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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of)

PACIFIC GAS AND ELECTRIC COMPANY)

(Diablo Canyon Nuclear Power)
Plant, Unit Nos. 1 and 2)

Docket Nos 50-275
50-323

PACIFIC GAS AND ELECTRIC COMPANY'S RESPONSE TO MARCH 29, 1983
AFFIDAVIT OF RICHARD B. HUBBARD

On March 29, 1983, two weeks before the oral argument scheduled before the Appeal Board in this preceeding, Richard B. Hubbard submitted the "Supplemental Affidavit of Richard B. Hubbard Concerning Breakdowns in the Diablo Canyon Quality Assurance Program."¹ There are no provisions in the Commission's Rules of Practice, 10 C.F.R. Part 2, for this unusual filing, nor has the Appeal Board established procedures for or invited submissions of last minute pleadings or affidavits. For this reason and others, not the least of which is that the subject matter of the affidavit has never been placed before the Appeal Board, Pacific Gas and Electric Company (PGandE) feels compelled to submit this last minute response.

1. This affidavit, submitted on behalf of Governor Deukmejian, purports to be a supplement to an earlier affidavit submitted by the other intervening party, Joint Intervenors, on June 8, 1982.

DS03

I. PARTIAL STIPULATION

During the first week of April, the counsels for PGandE, the Governor of California and the NRC Staff attempted to arrive at certain stipulations regarding the proceedings pending before this Board. In the final analysis those parties were only able to agree on three items: reopening the record; scheduling; and forum. While the three parties agree that the record may be reopened, they could not agree on the wording of a contention. It is the position of PGandE that the contention should read as follows:

The record in this proceeding may be reopened for the purpose of determining whether the verification program is an adequate remedy for the QA/QC deficiencies detected in design activities at Diablo Canyon.

The apparent stumbling block to reaching agreement on the contention is that PGandE does not believe a basis exists for reopening the record on construction QA/QC while counsel for the Governor believes they have the right to litigate the adequacy of construction QA/QC at Diablo Canyon.

It was agreed, however, that should hearings be held, the following schedule would be adhered to assuming the IDVP Phase II Final Report is issued by June 15, 1983:

Completion of Discovery	July 1, 1983
Motions for Summary Disposition	July 8, 1983
Response to Motions for Summary Disposition	July 18, 1983
Testimony in hand	July 25, 1983
Start of Hearings	August 2, 1983
Close of Hearings	August 13, 1983

The parties also agreed that this Board should retain jurisdiction of these proceedings for purposes of conducting any such hearings.

II. NO BASIS EXISTS FOR REOPENING THE RECORD ON CONSTRUCTION QA/QC

PGandE believes that the standards for reopening the record have been met as respects the alleged detected deficiencies in design QA/QC and that the contention set forth supra may be admitted. The question is not, as set forth in the motions to reopen presently pending before the Board, whether the record should be reopened to take evidence on PGandE's QA/QC program during the past 13 years. Such a hearing would serve no purpose. The NRC in noting certain deficiencies in design QA/QC program for Diablo Canyon required a verification program. The question then is whether the verification programs instituted post September 1981 are an adequate remedy for those deficiencies.

The intervenors in these proceedings are also arguing that the record should be reopened to determine the adequacy of construction QA/QC. PGandE vehemently opposes the motion in that respect. There is no basis for reopening the record on construction QA/QC under either the regulations or case law. The latest Hubbard affidavit adds nothing in this regard. The primary thrust of the Hubbard affidavit is to criticize the Independent Design Verification Program (IDVP) established for the Diablo Canyon Nuclear Power Plant and to argue for a substantive determination that the IDVP should be expanded.² Quite apart from the inherent unfairness of submitting a long

2. The IDVP was established in response to the Commission's November 19, 1981 "Order Suspending License," CLI-81-30, _____ NRC _____, and a letter of the same date from Harold R. Denton, Director, Office of Nuclear Reactor Regulation. Phase I of the IDVP relates solely to the seismic design of the plant and reflects the requirements of the Commission Order. Phase II involves mostly non-seismic design issues and is responsive to Mr. Denton's letter. The original design error that precipitated the low power license suspension was seismic, and the Commission's emphasis in its verification requirements has been on seismic design. While both the Phase I and Phase II activities have been expanded beyond those originally required by the Commission's Order and Mr. Denton's letter, the Phase I activities are the more comprehensive. The primary purpose of the Hubbard affidavit appears to be an argument that the Phase II review should be similarly expanded.

and detailed factual affidavit at the eleventh hour, leaving PGandE inadequate time to prepare a point-by-point rebuttal, the affidavit simply does not go to the question now before the Appeal Board as raised by Mr. Hubbard's clients. Thus, a detailed response by PGandE or the other parties to the allegations put forth in the affidavit would necessarily be directed to the merits of substantive issues which are simply not before the Board at this juncture.

In September 1982 PGandE requested Teledyne Engineering Services (TES) to engage Stone & Webster Engineering Services (SWEC) to perform evaluations and verifications of construction quality related activities at Diablo Canyon. The contractors reviewed were Wismer & Becker (W&B), who performed installation of NSSS piping, and G. F. Atkinson (GFA), who performed civil/structural work in the containment building at Diablo Canyon Unit No. 1. That verification was requested to further establish the adequacy of construction QA/QC at the site.³ SWEC not only looked at the two major contractors set forth above, but additional subcontractors. The final results of those verification efforts are set forth in ITR #36, Rev. 0 and ITR #38, Rev. 1, dated February 25, 1983 and March 16, 1983, respectively. Those final reports are attached to this response as exhibits A and B. The verification effort concluded that: (1) PGandE adequately controlled construction contractors to assure the quality of construction; (2) the as-constructed physical installation conformed to the requirements of design drawings and specifications; (3) the required inspections were performed and appropriately documented; and (4) no additional verification was recommended.⁴ This conclusion was confirmed by TES in its March 25, 1983 semimonthly report, the pertinent part of which is attached hereto as Exhibit C.

3. See affidavits attached to Response to PGandE to Motion to Reopen dated July 2, 1982.

4. ITR #36, p. 9 and ITR #38, p. 7-1.

In conclusion, the Hubbard supplemental affidavit presents absolutely no evidence upon which this Board can reopen the record on construction QA/QC under either 10 C.F.R. 2.714(a) or applicable cases such as In the Matter of Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 337-339 (1978).

