 and 95, Eigen-value Analysis EDS Nuclear, 1/17/79. (P105-4-443-002, 1700009 Calc. 004 Rev. 2)	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o FCV-95 valve drawings and data	Yes; field verified.
o FCV-41 valve drawings and data	Yes; field verified.
o Piping math model and listing of results for piping attached to the subject valves.	No.

Information	Verification
o Design criteria memorandum	No.
o General valve specification	No.
o PGandE design change order.	
o FCV-95	Yes; field verified.
o FCV-41	Yes; field verified.
o FCV-37	Yes; field verified.
o FCV-38	No.
o FCV-42	No.
o FCV-43	No.
o FCV-44	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests.	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR 1, Rev. 0.

1-39-1

ITR-39, Revision 0

Soils - Intake Structure, Bearing Capacity and Lateral Earth Pressure

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1. With respect to each ITR, including all revisions, except ITR-36 and ITR-38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Robert L. Cloud Associates, Inc.
   Teledyne Engineering Services
   Abendruh, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Dr. Robert McNeill, Consultant, Abendruh, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison, Dr. Robert McNeill

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Dension

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 1, 5-7 and 15-19 in the subject ITR.	Yes.
o PGandE Resolution and Completion Sheets for EOI's listed in Appendix A of the ITR.	Yes.
o Reports listed in response to Interrogatory 1(d) for ITR 13, Rev. 0.	Yes.
o FSAR	Yes.
o PGandE DCP Semimonthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and, with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Intake concrete drawings	No.
o Intake lift drawings	No.
o Harding Lawson Associates report clarification	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.

Information	Verification
o Information provided in response to specific written requests	No.
o See also, response to Interrogatory 1(e) for ITR 13, Rev. 0	See other ITRs.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

1-40-1

ITR-40, Revision 0
Soils Report-Intake Structure
Sliding Resistance

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1. With respect to each ITR, including all revisions, except ITR-36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.
   Abendruh, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.
   Dr. Robert McNeill, Consultant, Abendruh, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Edward Denison, Dr. Robert McNeill

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

   (iii) the conclusions of the ITR;

   Answer:

   Dr. Robert Cloud, Dr. Robert McNeill

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Edward Denison

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 8, 9, and 12 in the subject ITR	Yes.
o Reports listed in response to Interrogatory 1(d) for ITR-13, Rev. 0 and ITR-39, Rev. 0	Yes.
o FSAR	Yes.
o PGandE DCP Semimonthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Intake lift drawings	No.
o Intake concrete drawings	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.
o See also responses to Interrogatory 1(e) for ITRs-13 and -39	See other ITRs.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

ITR-41

Corrective Action Program and Design Office Verification

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services

   R. F. Reedy, Inc.

   Other persons were retained by R. F. Reedy, Inc. to perform work on this ITR under the direction and supervision of R. F. Reedy, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Roger F. Reedy, President, R. F. Reedy, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Roger F. Reedy

   (ii) analyses performed for the ITR;

   Answer:

   Roger F. Reedy

   (iii) the conclusions of the ITR;

   Answer:

   Roger F. Reedy; Mark Revett, Assistant Project Manager, Teledyne Engineering Services.

(iv) documentation of the ITR;

Answer:

Roger F. Reedy

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report:	Relied On
o Diablo Canyon Engineering Manual (PGE)	Yes.
o Diablo Canyon Project Engineering, Instructions	Yes.
o Diablo Canyon Nuclear Quality Assurance Manual	Yes.
o Diablo Canyon Quality Assurance Department Procedures Manual	Yes.
o Bechtel Topical Report, BQ-TOP-1, Rev. 3A.	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o DCP Open Item Documents	Yes; verified that work was performed in accordance with DCP QA program.
o Analysis Packages	Yes; same.
o Computer Runs	Yes; same.
o Design Control Memoranda	Yes; same.
o Drawings	Yes; same.
o Design Change Notices	Yes; same.
o Correspondence	No.
o Contracts	Yes; same.

