TELEDYNE
ENGINEERING SERVICES

DIABLO CANYON NUCLEAR POWER PLANT

INDEPENDENT DESIGN VERIFICATION PROGRAM

SEMIMONTHLY REPORT

TES - SM - JANUARY

JANUARY 14, 1983

UNCONTROLLED COPY

BY:

NG SERVICES

MANAGER

TELEDYNE
ENGINEERING SERVICES

TES SEMIMONTHLY REPORT

JANUARY 14, 1983

This document includes, in numerical order, all Open Item Report System Forms issued by TES since our Second Friday Semimonthly Report of December 10, 1982.

As required by DCNPP-IDVP-PP-005, individuals assigned by this organization to the IDVP have completed an acceptable Statement Regarding Potential or Apparent Conflicts of Interest.

Appendix A to this document is a "Lookahead Report" as requested by the Commission in its September 29, 1982 letter (Denton to Cooper). This Report is intended to provide a schedule (as presently known) of events occuring before the next Second Friday Semimonthly Report. These events include:

1. DCNPP site visits by the IDVP team.

2. Anticipated meetings where all IDVP participants and designated interested parties have been or will be notified.

3. Significant IDVP events, such as the issuance of an ITR.

Also included in Appendix A is the IDVP schedule relative to DCNPP-1 3-Step Licensing. This schedule provides IDVP report dates for fuel load, low power, and full power.

ERROR REPORT

File No. 1014

Class: A/B (A,B,C or D)

File Revision No. 9

PG&E Task No. _____

1. Dates: Reported to Program Review Committee N/A
   Program Review Committee Action N/A
   Reported to PG&E and Originator 830105
2. Scheduled for TES Semimonthly Report No. January ,
3. Structure(s), system(s), or component(s) involved:

   Containment Structure

4. Description of Error:

   EOI 1014 Revision 6: Spectra have not been provided or scaling criteria defined for the pipe rack attached to the Containment Exterior.

5. Significance of Error:

   Spectra used in the design analysis of the pipe rack attached to the Containment Exterior may not be applicable.

6. Recommendation:

   Based on the PG&E presentation on August 6 and September 1, 1982, the Containment Structure is being reanalyzed or reviewed in the P&GE Internal Technical Program. EOIs 977 and 1009, which also concern the Containment Structure, were combined into this file 1014. Revision 8 was issued to combine 3006 and 3007 into this error file. Revision 9 is issued to combine 3008 into this error file.

7. Potential Error Report signed by N/A (Type Name/Organization) on _____ (Date)

8. Signatures: N/A (For Program Review Committee) _____ 830105 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 1074

File Revision No. 5

1. Resolution of an: ☒ Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☒ Closed Item
   b. ☐ Deviation
   c. ☐ Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 830105
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

RLCA Piping Analysis 101 (Initial Sample)

The verification piping stresses differ from those in the design analysis (prior to 11/30/81) by more than 15%. Reasons for the differences are as follows:

1. Spectra
2. Mass Lumping (EOI 1060)
3. Valve 8821A orientation (EOI 947)
4. Flange Weight

6. Program Resolution is:

Based on PG&E Completion Sheet 1074, Rev. 2, 11/4/82, there are no modifications required.

Closed Item.

7. Potential Program Resolution Report signed by Edward Denison/RLCA (Type Name/Organization) on 821217 (Date)
8. Signature: R Wray for W.F. Cooper (Approved/Program Manager)

File No. 1074

File Revision No. 6

IDVP COMPLETION REPORT

The DCNPP Independent Design Verification Program (IDVP) effort related to the above File Number is complete.

1. The action which completes the IDVP effort is:

   [X] File Revision No. 5 is a Program Resolution Report which recategorized this item as a Closed Item.

   [ ] The IDVP has been informed by PG&E that no physical modifications will be applied by PG&E in response to File Revision No. _____, which recategorized this item as either a Deviation or as a Class C or Class D Error. The PG&E document so informing the IDVP is _____.

2. Signature: R Wray for W.G. Crespo 030105

   Approved/Program Manager

File No. 1094
File Revision No. 7

IDVP COMPLETION REPORT

The DCNPP Independent Design Verification Program (IDVP) effort related to the above File Number is complete.