Respectfully submitted,

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DATED: April 8, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)

PACIFIC GAS AND ELECTRIC COMPANY)

Diablo Canyon Nuclear Power Plant,)
Units 1 and 2)

Docket No. 50-275

Docket No. 50-323

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:

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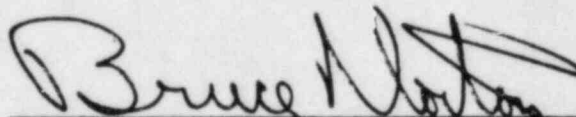
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Date: April 8, 1983

** Indicates these were sent via Federal Express.

PACIFIC GAS & ELECTRIC COMPANY
DIABLO CANYON NUCLEAR POWER PLANT
INDEPENDENT DESIGN VERIFICATION PROGRAM

FINAL REPORT
ON
CONSTRUCTION QUALITY ASSURANCE EVALUATION
OF
GUY F. ATKINSON COMPANY

PERFORMED BY

STONE & WEBSTER ENGINEERING CORPORATION

DOCKET NO. 50-275
LICENSE NO. DPR-76

PROJECT MANAGER

F. Sestak, Jr.

F. Sestak, Jr.

DATE

2-25-83

EXHIBIT A

PROGRAM MANAGER'S PREFACE

DIABLO CANYON NUCLEAR POWER PLANT - UNIT 1

INDEPENDENT DESIGN VERIFICATION PROGRAM

INTERIM TECHNICAL REPORT

FINAL REPORT ON
CONSTRUCTION QUALITY ASSURANCE EVALUATION
OF
GUY F. ATKINSON CO.

This is the thirty-sixth of a series of Interim Technical Reports prepared by the DCNPP-IDVP for the purpose of providing a conclusion of the program.

This report provides the recommendations and conclusions of the IDVP with respect to the initial sample.

As IDVP Program Manager, Teledyne Engineering Services, (TES), has approved this ITR including the conclusions and recommendations. The methodology followed by TES in performing this review and evaluation is described by Appendix B to this report.

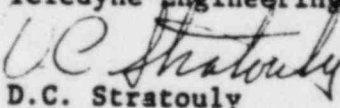
ITR Reviewed and Approved
IDVP Program Manager
Teledyne Engineering Services

D.C. Stratouly
Assistant Project Manager

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FINAL REPORT

1.0 INTRODUCTION

Stone & Webster Engineering Corporation (SWEC) was engaged by Teledyne Engineering Services (TES) to perform evaluations and verifications of the quality related activities of Wismer & Becker (W&B) who performed installation of NSSS piping, and G. F. Atkinson (GFA) who performed civil/structural work in the containment building at the Diablo Canyon Nuclear Power Plant (DCNPP) Unit #1.

SWEC has performed the evaluation and verification in accordance with the Independent Design Verification Program (IDVP), Program Plan, Rev 1 Adjunct Program for Evaluation of Construction Quality Assurance, dated October 1, 1982 issued by Teledyne Engineering Services (TES) as IDVP Program Manager.

This report concentrates on that portion of the civil/structural work performed by GFA and their major subcontractors on the Unit #1 containment only. GFA erected the on-site central mix batchplant, batched, mixed, delivered and placed the concrete. A separate report will be issued with respect to W-B.

Pacific Gas & Electric (PG&E) performed the inspections and tests associated with concrete and operated an on-site materials testing laboratory.

Major subcontractors to GFA and their primary functions included:

Pacific States Steel - supplying and erecting reinforcing steel

Pittsburgh Testing Laboratory - reinforcing steel testing and inspection

Pittsburgh Des Moines - liner erection

Bostrom-Bergen - supplying embedded metal

Subcontractors functioned under their own PG&E approved quality assurance programs; GFA performed periodic audits of their performance.

Concrete work for the containment structure was initiated in September of 1969, and was essentially completed in 1973.

The review was conducted at the site from September 28, 1982, through November 5, 1982, according to the objectives of the evaluation defined in Section 2.0, Paragraph 2.1 of the IDVP Plan. The subsequent evaluation was structured to assess whether the construction of the DCNPP was performed in accordance with quality requirements appropriate for the time of plant construction.

The Quality Assurance Program Evaluation was performed by a team of engineers and inspectors experienced in various aspects of nuclear power plant construction quality assurance and inspection and was led by a Senior Field Quality Control Representative.

The Quality Assurance Program Evaluation was performed by individuals certified as Auditors by SWEC in accordance with approved procedures and ANSI-N45.2.23. The construction verification was performed by individuals certified as Inspectors in the appropriate discipline by SWEC in accordance with approved procedures and ANSI-N45.2.6.

The review began with an evaluation to determine if the construction documentation provided evidence that the construction work correctly incorporated essential design features. To ascertain

this, random sampling of actual construction was performed to verify that the facilities were correctly constructed, and that other construction requirements, as applicable, were met.

2.0 CONSTRUCTION QUALITY ASSURANCE EVALUATION

An appropriate sample for evaluation was selected from the work of this contractor to provide evidence of his quality practices in each area of activity.

2.1 DEFINITIONS OF ITEMS REVIEWED

2.1.1 Evaluation of Construction Quality Assurance Program

Task A: Review contractor's quality programs to determine if adequate controls and practices were evident to assure the quality of construction and the incorporation of essential design features into the completed plant, and if controls were consistent with applicable regulatory requirements at the time the work was performed.

2.1.2 Verification of Physical Installation

Task B: To evaluate if physical installation of selected components of safety systems and structures conformed to the requirements of design drawings and specifications and that required inspections were performed.

2.2 DESCRIPTION OF REVIEW

2.2.1 Evaluation of Construction Quality Assurance Program

Checklist attributes were developed based on requirements of PG&E Specification 8831R "Construction of Buildings and Related Structures", and applicable

contractor and subcontractor Quality Assurance programs in effect at the time of construction. The checklist items were separated into different major work categories such as Reinforcing Steel, Concrete Work, Embedded Metal, Containment Liner, and Quality Assurance in the same manner as these categories appeared in Specification 8831R.

Documentation was randomly selected based upon PG&E documentation indexes and consisted of material certifications, test and inspection reports, drawings, material and procedure approvals, concrete placement cards, batch plant tapes, receiving reports, equipment calibration records, nonconformance reports (NCRs), corrective action reports, audit records and general correspondence.

