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Mr. G. A. Maneatis, Executive Vice President
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Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

July 28, 1983
J.O. No. 14296
DCS-497

#28

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20114

Mr. J. B. Martin, Regional Administrator
Region V
U.S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

Docket No. 50-275
Diablo Canyon Unit 1
License No. DPR-76

SWEC INTERIM TECHNICAL REPORTS

Gentlemen:

Attached are Interim Technical Report, Number 14, Revision 2, entitled "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" and Interim Technical Report, Number 28, Revision 2, entitled "Verification of the Instrument and Control Design of the Control Room Ventilation and Pressurization System."

Very truly yours,

Karl A. Swenson for
J. E. Krechting
Project Engineer, Diablo Canyon Nuclear Power Plant

enclosure

cc: RRFray (45)
RFReedy
ETDenison
WECooper (10)
HSchierling (40)
MJStrumwasser
DFFleischaker
JRReynolds
JRPhillips
MAxelrad
ACGehr
BNorton
RHubbard
JRoesset

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PACIFIC GAS & ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT

INDEPENDENT DESIGN VERIFICATION PROGRAM

INTERIM TECHNICAL REPORT NO. 28

REVISION 2

VERIFICATION OF THE INSTRUMENT AND CONTROL DESIGN OF THE CONTROL ROOM VENTILATION AND PRESSURIZATION SYSTEM

PERFORMED BY

STONE & WEBSTER ENGINEERING CORPORATION

DOCKET NO. 50-275

LICENSE NO. DPR-76

PROJECT MANAGER: Frank Sestak Jr. DATE: 7/25/83

F. Sestak, Jr.

PROGRAM MANAGER'S PREFACE

DIABLO CANYON NUCLEAR POWER PLANT - UNIT I

INDEPENDENT DESIGN VERIFICATION PROGRAM

INTERIM TECHNICAL REPORT

VERIFICATION OF THE INSTRUMENT AND CONTROL DESIGN
OF THE
CONTROL ROOM VENTILATION AND PRESSURIZATION SYSTEM

This is revision 2 to the twenty-eighth 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 a description of the work done, summary and evaluation of the results, and recommendations of the IDVP with respect to the initial sample.

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

An Independent Design Verification Program (IDVP) review was performed for the safety-related instruments and controls associated with the Control Room Ventilation and Pressurization (CRVP) System for Pacific Gas and Electric Company's (PG&E) Diablo Canyon Nuclear Power Plant Unit 1 (DCNPP-1). The review was performed in accordance with the Stone & Webster Engineering Corporation (SWEC) Scope of Work defined in Appendix D (DCNPP-IDVP-PP-002) of the IDVP Phase II Program Management Plan issued by Teledyne Engineering Services (TES) as IDVP Program Manager. The following sections provide a description of the methods, results, and evaluations associated with this independent design verification.

For verification of the Instrument and Control (I&C) design of the CRVP System, a wide range of documentation was reviewed. This documentation consisted of the following:

- Chapters 3, 7, 8, and 9 of the FSAR
- 60 PG&E/NRC Letters
- PG&E's Environmental Qualification Report
- 4 Equipment Specifications
- 1 Installation Specification
- 83 Drawings Including Electrical, Mechanical, Instrumentation, and Logic Diagrams.

The review was divided into four areas:

- Licensing Document Compliance
- System Design
- Field Verification
- Environmental Qualification Adequacy.

This review permitted the IDVP to obtain a thorough understanding of the plant as-built design relative to the licensing basis for the CRVP system instruments and controls.

SECTION 2

DEFINITION OF ITEMS REVIEWED

2.1 SYSTEM MONITORING

The CRVP System was reviewed to determine if adequate monitoring of the system was provided in the control room for all four design modes of operation.

2.2 SYSTEM CONTROLS

Operator controls, automatic control logic, and hardware were evaluated for the ability of the system to meet all the requirements of the licensing documents. System instrumentation and controls reviewed include locally-mounted sensors and controlling devices, panel-mounted instruments and controls, and auxiliary devices, such as relays.

2.3 DESIGN AND LICENSING DOCUMENT REVIEW

Licensing documents, including the Final Safety Analysis Report (FSAR) and PG&E letter responses to NRC questions and subsequent directives, were reviewed to determine the applicable licensing commitments. Design documents, including logic diagrams, schematic drawings, and wiring diagrams for the control systems were reviewed to evaluate the CRVP system design for conformance to the applicable licensing commitments.