1. The action which completes the IDVP effort is:

   ☐ File Revision No. ____ is a Program Resolution Report which recategorized this item as a Closed Item.

   ☒ The IDVP has been informed by PG&E that no physical modifications will be applied by PG&E in response to File Revision No. 3, [illegible]. The PG&E document so informing the IDVP is PG&E Completion Sheet 820802. Based on this response, the File was subsequently reclassified as a Deviation in File Revision 6.

2. Signature: [signature] 821220
   Approved/Program Manager

ERROR REPORT

File No. 1096

Class: C (A;B,C or D)

File Revision No. .5

PG&E Task No. _____

1. Dates: Reported to Program Review Committee: N/A
   Program Review Committee Action: N/A
   Reported to PG&E and Originator: 830113
2. Scheduled for TES Semimonthly Report No. _____
3. Structure(s), system(s), or component(s) involved:

   Supply Fan S-31

4. Description of Error:

   The bolts between the base angles and wide flange beams are shown in the design analysis to be 7/8 inches. RLCA field verification showed these bolts to be 5/8 inches.

   The design analysis computer model restrains the fan support frames from translational motion and assumes that the 2 shaft bearings share the axial load.

   The length of the base angle bending moment arm is 5.833 inches in the design analysis computer model. The design analysis hand calculations for bending stress utilize a length of 2.08 inches. The 5.833 inch length is correct.

5. Significance of Error:

   The verification analysis shows all stresses to be below the allowable.

6. Recommendation:

   Error Class C.

7. Potential Error Report signed by E. Denison/RLCA (Type Name/Organization) on 830113 (Date)

8. Signatures: N/A (For Program Review Committee)
   R. Wray for W.C. Gwynn (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 1108

File Revision No. 3

1. Resolution of an: ☒ Open Item: ☐ Class ______ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. ☒ Open Item with future action by PG&E: Task ______
3. Date Reported to PG&E 821217
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

RLCA Piping Sample 110 (Additional 5 lines); Design Analysis 7-1 Revision 5 (Prior to 11/30/81).

The design analysis of the RTD lines does not include the effects of the attachment to the reactor coolant system at the following locations:

Line 1141 node 515, Line 1140 node 107,
Line 1137 node 27, Line 1136 node 12,
and Line 1138 node 1.

The verification analysis included SAM effects at these locations.

6. Program Resolution is:

EOI 1107 notes an overstress in the verification analysis. This overstress is not caused by the inclusion of these SAM effects in the verification analysis. The licensing criteria does not address small bore piping attached to the reactor coolant system.

Open Item with future action by PG&E - clarify the licensing criteria with respect to small bore piping attached to the RCS.

7. Potential Program Resolution Report signed by Edward Denison/RLCA (Type Name/Organization) on 821213 (Date)
8. Signature: W. E. Cooper 821217 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 1110

File Revision No. 2

1. Resolution of an: ☒ Open Item: ☐ Class ____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. ☒ Open Item with future action by PG&E: Task ____
3. Date Reported to PG&E 830107
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

   Class 1 36" x 16" Rectangular HVAC duct from Fan S-69 to 4.16 kv switchgear.

   Wall penetration described in PG&E drawing 59322, Revision 17, Detail 3/322 specifies 2-1/2 x 1-1/2 x 3/16 inch angle installed on top and two sides of duct on West side of wall. Field inspection shows the angles not to be installed.

6. Program Resolution is:

   Open Item with future action by PG&E.

7. Potential Program Resolution
   Report signed by E. Denison/RLCA on 821208
   Type Name/Organization Date
8. Signature: [signature] 830107 (Approved/Program Manager)

OPEN ITEM REPORT File No. 1111

RLCA File Revision No. 2

1. Date reported to PG&E and TES 830107
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☒ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

   Phase II Piping and Pipe Support Initial Sample

6. Description

   A number of previously issued IDVP Phase I Error Reports and DCP Open Items are applicable to the planned IDVP Phase II piping and pipe support independent calculations. As a result of these items, the DCP will review the piping and supports for both Phase I and Phase II criteria. Comparison of IDVP independent calculations to superseded DCP work will not provide meaningful results.