2.2.2 Verification of Physical Installation

Checklist attributes were developed based on requirements of PG&E Specification 8831R, PG&E and contractor drawings, and applicable contractor and subcontractor QA programs. GFA "Concrete Lift Drawings", C-Series for containment, and I-Series for interior containment concrete, were very detailed and provided much of the criteria used in developing the physical verification checklist.

Visual inspection of the accessible completed work was then performed to verify that work was done in accordance with the approved design drawings and specifications. Items examined included concrete surfaces, construction joint locations, weld size and location, liner erection and embedment locations.

2.3 SUMMARY OF REVIEW RESULTS

2.3.1 Evaluation of Construction Quality Assurance Program

Based on the checklist, 1880 documents were reviewed against the appropriate attributes. Unless otherwise noted on the checklist, the documents were legible and sufficiently detailed to justify that the work was performed as required. PG&E was involved in the quality program as evidenced by their approval of contractor and subcontractor Quality Assurance programs, approvals of NCRs, audits of subcontractors and corrective action follow-up.

The review revealed the existence of deficiencies at the very start of concrete production when leveling mats were being placed and later with "fill" concrete for the "soldier beams" in the containment. It also identified two (2) isolated instances where small amounts of aluminium powder were used in grout within the containment.

2.3.2 Verification of Physical Installation

Based on the checklist attributes, 323 items were visually inspected. All GFA "C" and "I" Series concrete lift drawings used in the verification showed evidence of PG&E approval.

The review revealed two areas (i.e., the exterior of the containment and the inside surface of blockouts on interior walls), where the surface finish did not appear to meet specification requirements.

2.4 EOI Reports Issued

Four (4) EOI Files have been opened for the Construction Quality Assurance evaluation of the work performed by Guy F. Atkinson and this major subcontractors on the Containment Building at the DCNPP Unit #1. The status of these files is summarized in Appendix A.

EOI 9008 was issued because PG&E Specification 8831R details requirements on the exposed concrete surface that the Field Auditors considered were not met. This file was revised and analyzed with the additional information provided by PG&E. The Findings Review Committee has recommended and the IDVP has concluded that the file is resolved as an Error Class C (observation) in accordance with the program plan. No physical modifications are required. An IDVP Completion Report has been issued.

EOI 9015 was issued because PG&E Specification 8831R details requirements on the compressive strength of concrete, that the Field Auditors considered were not met on some specified early placements as given by the accompanying Field Reports. This file was revised and analyzed with the additional information provided by PG&E. The Findings Review Committee has recommended and the IDVP has concluded that the file is resolved as an Error Class C (observation) in accordance with the program plan. No physical modifications are required. An IDVP Completion Report has been issued.

EOI 9016 was issued because PG&E Specification 8831R prohibits the use of aluminum grout in the Containment Structure and the Field Auditors pointed to field records that show otherwise. This file was revised and analyzed with the additional information provided by PG&E. The Findings Review Committee has recommended and the IDVP has concluded that the file is resolved as an Error Class C (observation) in accordance with

the program plan. No physical modifications are required. An IDVP Completion Report has been issued.

EOI File 9021 was issued because PG&E Specification 8831R details requirements on the Reactor Containment Interior Walls that the Field Auditors considered were not met. The file was revised and analyzed with the additional information provided by PG&E. The Findings Review Committee has recommended and the IDVP has concluded that the file is resolved as an Error Class C (observation) in accordance with the program plan. No physical modifications are required. An IDVP Completion Report has been issued.

2.5 EVALUATION OF REVIEW RESULTS

2.5.1 Evaluation of Construction Quality Assurance Program

The documentation reviewed provides evidence that an effective quality control program existed and was enforced to assure work was performed in accordance with the PG&E specifications, GFA's Quality Assurance program, and the Quality Assurance programs of GFA's subcontractors. Records were logically filed, easily retrievable, and particularly detailed in their coverage. Deficiencies identified by the contractor during the program of work were documented on NCR's and corrective actions were effectively implemented. PG&E played an active role in the resolution of nonconformances and performed periodic audits of major subcontractors to assure program adherence.

2.5.2 Verification of Physical Installation

The physical verification indicated that GFA and their subcontractors performed work as specified and in accordance with their quality programs. Other than

the items identified in the Open Item Reports (EOIs) discussed in 2.4, all work observed was performed in accordance with the approved drawings and PG&E Specification 8831R.

2.6 CONCLUSION

It is the conclusion of the Review Team that in the areas reviewed (the containment), the civil/structural work performed in constructing the Diablo Canyon Nuclear Power Plant Unit #1 is satisfactory. The Review Team found that adequate controls and practices were in place to assure the quality of construction. Further, to the extent reviewed, the as-constructed physical installation conforms to the requirements of design drawings and specifications, and the required inspections were performed and appropriately documented.

APPENDIX A

DCNPP IDVP STATUS REPORT

	REV. 0		LATEST REV.			
<u>FILE NO.</u>	<u>DATE</u>	<u>REV.</u>	<u>DATE</u>	<u>BY</u>	<u>STATUS</u>	<u>SUBJECT</u>
9008	821102	0	821102	SWEC	OIR	Concrete Surfaces, Reactor Containment Exterior
9008	821102	1	830112	SWEC	PER/C	Concrete Surfaces, Reactor Containment Exterior
9008	821102	2	830117	TES	ER/C	Concrete Surfaces, Reactor Containment Exterior
9008	821102	3	830117	TES	CR	Concrete Surfaces, Reactor Containment Exterior
9015	821102	0	821102	SWEC	OIR	Spec Requirements - Concrete Placements
9015	821102	1	830112	SWEC	PER/C	Spec Requirements - Concrete Placements
9015	821102	2	830117	TES	ER/C	Spec Requirements - Concrete Placements
9015	821102	3	830117	TES	CR	Spec Requirements - Concrete Placements
9016	821102	0	821102	SWEC	OIR	Aluminium Used In Grout Containment
9016	821102	1	830112	SWEC	PER/C	Aluminium Used in Grout Containment
9016	821102	2	830117	TES	ER/C	Aluminium Used in Grout Containment
9016	821102	3	830117	TES	CR	Aluminium Used in Grout Containment
9021	821102	0	821102	SWEC	OIR	Concrete Surface Conditions Reactor Containment
9021	821102	1	830112	SWEC	PER/C	Concrete Surface Conditions Reactor Containment
9021	821102	2	830117	TES	ER/C	Concrete Surface Conditions Reactor Containment
9021	821102	3	830117	TES	CR	Concrete Surface Conditions Reactor Containment

APPENDIX B

Program Manager's Assessment

Independent review by TES of the tasks considered to evaluate the Construction Quality Assurance of the work performed by Guy F. Atkinson, Co. and his major subcontractors on the Containment Building at Diablo Canyon Nuclear Power Plant - Unit #1, was done in accordance with IDVP Program Plan, Revision 1, Adjunct Program for Evaluation of Construction Quality Assurance dated October 1, 1982.