Information	Verification
o Procedures	Yes; same.
o Instructions	No.
o Signature Registers	Yes; same.
o Organization Charts	Yes; same.
o QA Work Plan/Logs	Yes; same.
o Information obtained orally in meetings with DCP personnel	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

1-42-1

ITR-42

RFR IDVP Phase II Review and Audit of PGandE Company and Design Consultants for Diablo Canyon Unit 1

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services

   R. F. Reedy, Inc.

   Other persons were retained by R. F. Reedy, Inc. to perform work on this ITR under the direction and supervision of R. F. Reedy, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Roger F. Reedy, President, R. F. Reedy, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Roger F. Reedy; Paul J. Herbert, Principal, R. F. Reedy, Inc., W.S. Gibbons, Principal, R. F. Reedy, Inc.

   (ii) analyses performed for the ITR;

   Answer:

   Roger F. Reedy, Paul J. Herbert, W.S. Gibbons

(iii) the conclusions of the ITR;

Answer:

Roger F. Reedy, Paul J. Herbert, W.S. Gibbons, Mark Revett, Assistant Project Manager, Teledyne Engineering Services

(iv) documentation of the ITR.

Answer:

Roger F. Reedy, Paul J. Herbert, W.S. Gibbons

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report:	Relied On
o Radiation Research Associates, Quality Assurance Manual(September 1979)	Yes.
o Quadrex Corporation, Quality Assurance Manual, Revisions 0, 1 and 2	Yes.
o Quadrex Corporation Engineering Mechanics Instructions.	Yes.
o Quadrex Corporation Project Design Reports	Yes.
o EDS Nuclear Inc., Quality Assurance Manual, Revision 0-10, 12-15	Yes.
o PGandE QA Manual Revisions 0-3	Yes.
o PGandE Engineering Department Manual Revisions 0-4	Yes.
o Diablo Canyon Final Safety Analysis Report	Yes.
o PGandE Review Report Numbers IH-1, IH-2, IH-4, IH-5	Yes.
o Look Back Review Procedure W718.11 Revision 2	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Analysis packages	Yes. Verified that work was performed in accordance with DCP QA program and/or Design Control Practices.
o Computer runs	Yes; same.
o Drawings	Yes; same.
o Design change notices	Yes; same.
o Correspondence	Yes; same.
o Contracts	Yes; same.
o Procedures	Yes; same.
o Instructions	Yes; same.
o Organization charts	Yes; same.
o Information obtained orally in meetings with DCP personnel	No.

f. What computer models were employed in performing analyses in connection with the ITR.

Answer:

None.

1-43-1

ITR-43, Revision 0
Heat Exchangers

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge, Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator, Robert L. Cloud Associates, Inc.
   Dr. Pal Raju, Consulting Engineer, Teledyne Engineering Services

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey, Dr. Pal Raju

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey, Dr. Pal Raju

(iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.; Dr. Pal Raju

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 4, 5, 10, 13, 14-16, and 19 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o Vibration Tests of a Component Cooling Water Heat Exchanger at the Diablo Canyon Nuclear Power Plant, ANCO, 7/78, P105-4-445-009	Yes.
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o CCW piping support drawings	Yes; field verified.
o CCW piping isometrics	Yes; field verified.
o Anchor bolt drawings	No.
o CCW heat exchanger drawings	Yes; field verified.
o CCW heat exchanger mounting drawings	Yes; field verified
o Vendor data	No.
o Material list	No.
o Anchor bolt configuration data	No.
o Design criteria memorandum	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

STARDYNE

See response to Interrogatory 1(f) for ITR-1, Rev. 0

ITR-44, Revision 0
Shake Table Test Mounting Class IE
Electrical Equipment

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1. With respect to each ITR, including all revisions, except ITR 36 and 38, state:

   a. What contractors and subcontractors to the IDVP worked on the ITR?

   Answer:

   Teledyne Engineering Services
   Robert L. Cloud Associates, Inc.

   b. The person employed or retained by the IDVP or its subcontractors most knowledgeable about the ITR.