7. Recommendation:

   Since the subject is related to the Phase II effort, it should be issued as a 6000 series EOI. Recommend RLCA issue a new EOI and close File 1111 out.

9. Signature: R. Wray for W.E. Cooper 830107 (Originator/Organization)

PROGRAM RESOLUTION REPORT

File No. 1112

File Revision No. 2

1. Resolution of an: ☒ Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. ☒ Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 830105
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

EOI 1112, Revision 1: Soils - Intake Structure.

Borings 18 through 22 included in the May 1968 Harding-Miller-Lawson & Associates Soils Report are shown on the site plan and subsurface section (Plate I-1) to be in the intake line area (Section A-A, Plate I-1). The boring logs included in the report note that these borings are in the discharge line area (Section B-B, Plate I-1).

RLCA to assess the significance of this item at the conclusion of the soils review.

6. Program Resolution is:

DCP to clarify the location of borings 18 through 22 included in the May 1968 soils report.

7. Potential Program Resolution Report signed by Edward Denison (RLCA) on 821229
   Type Name/Organization Date
8. Signature: R Wray for W.E. Cooper 830105 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 3008

File Revision No. 1

1. Resolution of an: XX Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. XX Closed Item
   b. ☐ Deviation
   c. ☐ Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 821220
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Based upon TES field inspection and Bostrom - Bergen Metal Products, Drawing No. DC663243-465-2, there is a discrepancy at the beam to column connection - bottom flange at elevation 106' column line 10. The field inspection recorded a weld size of 1/4"-1" long while the drawing called for the weld to be 3/8"-3" long.

This concern will be transferred to and addressed in the DCP ITP on the Containment Structure.

6. Program Resolution is:

File 3008 is combined into File 1014, which has been classified an Error A or B and which pertains to the Containment Structure. Hence File 3008 is closed but the concern will be addressed in File 1014.

7. Potential Program Resolution Report signed by NA on _____
   Type Name/Organization Date

8. Signature: R. Wang for W. Cooper 821220 (Approved/Program Manager)

File No. 3008
File Revision No. 2

IDVP COMPLETION REPORT

The DCNPP Independent Design Verification Program (IDVP) effort related to the above File Number is complete.

1. The action which completes the IDVP effort is:

   [X] File Revision No. 1 is a Program Resolution Report which recategorized this item as a Closed Item.

   [ ] The IDVP has been informed by PG&E that no physical modifications will be applied by PG&E in response to File Revision No. _____, which recategorized this item as either a Deviation or as a Class C or Class D Error. The PG&E document so informing the IDVP is _____.

2. Signature: R Waag for W. E. Cooper 821222
   Approved/Program Manager

PROGRAM RESOLUTION REPORT

File No. 6001

File Revision No. 2

1. Resolution of an: ☒ Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☒ Closed Item
   b. ☐ Deviation
   c. ☐ Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 830113
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

A number of previously issued IDVP Phase I Error Reports and DCP Open Items are applicable to the planned IDVP Phase II Piping and Pipe Support independent calculations. As a result of these items, the DCP will review the piping and supports for both Phase I and Phase II criteria. Comparison of IDVP independent calculations to superseded DCP work will not provide meaningful results.

The DCP will review the piping to address the previously identified IDVP Error Reports (Phase I only prior to 11/30/81) and ITP Open Items.

6. Program Resolution is:

This item combines with EOI 1098 as an Error Class A or B. The IDVP will prepare a program similar to ITR-8; Revision 0, "Verification of DCP Corrective Action" for verification of Phase II Piping and Pipe Supports through review of the DCP current activities.

7. Potential Program Resolution Report signed by Edward Denison/RLCA (Type Name/Organization) on 830111 (Date)
8. Signature: R. Murray for W. E. Cooper (Approved/Program Manager)

File No. 6001
File Revision No. 3

IDVP COMPLETION REPORT

The DCNPP Independent Design Verification Program (IDVP) effort related to the above File Number is complete.

1. The action which completes the IDVP effort is:

   [X] File Revision No. 2 is a Program Resolution Report which recategorized this item as a Closed Item.

   [ ] The IDVP has been informed by PG&E that no physical modifications will be applied by PG&E in response to File Revision No. _____, which recategorized this item as either a Deviation or as a Class C or Class D Error. The PG&E document so informing the IDVP is _____.