The review involved a visit to the site to comment on the procedures and checklists drafted by SWEC's engineers and an analysis of the recommendations by the Findings Review Committee.

The files issued by SWEC were reviewed thoroughly and specific recommendations were made to the IDVP Program Manager delineating appropriate resolution.

As a result of the verification of the selected samples, and the assessment of the impact of SWEC's findings, TES, as Program Manager, is of the opinion that no additional verification is required.

PACIFIC GAS & ELECTRIC COMPANY
DIABLO CANYON NUCLEAR POWER PLANT
INDEPENDENT DESIGN VERIFICATION PROGRAM

INTERIM TECHNICAL REPORT NO. 38

REVISION 1

FINAL REPORT ON CONSTRUCTION QUALITY ASSURANCE EVALUATION

OF

WISMER & BECKER

PERFORMED BY

STONE & WEBSTER ENGINEERING CORPORATION

DOCKET NO. 50-275

LICENSE NO. DPR-76

PROJECT MANAGER:

Frank Sestak, Jr.
F. Sestak, Jr.

DATE

3-16-83

EXHIBIT B

PROGRAM MANAGER'S PREFACE

DIABLO CANYON NUCLEAR POWER PLANT - UNIT I

INDEPENDENT DESIGN VERIFICATION PROGRAM

INTERIM TECHNICAL REPORT

FINAL REPORT ON CONSTRUCTION QUALITY ASSURANCE EVALUATION
OF
WISMER & BECKER

This is the thirty-eighth of a series of Interim Technical Reports prepared by the DCNPP-IDVP for the purpose of providing a status report of the program.

This reports the recommendations and conclusions of the IDVP with respect to the initial sample.

As IDVP Program Manager, Teledyne Engineering Services, (TES), has approved this ITR including the conclusions and recommendations presented. The methodology followed by TES in performing this review and evaluation is described by Appendix B to this report.

ITR Reviewed and Approved
IDVP Program Manager
Teledyne Engineering Services



D. C. Stratouly
Assistant Project Manager

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SECTION 1

INTRODUCTION

Stone & Webster Engineering Corporation (SWEC) was engaged by Teledyne Engineering Services (TES) to perform evaluations and verifications of the quality related activities of Wismer & Becker (W&B) who performed installation of NSSS piping, and G.F. Atkinson (GFA) who performed civil/structural work in the containment building at the Diablo Canyon Nuclear Power Plant (DCNPP) - Unit 1.

SWEC has performed the evaluation and verification in accordance with the Independent Design Verification Program (IDVP), Program Plan, Revision 1, Adjunct Program for Evaluation of Construction Quality Assurance, dated October 1, 1982, issued by TES as IDVP Program Manager.

This report concentrates on the work performed by W&B which consisted primarily of (1) final setting of the major NSSS components (reactor vessel, steam generators, etc), and (2) installation of the reactor coolant piping, pressurizer surge line piping, bottom mounted instrumentation (SMI) tubing, piping and tubing supports, and reactor vessel flange seal leak detection tubing. A separate report has been issued with respect to GFA.

The review was conducted at the site from September 28, 1982, through November 5, 1982, according to the objectives of the evaluation defined in Section 2.0, Paragraph 2.1 of the IDVP Plan. The subsequent evaluation was

structured to assess whether the construction of the DCNPP was performed in accordance with quality requirements appropriate for the time of plant construction.

The Quality Assurance Program Evaluation was performed by a team of engineers experienced in various aspects of nuclear power plant construction quality assurance and inspection and was led by a Senior Field Quality Control Representative.

The Quality Assurance Program Evaluation was performed by individuals certified as Auditors by SWEC in accordance with approved procedures and ANSI-N45.2.23. The construction verification was performed by individuals certified as Inspectors in the appropriate discipline by SWEC in accordance with approved procedures and ANSI-N45.2.6.

The review started with an evaluation to determine if the construction documentation provided evidence that the construction work correctly incorporated essential design features. To ascertain this, the areas of W&B's responsibilities were physically verified for compliance to PG&E Specification 8752, the W&B QA/QC Manual, and applicable drawings.

SECTION 2

DEFINITION OF ITEMS REVIEWED

An appropriate sample for evaluation was selected from the work of this contractor to provide evidence of his quality practices in each area of activity.

2.1 EVALUATION OF CONSTRUCTION QUALITY ASSURANCE PROGRAM

Task A Consisted of a review of contractor's quality assurance programs to determine if adequate controls and practices were evident to assure the quality of construction and the incorporation of essential design features into the completed plant and to determine if controls were consistent with applicable regulatory requirements at the time the work was performed.

2.2 VERIFICATION OF PHYSICAL INSTALLATION

Task B Consisted of an evaluation to determine if the physical installation of selected components of safety systems and structures conform to the requirements of design drawings and specifications and whether required inspections were performed.

SECTION 3
DESCRIPTION OF REVIEW

3.1 EVALUATION OF CONSTRUCTION QUALITY ASSURANCE PROGRAM

The evaluation was conducted using a prepared checklist consisting of 82 attributes that were derived from requirements contained in the following documents:

- PG&E Specification 8752, "Installation of the Nuclear Steam Supply Systems for Units 1 and 2 - Diablo Canyon Site," May 3, 1972
- Wismer & Becker QA/QC Manual, June 6, 1973
- Applicable drawings.