2.4 INSTRUMENTATION AND CONTROL INSTALLATION

Installation drawings were reviewed for conformance to the licensing commitments, as well as to determine the adequacy of the control system design and compliance with vendor requirements.

2.5 ENVIRONMENTAL QUALIFICATION OF CLASS IE INSTRUMENTS

Safety-related instruments and control equipment in the CRVP System were identified and their locations verified by field inspection. The environmental qualification of the equipment was evaluated with regard to the postulated environment at the actual installed locations.

2.6 INSTRUMENT APPLICATION

The instrumentation associated with the CRVP System was reviewed to determine the suitability for its application in monitoring and controlling the process for all operating conditions.

2.7 PROCESS PARAMETER LIMITS FOR INSTRUMENT SETTINGS

CRVP system instrumentation was reviewed for compatibility of set points with the anticipated process operating conditions.

SECTION 3

DESCRIPTION OF REVIEW

The review of the CRVP System was initiated by reviewing ITR No. 29, entitled "Design Chain-Initial Sample" to determine the internal PG&E engineering groups and service-related contractors involved in the design of the instrumentation and controls for the CRVP System. The results of this review identified EDS Nuclear Corporation as the service-related contractor and the Instrumentation Group within the Mechanical Group, the Electrical Group, and the Civil Group as the appropriate PG&E engineering groups.

The applicable licensing documents were identified and reviewed. The system flow diagrams were reviewed to obtain a functional understanding of the system operating requirements. The detailed review described in the following sections was then conducted to determine if the CRVP system licensing commitments were satisfied.

3.1 SYSTEM MONITORING

Equipment status monitoring provisions were reviewed for fans, dampers, and other mechanical equipment in the CRVP System using the electrical schematic diagrams and the main control board arrangement drawings. Monitoring provisions for air flow, chlorine, and radiation were also reviewed for compliance with licensing documents using the instrument schematic diagrams, instrument rack drawings, and main control room arrangement drawings.

3.2 SYSTEM CONTROLS

Control logic hardware was reviewed by obtaining manufacturer's information from control panel drawings and comparing the system requirements with data from the manufacturer's catalogs. The digital logic system that controls the CRVP System was reviewed for all modes of operation to determine that the requirements of FSAR Section 9.4.1 were fulfilled.

3.3 DESIGN AND LICENSING DOCUMENT REVIEW

The review of the design and licensing documents included the FSAR and the various industry standards identified in the FSAR as design criteria, as well as the applicable Regulatory Guides and sections of the NRC Standard Review Plan. This review defined the scope or boundary of the safety-related portion of the CRVP System.

The electrical power supplies for safety-related instrumentation and control circuits were reviewed using the instrument schematic diagrams, electrical schematic diagrams, and electrical one-line diagrams. Redundant controls and equipment were reviewed to ensure they are powered from different Class IE power sources. The operator interface with the system was reviewed by examining the main control board arrangement drawings, electrical schematic diagrams, and local panel drawings. The control logic was reviewed by examining the logic diagrams, instrument schematics, and electrical schematics to determine that the automatic safety-related functions described in FSAR Section 9.4.1 were implemented in the design of the control system and the

selection of the control hardware. The system was also reviewed to determine if it contained provisions which permitted the operator to manually override automatic safety functions.

3.4 INSTRUMENT AND CONTROL INSTALLATION

Air-conditioning duct drawings and equipment arrangement drawings were reviewed to determine that the actual locations of the instruments were the same as shown diagrammatically on the air-conditioning flow diagram. Additionally, instrument schematic and installation detail drawings were reviewed to determine if instrumentation used in the CRVP System was adequate.

The actual installation details were reviewed during a field inspection. Also reviewed during the field inspection were the physical separation of redundant safety-related instrumentation and control wiring within panels and cabinets.

3.5 ENVIRONMENTAL QUALIFICATION OF CLASS IE INSTRUMENTS

A list of safety-related (Class IE) instrumentation was compiled for the CRVP System. These instrument locations, along with their postulated environments, were reviewed in order to establish applicability of environmental qualification data for instruments located in potentially severe environments.