   Answer:

   Dr. Robert Cloud, President and Principal in Charge,
   Robert L. Cloud Associates, Inc.
   Hanson Loey, Project Engineer and Equipment Coordinator,
   Robert L. Cloud Associates, Inc.

   c. The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

   (i) data collection for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

   (ii) analyses performed for the ITR;

   Answer:

   Dr. Robert Cloud, Hanson Loey

(iii) the conclusions of the ITR;

Answer:

Dr. Robert Cloud; Edward Denison, Project Manager, Robert L. Cloud Associates, Inc.

(iv) documentation of the ITR.

Answer:

Dr. Robert Cloud, Hanson Loey

d. What reports the IDVP received from the DCP in connection with the ITR and, with respect to each, whether the IDVP relied upon it.

Answer:

Report	Relied On
o References 3, 4 and 10-14 in the subject ITR	Yes.
o PGandE Resolution and Completion Sheets for EOIs listed in Appendix A of the ITR	Yes.
o Safeguards Relay Board-PGandE Anchorage Analysis, File No. 52.19, Calc. No. EQP205.1, 2/10/83, P105-4-437-037	Yes.
o Excitation Cubicles of Emergency Diesel Generators Anchorage, EQP 228.1, 3/3/83, P105-4-437-041	Yes.
o 125 V dc Switchgear, EQP 220.1, 3/14/83, P105-4-437-042	Yes.
o Potential Transformers Support Analysis, 9/15/78, P105-4-437-030	
o FSAR	Yes.
o Hosgri Annulus Vertical Spectra (11/28/81) RLCA #P105-4-200-004	Yes.
o PGandE DCP Semi-Monthly Reports	Yes.

e. In categorical terms, what other information the IDVP received from the DCP in connection with the ITR, and with respect to each category:

(i) whether the IDVP independently verified the information received;

(ii) if it did, how it verified the information.

Answer:

Information	Verification
o Test procedure clarification	No.
o Equipment drawings	Yes; field verified.
o Equipment foundation drawings	Yes; field verified.
o Equipment location data	Yes; field verified.
o Equipment mounting data in response to questions	No.
o Equipment classification data	No.
o Information obtained in meetings and in telecons with PGandE personnel	No.
o Information provided in response to specific written requests	No.

f. What computer models were employed in performing analyses in connection with the ITR:

Answer:

None.

Response to Interrogatories 8 and 9:

Note:

These interrogatories refer to the IDVP Phase I Final Report and the IDVP Phase II Final Report respectively. Only a single IDVP Final Report is being prepared. The only content unique to Phase I is Section 6.6; Section 6.7 is unique to Phase II. However, the same answers would apply to both 6.6 and 6.7. Therefore, the interrogatories 8 and 9 and answers thereto are combined.

With respect to the IDVP Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

Answer:

Dr. William E. Cooper

(c) The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

Answer:

There was no "data" collection for the Final Report as opposed to data collected for the ITRs.

(ii) analyses performed for the Final Report (independent from the analyses for the ITRs);

Answer:

These were no "analyses" performed for the Final Report independent from the analyses performed for the ITRs.

(iii) conclusions of the Final Report;

Answer:

Dr. William E. Cooper

(iv) documentation of the Final Report.

Answer:

Dr. William E. Cooper

(d) What computer models were employed in performing analyses in connection with the Final Report (excluding models employed in connection with the ITRs).

Answer:

None.

Response to Interrogatory 10:

With respect to the DCP Phase I Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

Answer:

The IDVP did not prepare the DCP Phase I Final Report. Information furnished by the IDVP was apparently utilized by those who prepared the DCP Phase I Final Report and the IDVP supplied comments on the Final Report to the DCP. The person employed or retained by the IDVP or its subcontractors most knowledgeable about any particular subject treated in the DCP Phase I Final Report is the person most knowledgeable about that same subject treated in relevant ITRs and is identified in the answer to Interrogatory 1.

(c) The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

Answer:

IDVP knowledge concerning data collected for the Final Report will be reported in ITRs presently identified by the IDVP but not yet issued.

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

Answer:

IDVP knowledge concerning analyses performed for the Final Report will be reported in ITRs presently identified by the IDVP but not yet issued.