Records obtained from the permanent plant file were reviewed, on a random basis, for objective evidence that requirements were met in a satisfactory manner. The type of records reviewed included ASME III Certificates of Authorization, Certified Material Test Reports (CMTRs), Code Data Reports, Operation Process Sheet Travelers (installation and inspection documentation), drawings, welding procedures, welder qualification records, weld data sheets, welding electrode control records, nondestructive examination (NDE) procedures, personnel qualifications and reports, hydrostatic test procedures reports, audit reports, and nonconformance reports (NCRs).

3.2 VERIFICATION OF PHYSICAL INSTALLATION

Checklists were prepared based on design drawings, specification requirements, reported as-built conditions, and other appropriate design data (i.e., flow diagrams) for conducting the physical verification of construction practices of the following systems:

- Reactor coolant piping
- Pressurizer surge line piping
- Bottom mounted instrumentation tubing
- Reactor vessel leak detection line
- Pipe and tubing supports for the four items above

Inspections were performed utilizing prepared checklists consisting of 53 pre-selected attributes extracted from specifications, drawings, and quality assurance/quality control procedures.

All accessible welds in systems described above were visually examined to verify that fabrication, examination and documentation were performed to approved procedures. All insulation was removed for the inspection.

Each piping system was examined by individual spool and welds. Welds were visually examined for evidence of undercut, slag, porosity, weld profile, weld identification, radiographic markers, and welder's symbol.

Piping was verified against PG&E drawings and W&B fabrication records. The W&B Quality Assurance Manual, PG&E drawings, Southwest Fabricating and Welding Company drawings, Westinghouse drawings, and ASME and ANSI codes and standards were referred to as necessary.

Welding was verified utilizing W&B weld procedures (approved by PG&E), W&B fabrication records, welder qualification records and weld rod issue records. Radiograph interpretation sheets were examined, but no film was reviewed as part of the physical verification.

Reactor coolant piping weld records consisted of fabrication processes sheets broken down by loop, weld, and quadrant (4 loops, 8 welds per loop, 4 quadrants per weld) and included documentation of preheat, interpass temperatures, ferrite content, filler material, current and voltage used during welding, visual inspection results, NDE reports, and PG&E representative signoff at pre-selected hold points.

Weld maps included in the documentation packages indicated welders assigned to each weld or part of a weld, a record of arc strike repairs and lug removal. NDE records were also part of the weld documentation package.

The records were reviewed to determine whether the results recorded were in accordance with program and procedure requirements.

An inspection of internal surfaces of reactor coolant piping was one attribute on the checklist. Due to cleanliness restrictions in the reactor cavity area and the vessel being partly flooded, it was only possible to perform internal inspection of the hot and cold legs of loop 3.

Internal surfaces of pipe and welds on loop 3 were visually inspected for cleanliness, surface condition, weld spatter, arc strikes, weld profile, undercut, correct reinforcement, correct grinding, porosity, slag, and correct root preparation.

BMI tubing records consisted of two packages which contained the documentation of all 350 welds. These records were examined for evidence of correct documentation of:

- Correct weld identification
- Assignment of qualified welder
- Correct preheat
- Correct electrical characteristics
- Visual inspections
- NDE
- Repair data.

Since the Reactor Vessel was partly flooded and subject to restricted access due to cleanliness restrictions, the reactor vessel leak detection system could not be completely physically examined. The accessible portion was verified using PG&E drawings for orientation, identification, location, piping configuration, and correct material.

Supports in each system were visually examined for weld quality, and that location, orientation, and installation conformed to specification and drawing requirements.

PG&E and Westinghouse drawings, W&B weld procedures, weld rod issue records and W&B fabrication process sheets were reviewed.

Welds on supports were examined for evidence of slag, porosity, undercut, weld spatter, and correct weld profile.

All bolts were examined for correct material identification, location, orientation, bolt and nut seating, and thread engagement.

Support components were examined for evidence of correct identification, location, orientation, fabrication, installation and repair records.

Steam generator snubbers were examined to determine if location and orientation agreed with PG&E drawings. Pin-to-pin measurements were recorded for all 16 snubbers, and any deviations from PG&E drawings were noted.

Visual inspections were performed using PG&E drawings to verify that components (i.e., reactor vessel, steam generators, pressurizer, etc) were correctly identified and properly oriented.

In conjunction with the physical verification, supporting documentation (i.e., welder qualification, weld procedure approvals, NDE qualifications, and other inspection reports) were reviewed for compliance to specification and program requirements for the time of construction.

SECTION 4
SUMMARY OF REVIEW RESULTS

4.1 EVALUATION OF CONSTRUCTION QUALITY ASSURANCE PROGRAM

It was found that W&B was in compliance with requirements for 65 of 80 attributes that were evaluated (two attributes were determined to be not applicable during the course of the evaluation). In accordance with specification requirements, the contractor's Quality Assurance Program was submitted to and approved by PG&E. In addition, the contractor was a holder of the ASME, Section III, Certification of Authorization for installation of nuclear piping. The required Code Data Reports were properly signed and certified by the Authorized Nuclear Inspector (ANI). Travelers, specifications, drawings, and procedures were approved by PG&E prior to work being performed; the travelers, which included inspection and test requirements, were completed as work was performed including the signoff at designated hold points by the contractor's inspector and the ANI. Further examples of activities which were found to be in compliance with the source documents and associated codes and standards are as follows:

- Installation operations (setting, shimming, alignment, etc) of NSSS major components
- Cleanliness and cleaning and flushing operations in accordance with procedures approved by PG&E

- Qualification of welding procedures and approval by PG&E and the ANI
- Selection of proper welding process (GTAW, SMAW)
- Control of welding electrodes
- Control of interpass temperatures
- Repair of reported weld defects in accordance with procedures approved by PG&E
- Approval of NDE procedures and NDE personnel qualifications by PG&E and the ANI
- Performance of required NDE
- Performance of audits
- Control of reported nonconformances, including the approval of dispositions by PG&E.

A total of 3,528 documents was reviewed. As a result of the review, 16 Open Item Reports were issued to document findings which required resolution. Most of these items can be characterized as omissions or as an inspection activity which had to be evaluated to determine its impact on the physical installation.

4.2 VERIFICATION OF PHYSICAL INSTALLATION

It was found that W&B was in compliance with program requirements for the majority of the attributes that were verified. The configuration, cleanliness, surface finish of welds, and overall workmanship were in compliance with drawings and specifications with some exceptions noted in the report. Of 2,298 items inspected, 9 Open Item Reports were issued. The items identified primarily demonstrate either a conflict between a drawing requirement and the installation or apparent field changes that may not have been properly documented.