3.6 INSTRUMENT APPLICATION

Safety-related instrumentation was reviewed to determine if it was functionally applied in accordance with manufacturer's recommendations. The physical locations of the instruments in the CRVP System were reviewed to ensure they were installed according to the manufacturer's specifications. This instrumentation includes the chlorine detectors and radiation monitors at both the normal and emergency air intakes for the control room and the air flow monitoring devices within the control room pressurization portion of the system.

3.7 PROCESS PARAMETER LIMITS FOR INSTRUMENT SETTINGS

The PG&E set point list was reviewed to determine CRVP system instrument set points. CRVP set point information was not included on the list at the time of this review so manufacturer's data for the overall process ranges were reviewed as an alternative.

SECTION 4

SUMMARY OF REVIEW RESULTS

4.1 SYSTEM MONITORING

The following monitor lights are provided on section VB-4 of the main control board:

- CRVP system operating mode (4 lights--1 for each design mode)
- Status indication for fans, dampers, and heaters in the control room pressurization system
- Status indication for the control room isolation dampers
- Equipment failure indication for fans and dampers in the control room pressurization system
- Equipment failure indication for the control room isolation dampers.

Some of the above indications are also provided on various panels and cabinets in the CRVP mechanical equipment room.

Chlorine and radiation monitoring equipment for both Unit 1 and Unit 2 normal and emergency air intakes is mounted in a common rack in the Unit 2

control room. These instruments contain indication and status lights for annunciation of high levels of contaminants.

4.2 SYSTEM CONTROLS

The automatic control system that places the CRVP System in the appropriate safety-related mode of operation is fully redundant. Each control system is made up of electromagnetic relays that are located in panels in the mechanical equipment room and the main control room.

The control room operator's interface consisted of two control switches on section VB-4 of the main control board and the monitoring devices referenced in Section 4.1 above. The first of the two control switches selects which redundant set of equipment will be used to operate the CRVP System. This switch was connected to both sources of redundant power and may have subjected the CRVP System to a common failure mode. PG&E completed a modification that added a redundant control switch which eliminates this potential failure.

The second control switch enables the operator to select one of the four operating modes of the CRVP System. There are other control switches on local equipment panels for test and maintenance purposes. If these test and maintenance switches are moved from the setting which connects the equipment to the automatic control system, it is annunciated in the main control room.

4.3 DESIGN AND LICENSING DOCUMENT REVIEW

During the initial review of the control system drawings, it was found that safety-related instrumentation was not designated as Design Class I on all drawings. PG&E provided additional information that demonstrated that this was not a concern because the disagreement between drawings was attributable to a drafting error. They further provided documentation that showed the equipment in question was purchased and installed as Design Class I.

The electrical and mechanical aspects of the CRVP control system were reviewed using the drawings issued by the PG&E Civil Group, Electrical Group, and Instrumentation Group. The functional design of the CRVP System complies with the commitments set forth in Section 9.4.1 of the FSAR. Two completely redundant automatic control systems are provided for the CRVP system equipment. Each train is powered from a separate safety-related source of power. Because some safety-related equipment in the CRVP System is shared between units, it may be powered from either Unit 1 or Unit 2.

There was a concern that the control room pressurization fans' control circuit design was such that the controls may not have been powered from the same source of power as the fan motors themselves. When the source of power was selected for the pressurization fans, the source of control power for each particular fan also had to be selected so that it would be related to the same source of power as the fan motor because if it is not, the loss of one bus (control power) may cause failure of equipment on another bus (fans). It was found that this concern had been addressed by PG&E and the required modifications were completed. These modifications alleviate the

specific concern because they permit the selection of both fan power and control power to be made from related buses.

The operator cannot transfer to manual any safety-related automatic functions of the CRVP control system which is in accordance with the licensing commitments in Section 9.4.1 of the FSAR.

4.4 INSTRUMENT AND CONTROL INSTALLATION

During the field verification it was identified that in certain panels the safety-related CRVP control system wiring was not separated according to the criteria committed to in FSAR Section 8.3.3.

Additionally, it was identified that non-Class IE circuit identification by color, although in agreement with design drawings, was not as defined in FSAR Section 8.3.3. PG&E stated that they will provide a revision to FSAR Section 8.3.3 which will describe the method of color coding non-Class IE circuits which corresponds to the as-built condition.