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

Answer:

Many persons employed or retained by the IDVP or its subcontractors have read the DCP Phase I Final Report. As indicated in the response to Interrogatory 10 (a) above, the person most knowledgeable about any particular subject treated in the DCP Phase I Final Report, including related conclusions and documentation, is the person most knowledgeable about that same subject treated in relevant ITRs and is identified in the answers to Interrogatory 1.

Response to Interrogatory 11:

With respect to the DCP Phase II Final Report, state:

(a) The person employed or retained by the IDVP or its subcontractors most knowledgeable about the Final Report.

(c) The person employed or retained by the IDVP or its subcontractors most knowledgeable about:

(i) data collection for the Final Report (as opposed to data collected for the ITRs);

(ii) analyses performed for the Final Report (independent from the data collected for the ITRs);

(iii) conclusions of the Final Report;

(iv) documentation of the Final Report.

Answer:

The DCP Phase II Final Report has not been issued. Consequently, no answers can presently be given to these Interrogatories by the IDVP.

STATE OF MASSACHUSETTS

SS:

COUNTY OF MIDDLESEX

The undersigned, William E. Cooper, being duly sworn this 20th day of May, 1983, upon his oath states that he is employed by Teledyne Engineering Services (TES) as a Consulting Engineer and is assigned as Project Manager for the DCNPP-1 IDVP for which Teledyne Engineering Services is the Program Manager, that he is informed on the matters of inquiry of Interrogatories 1 (a) through (f); 8 (a), (c), and (d); 9 (a) (c), and (d); 10 (a) and (c); and 11 (a) and (c) of the First Set of Interrogatories Propounded to Pacific Gas and Electric Company by Governor Deukmejian and Joint Intervenors; that in answering the above and foregoing Interrogatories he has personally reviewed or caused others to review the files and records of Teledyne Engineering Services; Stone & Webster Engineering Corporation; Robert L. Cloud and Associates, Inc.; and R. F. Reedy, Inc. and has caused information to be gathered from employees and officers of those entities and their contractors and consultants; that the answers to the above and foregoing interrogatories are true and correct as he has been informed and verily believes.

William E. Cooper

William E. Cooper

May 20, 1983

William S. Moonan

William S. Moonan

My Commission expires August 6, 1987

DOCKET NUMBER 50-275/323

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 11(d). Said answers are true and correct to the best of my knowledge and belief.

S. Auer

Subscribed and sworn to
before me this 20th day
of May, 1983.

C. T. Neal Madison

C. T. Neal Madison, Notary Public
in and for the City and County
of San Francisco, State of
California

C. T. NEAL MADISON
NOTARY PUBLIC — CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires Dec. 27, 1985

My Commission expires December 27, 1985

DS03

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 11(d). Said answers are true and correct to the best of my knowledge and belief.

Edward J. Brady

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster, Notary Public
in and for the City and County
of San Francisco, State of
California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 11(d). Said answers are true and correct to the best of my knowledge and belief.

E. C. Connell, III

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster, Notary Public in and for the City and County of San Francisco, State of California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

STATE OF MASSACHUSETTS

SS:

COUNTY OF MIDDLESEX

The undersigned, William E. Cooper, being duly sworn this 20th day of May, 1983, upon his oath states that he is employed by Teledyne Engineering Services (TES) as a Consulting Engineer and is assigned as Project Manager for the DCNPP-1 IDVP for which Teledyne Engineering Services is the Program Manager, that he is informed on the matters of inquiry of Interrogatories 1 (a) through (f); 8 (a), (c), and (d); 9 (a) (c), and (d); 10 (a) and (c); and 11 (a) and (c) of the First Set of Interrogatories Propounded to Pacific Gas and Electric Company by Governor Deukmejian and Joint Intervenors; that in answering the above and foregoing Interrogatories he has personally reviewed or caused others to review the files and records of Teledyne Engineering Services; Stone & Webster Engineering Corporation; Robert L. Cloud and Associates, Inc.; and R. F. Reedy, Inc. and has caused information to be gathered from employees and officers of those entities and their contractors and consultants; that the answers to the above and foregoing interrogatories are true and correct as he has been informed and verily believes.