SECTION 5
EOI REPORTS ISSUED

Twenty-five EOI files were opened for the Construction Quality Assurance evaluation of the work performed by W&B on NSSS piping at the Diablo Canyon Nuclear Power Plant - Unit 1. The status of these files is summarized in Appendix A.

EOI 9001 was issued because the majority of welds on supports 9, 10, and 11 (PG&E Drawing Nos. 443247 and 443248) exhibited incomplete fillet, short weld length, undercut weld, spatter, arc strikes, slag, and poor workmanship. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9002 was issued because the geometry of the welds covering BMI system supports did not comply with the requirements as shown in PG&E Drawing No. 443248. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9003 was issued because the geometry of the welds covering BMI tubing did not comply with the requirements of W&B Weld Procedure 3500-2. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9004 was issued because Certified Material Test Reports did not comply with the requirements specified in Westinghouse Drawing No. 685J702, Revision 4. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IVDP Completion Report has been issued.

EOI 9005 was issued because review of welding procedures apparently did not comply with PG&E Specification 8752 requirements. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as a Program Resolution Report, Closed Item (Invalid) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9006 was issued because CMTRs did not comply with PG&E Specification 8752 requirements. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9007 was issued because the geometry of the welds at BMI couplings did not comply with the requirements of Westinghouse Drawing No. W-685J702 or W&B Weld Procedure 3500-2. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9009 was issued because documentation on one weld radiographic report did not comply with the requirements of Westinghouse Drawing No. 685J702. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as a Program Resolution Report, Closed Item (Invalid) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9010 was issued because records of weld procedures apparently did not show compliance with the requirements of PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the

file is resolved as a Program Resolution Report, Closed Item (Invalid) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9011 was issued because the welding records did not show compliance with the requirements of PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9012 was issued because deficiencies were found in the welding procedures required by PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9013 was issued because of various discrepancies between installation and drawing requirements. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9014 was issued because of apparent lack of documentation certifying the halogen content as required by PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as a Program Resolution Report, Closed Item (Invalid) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9017 was issued because bolt material requirements as per Drawing No. 438271 were not met. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9018 was issued because the manufacturer's record of welder performance did not meet ASME IX requirements. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9019 was issued because welding documentation did not comply with PG&E Specification 8752 requirements. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error

Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9020 was issued because records of radiographic inspection may be inaccurate. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9022 was issued because voltage/amperage requirements of Weld Procedure 3500-2 were not met. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9023 was issued because voltage/amperage requirements of Weld Procedure 3500-1 were not met. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9024 was issued because ferrite readings for welds were not recorded as required. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the

IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9025 was issued because drilled holes on one tubing support did not appear on engineering drawings. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9026 was issued because there are no records of nondestructive examination performed on the areas of removal of some temporary attachments to RCS piping. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee initially determined that this file was an Error Class A (Finding). PG&E performed corrective action as documented in the Completion Report submitted regarding this item. TES issued an Open Item Report, and the Findings Review Committee performed verification of PG&E's corrective action. The Findings Review Committee determined that PG&E's corrective action is acceptable. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as a Program Resolution Report, Closed Item, in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9027 was issued because there were no records of nondestructive examination performed on tube-to-seal table welds as required by PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9028 was issued because weld documentation apparently did not identify the welder to specific welds as required by PG&E Specification 8752. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as a Program Resolution Report, Closed Item (Invalid) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

EOI 9029 was issued because of several instances of arc strikes, weld splatter, rusting, pitting, overgrinding, and paint splatter on RCS loops and surge lines. This file was reviewed and analyzed with the additional information provided by PG&E. The Findings Review Committee recommended and the IDVP concluded that the file is resolved as an Error Class C (Observation) in accordance with the program plan. No physical modifications were required. An IDVP Completion Report has been issued.

SECTION 6
EVALUATION OF REVIEW RESULTS

6.1 EVALUATION OF CONSTRUCTION QUALITY ASSURANCE PROGRAM

The documentation reviewed indicates that the contractor performed his work in compliance with PG&E Specification 8752, the approved Quality Assurance Manual, and applicable drawings.

As a result of the documentation reviewed during this evaluation and based on the Quality Assurance Program for construction of the NSSS piping systems and supports which is judged to be adequate, it is concluded that the work performed met the applicable standards for the time of plant construction.

6.2 VERIFICATION OF PHYSICAL INSTALLATION

Results of the physical verification indicated that the contractor did comply with the design criteria of PG&E Specification 8752, applicable drawings and their Quality Assurance Manual and, to the extent verified, resulted in adequate installation of the Reactor Coolant System.

SECTION 7
CONCLUSIONS

The Review Team considers that, in the areas reviewed, the controls and practices in place during construction were adequate to assure the quality of construction. Further, to the extent reviewed, the as-constructed physical installation conforms to the requirements of design drawings and specifications, and the required inspections were performed and appropriately documented.

Based on the results of the reviews conducted of both G. F. Atkinson and Wismer & Becker, it is considered that PG&E adequately controlled construction contractors selected as well as the actual construction activities performed at DCNPP-Unit 1. No additional verification is recommended.