4.5 ENVIRONMENTAL QUALIFICATION OF CLASS IE INSTRUMENTS

PG&E's Environmental Qualification Report, dated September 1981, classified a portion of the CRVP System Class IE instrumentation as "Safety-Related Electrical Equipment Outside Containment Not Subject to a Severe Environment." It further stated that equipment listed in the above category was not qualified according to the requirements of IEEE 323-1971 but was evaluated for the normal and abnormal conditions postulated within the plant.

The remainder of the Class IE instrumentation in the CRVP System was not addressed in the Environmental Qualification Report. PG&E stated that the CRVP system equipment not addressed in the Environmental Qualification Report was designed for the "mild environment" in which it was expected to operate. No CRVP system instrumentation was found by the IDVP to be in a postulated severe environment.

4.6 INSTRUMENT APPLICATION

The following safety-related instrument sensors are provided for the CRVP System:

- Chlorine Monitors for normal and emergency air intakes. All are the continuously sensing type and are in accordance with manufacturer's application criteria.

- Radiation Monitors for normal and emergency air intakes. All are designed for use in area monitoring and are in accordance with manufacturer's application criteria.

- Air Flow Switches for detection of pressurization air flow. All are differential pressure type (low range) and are used in accordance with manufacturer's application criteria.

4.7 PROCESS PARAMETER LIMITS FOR INSTRUMENT SETTINGS

The instrumentation listed in Section 4.6 has ranges that are consistent with the process measurement requirements.

SECTION 5

EOI REPORTS ISSUED

Six files were opened as a result of the design review of the instrumentation and controls portion of the CRVP System. The status of these files is presented in Appendix B.

EOI File 8017 was issued because a control switch was connected to both sources of redundant power and may have subjected the CRVP System to a common failure mode. The controls for the CRVP System were modified to eliminate the concern, and the modifications were verified by the IDVP. This file has been closed as an Error Class A.

EOI File 8046 was issued because in shared systems the power sources for the control circuits for certain equipment were not always from the same unit as the power sources for that particular equipment. The concerns raised by this EOI File have been transferred to EOI File 8012. The closure of EOI File 8012 is discussed in detail in ITR No. 20. EOI File 8046 has been closed.

EOI File 8053 was issued due to radiation monitors RE 51, 52, 53, 54 being incorrectly identified as Instrument Class II instead of Class I on the instrument schematic drawing. The IDVP reviewed the documentation submitted as part of the response and concurred with PG&E that the instruments were purchased and installed to Design Class I criteria. This file has been closed.

EOI File 8056 was issued because Appendix E of NUREG 0588 requires all Class IE equipment to be identified as part of the environmental qualification procedure. Portions of the CRVP System were omitted from PG&E's Environmental Qualification Report. PG&E stated that the required compilation of Class IE equipment for the environmental report was made before the CRVP System was completed and that their listings will be updated in accordance with the PG&E normal procedure. No Design Class I instrumentation in the CRVP System was found to be located in a postulated severe environment. This file has been closed.

EOI File 8057 was issued because the CRVP Class IE control system wiring was not separated in accordance with the criteria committed to in FSAR Section 8.3.3. PG&E evaluated the concern and provided a resolution which involved physical modifications. The IDVP verified the modifications. This file has been closed as an Error Class A.

EOI File 8059 was issued because identification and separation criteria committed to in FSAR Section 8.3.3 for non-Class IE control wiring were not applied to certain panels in the CRVP System. PG&E responded that they would amend FSAR Section 8.3.3 to describe the wiring color code for non-Class IE control circuits. The IDVP has reviewed the proposed revision of the FSAR and found it more accurately reflects the as-built condition. This file has been closed.

SECTION 6

EVALUATION OF REVIEW RESULTS

This section identifies those concerns judged to have a possible generic effect on the plant design.

6.1 SYSTEM MONITORING

The parameters reviewed for the CRVP system monitoring are compatible with the requirements specified in the licensing commitments. No generic concerns exist.