William E. Cooper

William E. Cooper

May 20, 1983

William S. Moonan

William S. Moonan

My Commission expires August 6, 1987

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 11(d). Said answers are true and correct to the best of my knowledge and belief.

Thomas N. Crawford

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster, Notary Public in and for the City and County of San Francisco, State of California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to interrogatories 12 and 13. Said answers are true and correct to the best of my knowledge and belief.

John B. Hoch

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster

Nancy J. Lemaster, Notary Public
in and for the City and County
of San Francisco, State of
California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 10(d). Said answers are true and correct to the best of my knowledge and belief.

Lincoln E. Malik

Lincoln E. Malik

Subscribed and sworn to
before me this 20th day
of May, 1983.

C. T. Neal Madison

C. T. Neal Madison, Notary Public
in and for the City and County
of San Francisco, State of
California

C. T. NEAL MADISON
NOTARY PUBLIC – CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires Dec. 27, 1985

My Commission expires December 27, 1985

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 4, 5, and 10(d). Said answers are true and correct to the best of my knowledge and belief.

David Ovadia

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster, Notary Public
in and for the City and County
of San Francisco, State of
California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 2, 3, and 10(d). Said answers are true and correct to the best of my knowledge and belief.

Bimal Sarkar

Subscribed and sworn to
before me this 20th day
of May, 1983.

C. T. Neal Madison

C. T. Neal Madison, Notary Public
in and for the City and County
of San Francisco, State of
California

C. T. NEAL MADISON
NOTARY PUBLIC — CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires Dec. 27, 1985

My Commission expires December 27, 1985

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 10(d). Said answers are true and correct to the best of my knowledge and belief.

S. Sharma
Satya Sagar Sharma

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster
Nancy J. Lemaster, Notary Public
in and for the City and County
of San Francisco, State of
California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 10(d). Said answers are true and correct to the best of my knowledge and belief.

David C. Tateosian

Subscribed and sworn to
before me this 20th day
of May, 1983.

C. T. NEAL MADISON
NOTARY PUBLIC – CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires Dec. 27, 1985

C. T. Neal Madison

C. T. Neal Madison, Notary Public
in and for the City and County
of San Francisco, State of
California

My Commission expires December 27, 1985

FIRST SET OF INTERROGATORIES
PROPOUNDED TO PACIFIC GAS AND ELECTRIC COMPANY
BY GOVERNOR DEUKMEJIAN AND JOINT INTERVENORS

I have assisted in preparing the answers to Interrogatories 6, 7, and 10(d). Said answers are true and correct to the best of my knowledge and belief.

W. H. White
William H. White

Subscribed and sworn to
before me this 23rd day
of May, 1983.

Nancy J. Lemaster
Nancy J. Lemaster, Notary Public in and for the City and County of San Francisco, State of California

SEAL

NANCY J. LEMASTER
NOTARY PUBLIC-CALIFORNIA
CITY AND COUNTY OF
SAN FRANCISCO
My Commission Expires April 14, 1986

My Commission expires April 14, 1986

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-275
	)	Docket No. 50-323
Diablo Canyon Nuclear Power Plant, Units 1 and 2	)	
	)	

CERTIFICATE OF SERVICE

The foregoing document(s) of Pacific Gas and Electric Company has (have) been served today on the following by deposit in the United States mail, properly stamped and addressed:

Judge John F. Wolf
Chairman
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

Judge Glenn O. Bright
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

Judge Jerry R. Kline
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Washington DC 20555

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Chairman
Atomic Safety and Licensing
Board Panel
US Nuclear Regulatory Commission
Washington DC 20555

D503

Chairman
Atomic Safety and Licensing
Appeal Panel
US Nuclear Regulatory Commission
Washington DC 20555

Secretary
US Nuclear Regulatory Commission
Washington DC 20555

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Judge W. Reed Johnson
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Philip A. Crane, Jr.
Pacific Gas and Electric Company

Date: May 23, 1983