APPENDIX A

EOI FILES

APPENDIX A
DCNPP IDVP STATUS REPORT

<u>REV. 0</u>		<u>LATEST REVISION</u>				<u>ACTION</u>	
<u>FILE NO.</u>	<u>DATE</u>	<u>REV.</u>	<u>DATE</u>	<u>BY</u>	<u>STATUS</u>	<u>MODS</u>	<u>SUBJECT</u>
9001	821102	0	821102	SWEC	OIR		Workmanship on welds on BMI supports
9001	821102	1	830211	SWEC	PER/C		Workmanship on welds on BMI supports
9001	821102	2	830222	TES	ER/C		Workmanship on welds on BMI supports
9001	821102	3	830222	TES	CR	NO	Workmanship on welds on BMI supports
9002	821102	0	821102	SWEC	OIR		Weld lengths on BMI supports
9002	821102	1	830204	SWEC	PER/C		Weld lengths on BMI supports
9002	821102	2	830209	TES	ER/C		Weld lengths on BMI supports
9002	821102	3	830209	TES	CR	NO	Weld lengths on BMI supports
9003	821102	0	821102	SWEC	OIR		Bottom mounted instrument tubing
9003	821102	1	830112	SWEC	PER/C		Bottom mounted instrument tubing
9003	821102	2	830117	TES	ER/C		Bottom mounted instrument tubing
9003	821102	3	830117	TES	CR	NO	Bottom mounted instrument tubing
9004	821102	0	821102	SWEC	OIR		UT inspection of BMI tubes
9004	821102	1	830112	SWEC	PER/C		UT inspection of BMI tubes
9004	821102	2	830117	TES	ER/C		UT inspection of BMI tubes
9004	821102	3	830117	TES	CR	NO	UT inspection of BMI tubes
9005	821102	0	821102	SWEC	OIR		Reactor coolant weld procedures
9005	821102	1	830112	SWEC	PPRR/CI		Reactor coolant weld procedures
9005	821102	2	830117	TES	PPRR/CI		Reactor coolant weld procedures
9005	821102	3	830117	TES	CR	NO	Reactor coolant weld procedures
9006	821102	0	821102	SWEC	OIR		Seal leak detection tubing
9006	821102	1	830211	SWEC	PER/C		Seal leak detection tubing
9006	821102	2	830222	TES	ER/C		Seal leak detection tubing
9006	821102	3	830222	TES	CR	NO	Seal leak detection tubing
9007	821102	0	821102	SWEC	OIR		BMI couplings
9007	821102	1	830225	SWEC	PER/C		BMI couplings
9007	821102	2	830226	TES	ER/C		BMI couplings
9007	821102	3	830226	TES	CR	NO	BMI couplings
9009	821102	0	821102	SWEC	OIR		Radiograph-reactor coolant sys.(Thimble Guide Tubes)
9009	821102	1	830112	SWEC	PPRR/CI		Radiograph-reactor coolant sys.(Thimble Guide Tubes)
9009	821102	2	830117	TES	PPRR/CI		Radiograph-reactor coolant sys.(Thimble Guide Tubes)
9009	821102	3	830117	TES	CR	NO	Radiograph-reactor coolant sys.(Thimble Guide Tubes)
9010	821102	0	821102	SWEC	OIR		Welding procedures-reactor coolant system
9010	821102	1	830112	SWEC	PPRR/CI		Welding procedures-reactor coolant system

APPENDIX A (CONT)

DCNPP IDVP STATUS REPORT

<u>REV.0</u>		<u>LATEST REVISION</u>				<u>ACTION</u>		<u>SUBJECT</u>
<u>FILE NO.</u>	<u>DATE</u>	<u>REV.</u>	<u>DATE</u>	<u>BY</u>	<u>STATUS</u>	<u>MODS</u>		
9010	821102	2	830117	TES	PRR/CI			Welding procedures-reactor coolant system
9010	821102	3	830117	TES	CR	NO		Welding procedures-reactor coolant system
9011	821102	0	821102	SWEC	OIR			NSSS-piping traveler review
9011	821102	1	830112	SWEC	PER/C			NSSS-piping traveler review
9011	821102	2	830117	TES	ER/C			NSSS-piping traveler review
9011	821102	3	830117	TES	CR	NO		NSSS-piping traveler review
9012	821102	0	821102	SWEC	OIR			NSSS-weld procedures
9012	821102	1	830112	SWEC	PER/C			NSSS-weld procedures
9012	821102	2	830117	TES	ER/C			NSSS-weld procedures
9012	821102	3	830117	TES	CR	NO		NSSS-weld procedures
9013	821102	0	821102	SWEC	OIR			Installation of BMI supports
9013	821102	1	830211	SWEC	PER/C			Installation of BMI supports
9013	821102	2	830222	TES	ER/C			Installation of BMI supports
9013	821102	3	830222	TES	CR	NO		Installation of BMI supports
9014	821102	0	821102	SWEC	OIR			Halogen content-reactor cooling piping welding
9014	821102	1	830112	SWEC	PPRR/CI			Halogen content-reactor cooling piping welding
9014	821102	2	830117	TES	PRR/CI			Halogen content-reactor cooling piping welding
9014	821102	3	830117	TES	CR	NO		Halogen content-reactor cooling piping welding
9017	821102	0	821102	SWEC	OIR			Bolt material-reactor coolant system
9017	821102	1	830112	SWEC	PER/CI			Bolt material-reactor coolant system
9017	821102	2	830117	TES	ER/C			Bolt material-reactor coolant system
9017	821102	3	830117	TES	CR	NO		Bolt material-reactor coolant system
9018	821102	0	821102	SWEC	OIR			Welder's qualification
9018	821102	1	830112	SWEC	PER/C			Welder's qualification
9018	821102	2	830117	TES	ER/C			Welder's qualification
9018	821102	3	830117	TES	CR	NO		Welder's qualification
9019	821102	0	821102	SWEC	OIR			Operation description for welds
9019	821102	1	830218	SWEC	PER/C			Operation description for welds
9019	821102	2	830225	TES	ER/C			Operation description for welds
9019	821102	3	830225	TES	CR	NO		Operation description for welds

APPENDIX A (CONT)