6.2 SYSTEM CONTROLS

The design and operation of the automatic control system are consistent with the requirements of the CRVP System. One of the two control switches in the system did not meet the single failure criteria stated in FSAR Section 3.1.1. PG&E has modified the control system for compliance with single failure criteria, and these modifications were verified by the IDVP. The generic concern of single failure criteria related to mutually redundant sources of power brought together in one electrical device is described in ITR No. 34, and the results of the additional verification are reported in ITR No. 49.

6.3 DESIGN AND LICENSING DOCUMENT REVIEW

The design documentation and drawings were in compliance with the system requirements stated in the licensing documents. There was, however, an inconsistency on the instrument design class on one type of drawing which does not indicate a generic defect. PG&E provided information attributing this inconsistency to a drafting error. PG&E also submitted documentation to show that the safety-related portion of the CRVP System was not affected by this error because the equipment in question was purchased and installed as Design Class I. The IDVP reviewed this documentation and it concurs.

When certain shared equipment is transferred from power in one unit to power in the other unit, it appeared that no provision was made to transfer the control power. This would have resulted in the equipment being powered from one unit and its controls being powered from the other unit. Both units may not be available at all times. This concern was identified by PG&E prior to the IDVP Program and appropriate modifications were made. These modifications were verified by the IDVP. The generic concern for shared power sources is described in ITR No. 34.

6.4 INSTRUMENT AND CONTROL INSTALLATION

The separation between redundant electrical circuits does not meet the FSAR requirements. A potential generic concern exists and is described in ITR No. 34.

6.5 ENVIRONMENTAL QUALIFICATION OF CLASS IE INSTRUMENTS

The CRVP system instrumentation was not located in a potentially severe environment so environmental qualification was not required. No generic concern exists.

6.6 INSTRUMENT APPLICATION

The instrument specifications were in accordance with criteria stated in the licensing documents and the application of the instruments is within the guidelines prescribed by the manufacturer. No generic concern exists.

6.7 PROCESS PARAMETER LIMITS FOR INSTRUMENT SETTINGS

The process parameters fell within the range of the instruments which would permit the use of set points required by licensing criteria. No generic concern exists.

SECTION 7

CONCLUSIONS

Based on the "Evaluation of Review Results" contained in Section 6 of this report, conclusions are made on the need for additional verification or sampling concerning the specific subject areas.

7.1 SYSTEM MONITORING

No additional verification or sampling is required.

7.2 SYSTEM CONTROLS

Additional verification is required for separation and redundancy of control devices on the main control board. This additional verification is described in ITR No. 34 and the results of the additional verification are reported in ITR No. 49.

7.3 DESIGN AND LICENSING DOCUMENT REVIEW

Additional verification is required for redundancy of equipment and power supplies in shared (Unit 1 and Unit 2) safety-related systems. This additional verification is described in ITR No. 34 and the results of the additional verification are reported in ITR No. 49.

7.4 INSTRUMENT AND CONTROL INSTALLATION

Additional verification is required for separation of safety-related circuits within control panels. This additional verification is described in ITR No. 34 and the results of the additional verification are reported in ITR No. 49.

7.5 ENVIRONMENTAL QUALIFICATION OF CLASS IE INSTRUMENTS

No additional verification or sampling is required.

7.6 INSTRUMENT APPLICATION

No additional verification or sampling is required.

7.7 PROCESS PARAMETER LIMITS FOR INSTRUMENT SETTINGS

No additional verification or sampling is required.