DCNPP IDVP STATUS REPORT

<u>REV.O</u>		<u>LATEST REVISION</u>				<u>ACTION</u>		
<u>FILE NO.</u>	<u>DATE</u>	<u>REV.</u>	<u>DATE</u>	<u>BY</u>	<u>STATUS</u>	<u>MODS</u>	<u>SUBJECT</u>	
9020	821102	0	821102	SWEC	OIR		Radiographic inspection report information	
9020	821102	1	830112	SWEC	PER/C		Radiographic inspection report information	
9020	821102	2	830117	TES	ER/C		Radiographic inspection report information	
9020	821102	3	830117	TES	CR	NO	Radiographic inspection report information	
9022	821110	0	821110	SWEC	OIR		Weld procedure-BMI tubing	
9022	821110	1	830204	SWEC	PER/C		Weld procedure-BMI tubing	
9022	821110	2	830210	TES	ER/C		Weld procedure-BMI tubing	
9022	821110	3	830210	TES	CR	NO	Weld procedure-BMI tubing	
9023	821110	0	821110	SWEC	OIR		Weld procedure-reactor coolant system	
9023	821110	1	830112	SWEC	PER/C		Weld procedure-reactor coolant system	
9023	821110	2	830117	TES	ER/C		Weld procedure-reactor coolant system	
9023	821110	3	830117	TES	CR	NO	Weld procedure-reactor coolant system	
9024	821110	0	821110	SWEC	OIR		Ferrite readings-reactor coolant system	
9024	821110	1	830211	SWEC	PER/C		Ferrite readings-reactor coolant system	
9024	821110	2	830222	TES	ER/C		Ferrite readings-reactor coolant system	
9024	821110	3	830222	TES	CR	NO	Ferrite readings-reactor coolant system	
9025	821110	0	821110	SWEC	OIR		BMI tubing supports	
9025	821110	1	830204	SWEC	PER/C		BMI tubing supports	
9025	821110	2	830211	TES	ER/C		BMI tubing supports	
9025	821110	3	830211	TES	CR	NO	BMI tubing supports	
9026	821110	0	821110	SWEC	OIR		Attachments-reactor coolant system piping	
9026	821110	1	830211	SWEC	PER/A		Attachments-reactor coolant system piping	
9026	821110	2	830222	TES	ER/A		Attachments-reactor coolant system piping	
9026	821110	3	830225	TES	OIR		Attachments-reactor coolant system piping	
9026	821110	4	830308	SWEC	PPRR/CI		Attachments-reactor coolant system piping	

APPENDIX A (CONT)

DCNPP IDVP STATUS REPORT

<u>REV.0</u>		<u>LATEST REVISION</u>				<u>ACTION</u>		
<u>FILE NO.</u>	<u>DATE</u>	<u>REV.</u>	<u>DATE</u>	<u>BY</u>	<u>STATUS</u>	<u>MODS</u>	<u>SUBJECT</u>	
9026	821110	5	830309	TES	PRR/CI		Attachments-reactor coolant system piping	
9026	821110	6	830309	TES	CR	NO	Attachments-reactor coolant system piping	
9027	821110	0	821110	SWEC	OIR		Welds-BMI tubing	
9027	821110	1	830112	SWEC	PER/C		Welds-BMI tubing	
9027	821110	2	830117	TES	ER/C		Welds-BMI tubing	
9027	821110	3	830117	TES	CR	NO	Welds-BMI tubing	
9028	821119	0	821119	SWEC	OIR		Weld documentation-BMI supports	
9028	821119	1	830112	SWEC	PPRR/CI		Weld documentation-BMI supports	
9028	821119	2	830117	TES	PRR/CI		Weld documentation-BMI supports	
9028	821119	3	830117	TES	CR	NO	Weld documentation-BMI supports	
9029	821119	0	821119	SWEC	OIR		Reactor coolant system-weld deficiencies	
9029	821119	1	830218	SWEC	PER/C		Reactor coolant system-weld deficiencies	
9029	821119	2	830225	TES	ER/C		Reactor coolant system-weld deficiencies	
9029	821119	3	830225	TES	CR	NO	Reactor coolant system-weld deficiencies	

APPENDIX B

PROGRAM MANAGER'S ASSESSMENT

Appendix B

PROGRAM MANAGER'S ASSESSMENT

Independent review by TES of the tasks considered to evaluate the Construction Quality Assurance of the work performed by Wismer & Becker on the Installation of NSSS Piping at Diablo Canyon Nuclear Power Plant - Unit I, was performed in accordance with IDVP Program Plan, Revision 1, Adjunct Program for Evaluation of Construction Quality Assurance dated October 1, 1982.

The review involved a visit to the site to comment on the procedures and checklists drafted by SWEC's engineers and an analysis of the recommendations by the Findings Review Committee.

The files issued by SWEC were reviewed thoroughly and specific recommendations were made to the IDVP Program Manager delineating appropriate resolution.

As a result of the verification of the selected samples and the assessment of the impact of SWEC's findings, TES, as Program Manager, is of the opinion that no additional verification is required.

SECTION 4.0

CONSTRUCTION QUALITY ASSURANCE PROGRAM

4.1 SCHEDULED WORK FOR THIS REPORTING PERIOD

4.1.1 Construction QA Evaluation Team on Site

A member of the Findings Review Committee and a SWEC engineer performed verification of PG&E corrective action resulting from EOI File 9026.

4.1.2 Findings Review Committee

The Findings Review Committee reviewed the response received from PG&E on File No. 9007, and recommended classification of the associated Potential Finding Report as an observation for which a Potential Error Report (Class C) and an IDVP Completion Report were issued.

The committee also reviewed the information submitted by PG&E regarding the corrective action taken in response to EOI 9026 (ER/A). A member of the committee went to the site to verify PG&E's corrective action. Based on the documentation submitted by PG&E and the results of the verification, the committee determined that the corrective action was acceptable and the file was closed.

The committee has now received and acted on responses from PG&E to all Open Item Reports issued.

4.2 INTERIM TECHNICAL REPORTS

ITR-36, "Final Report on Construction Quality Assurance Evaluation of G. F. Atkinson," was issued.

ITR-38, "Final Report on Construction Quality Assurance Evaluation of Wismer and Becker," was issued.

4.3 STATUS OF SCHEDULE

The defined scope of work for the Construction Quality Assurance Evaluation of the two selected vendors was completed with the issuance of these CQA Final Reports.

4.4 SITE VISITS

On March 3, 1983, SWEC's engineers visited the site to verify PG&E corrective action resulting from EOI File 9026.

EXHIBIT C

4.5 MEETINGS

On February 25, 1983, the Findings Review Committee met to:

1. Discuss and review the response received from PG&E on EOI File 9007 and recommend classification of the associated Potential Finding Report.
2. Review information regarding corrective action provided by PG&E in response to EOI File 9026.

On March 7, 1983, the Findings Review Committee met to discuss and review information obtained during a site visit on March 3, 1983.

4.6 CONCLUSIONS

The IDVP concludes that, in the areas reviewed, the controls and practices in place during construction were adequate to assure the quality of construction. Further, to the extent reviewed, the as-constructed physical installation conforms to the requirements of design drawings and specifications, and the required inspections were performed and appropriately documented.

Based on the results of the reviews conducted of both G. F. Atkinson and Wismer & Becker, it is considered that PG&E adequately controlled construction contractors as well as the actual construction activities performed at DCNPP-Unit 1. No additional verification is recommended.

The work is now complete except for preparation of a summary for inclusion in the IDVP Final Report.