APPENDIX A

REFERENCES

APPENDIX A

REFERENCES

1. Final Safety Analysis Report, Chapters 3, 7, 8, and 9.

2. Safety Evaluation Report (NUREG-0675), Supplement No. 14, April 1981.

3. PG&E Letter to NRC, December 4, 1980, Field Audit of Electrical Separation.

4. PG&E Environmental Qualification Report, Revision 1, September 1981.

APPENDIX B

EOI FILES

APPENDIX B

DCNPP IDVP STATUS REPORT

	REV. 0	LATEST REV.				
FILE NO.	DATE	REV.	DATE	BY	STATUS	SUBJECT
8017	821004	0	821004	SWEC	OIR	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	1	821004	SWEC	PER/AB	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	2	821022	TES	ER/AB	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	3	830225	TES	ER/A	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	4	830308	SWEC	PER/A	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	5	830309	TES	ER/A	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	6	830601	TES	OIR	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	7	830601	SWEC	PPRR/CI	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	8	830603	TES	PRR/CI	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8017	821004	9	830603	TES	CR	CRVP SYS. CONTROL POWER FOR SAFETY RELATED EQUIP.
8046	821022	0	821022	SWEC	OIR	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	1	821028	SWEC	PER/AB	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	2	821118	TES	ER/AB	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	3	830309	TES	OIR	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	4	830311	SWEC	PPRR/DEV	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	5	830315	TES	PRR/DEV	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8046	821022	6	830315	TES	CR	CRVP CONTROLS FOR FANS 96, 97, 98 & 99
8053	821025	0	821025	SWEC	OIR	CRVP SYSTEM INSTRUMENTATION
8053	821025	1	821025	SWEC	PPRR/OIP	CRVP SYSTEM INSTRUMENTATION
8053	821025	2	821118	TES	PRR/OIP	CRVP SYSTEM INSTRUMENTATION
8053	821025	3	821217	TES	OIR	CRVP SYSTEM INSTRUMENTATION
8053	821025	4	830121	SWEC	PPRR/CI	CRVP SYSTEM INSTRUMENTATION
8053	821025	5	830209	SWEC	PPRR/DEV	CRVP SYSTEM INSTRUMENTATION
8053	821025	6	830209	TES	PRR/DEV	CRVP SYSTEM INSTRUMENTATION
8053	821025	7	830225	TES	CR	CRVP SYSTEM INSTRUMENTATION
8056	821025	0	821025	SWEC	OIR	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	1	821025	SWEC	PPRR/OIP	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	2	821118	TES	PRR/OIP	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	3	830223	TES	OIR	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	4	830225	SWEC	PPRR/CI	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	5	830225	TES	PRR/CI	CRVP SYSTEM - CLASS IE EQUIPMENT
8056	821025	6	830225	TES	CR	CRVP SYSTEM - CLASS IE EQUIPMENT
8057	821025	0	821025	SWEC	OIR	AFW AND CRVP CONTROL PANELS
8057	821025	1	821028	SWEC	PER/AB	AFW AND CRVP CONTROL PANELS
8057	821025	2	821118	TES	ER/AB	AFW AND CRVP CONTROL PANELS
8057	821025	3	830311	TES	OIR	AFW AND CRVP CONTROL PANELS
8057	821025	4	830311	SWEC	PER/A	AFW AND CRVP CONTROL PANELS
8057	821025	5	830315	TES	ER/A	AFW AND CRVP CONTROL PANELS
8057	821025	6	830621	TES	OIR	AFW AND CRVP CONTROL PANELS
8057	821025	7	830622	SWEC	PPRR/CI	AFW AND CRVP CONTROL PANELS
8057	821025	8	830624	TES	PRR/CI	AFW AND CRVP CONTROL PANELS
8057	821025	9	830624	TES	CR	AFW AND CRVP CONTROL PANELS
8059	821029	0	821029	SWEC	OIR	AFW & CRVP CONTROL PANELS AND RACEWAYS
8059	821029	1	821029	SWEC	PPRR/OIP	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS
8059	821029	2	821123	TES	PRR/OIP	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS
8059	821029	3	830401	TES	OIR	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS
8059	821029	4	830404	SWEC	PER/C	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS
8059	821029	5	830407	TES	ER/C	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS
8059	821029	6	830407	TES	CR	AFW SYS & CRVP SYS CONTROL PANELS & RACEWAYS

APPENDIX C

PROGRAM MANAGER'S ASSESSMENT

Appendix C

Program Manager's Assessment

Independent review by TES of the tasks performed by SWEC to verify the instrumentation and controls design of the Control Room Ventilation and Pressurization System was done in accordance with IDVP Phase II Program Management Plan, dated June 18, 1982 and the Engineering Procedure EP-1-014.

The review included several visits to the site and to the SWEC offices for detailed discussions and review, with SWEC personnel, of the work performed by SWEC including the methodology and calculations used in the evaluation of this task.

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 initial sampling selected by SWEC and the assessment of the impact of SWEC findings, TES, as Program Manager, is of the opinion that because separation of safety-related circuits was found to be inadequate, additional verification is required. This additional verification is identified in ITR-34, and the results are reported in ITR-49.