2. Signature: R. Wray for W. E. Cooper
   Approved/Program Manager

OPEN ITEM REPORT File No. 8006

File Revision No. 6

1. Date reported to PG&E and ~~XXXX~~ SWEC 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☒ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

Control Room Ventilation and Pressurization System.

6. Description of Concern:

PGandE did not provide calculations which determined the input for the evaluation of environmental parameters in the Turbine Building.

7. Significance of Concern:

The evaluation of the environmental parameters (P/T transients) in the Turbine Building (building volume, heat sink data and ventilation area). It is considered that this concern will be addressed in the response to EOI 8001.

8. Recommendation:

TES request SWEC to issue a Potential Program Resolution Report to process this file as a closed item.

9. Signature: R Murray for W.E. Cooper 830111 (Originator/Organization)

OPEN ITEM REPORT File No. 8009

SWEC File Revision No. 3

1. Date reported to PG&E and TES XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☒ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System Discharge Piping Upstream of Last Manual Isolation Valve before the Feedwater System.

6. Description of Concern:

The design pressure shown in the Line Designation Table does not meet the requirements of the ANSI Code.

7. Significance of Concern:

ANSI B31.7 Class III Code requirements were not met. The occasional load of Turbine overspeed must be reviewed to assure compliance with B31.1 par. 102.2.4.

8. Recommendation:

TES requests SWEC to review the PGandE Resolution Sheet IDVP File No. 8009 Revision 2 signed 830103 and provide recommendation for future disposition.

9. Signature: R. Murray for W. E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8010

SWEC File Revision No: 6

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☒ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW Turbine Bearing Coolers and Supply Piping.

6. Description of Concern:

DCO-E-M-472 added a valve that provides additional back pressure and flow through the Turbine Bearing Coolers.

7. Significance of Concern:

The piping and components do not appear adequately protected against surges and a variety of operating conditions.

- B31.7 CL III requirements were not met.
- Turbine driver could be rendered inoperable.

8. Recommendation:

TES requests SWEC to review the PGandE Resolution Sheet IDVP File NO. 8010 Revision 5 signed 821221 and provide recommendation for future disposition.

9. Signature: R Wray for W. E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8015

SWEC File Revision No. 5

1. Date reported to PG&E and XXX 830103
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☒ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

   Auxiliary Feedwater System Flow Capacity.

6. Description of Concern:

   The response in PGandE Completion Sheet IDVP File No. 8015, Revision 4 is not adequate.

7. Significance of Concern:

   The tests performed on the AFW System did not consider the flow of 50 gpm as defined in Section 10.4.8 of the FSAR.

8. Recommendation:

   SWEC should request PGandE to submit more responsive information.

9. Signature: R E Gaye 830103 (Originator/Organization)

OPEN ITEM REPORT File No. 8019

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW Fire Protection.

6. Description of Concern:

Fire zone 3-Q-2 (el. 100'-0" in the Auxiliary Building), contains both motor driven AFW pumps and control circuitry (CND K8317) for FCV-95 which is required for operation of the turbine driven AFW pump.

7. Significance of Concern:

A single fire in zone 3-Q-2 could adversely affect operation of all three AFW pumps. This event could endanger safe shutdown of the plant. PGandE has stated in "Supplementary Information for Fire Protection Review" (SIFPR), November 13, 1978, that a single fire in any fire zone will not adversely affect safe shutdown capability.

PGandE should determine if the control circuitry in CND K8317 is required for safe operation of FCV-95 and if a fire could prevent the proper operation of FCV-95.

8. Recommendation:

TES requests SWEC to review the DCP Completion Sheet IDVP File No. 8019 Revision 2 dated 12/16/82 and provide recommendation for future disposition.

9. Signature: R Wray for W.E. Cooper 830111 (Originator/Organization)

OPEN ITEM REPORT File No. 8027

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System Steam Supply to the AFW Turbine.

6. Description of Concern:

7. Significance of Concern:

8. Recommendation:

TES requests SWEC to issue a Potential Program Resolution Report to process this file as a closed item.

9. Signature: R Wray for W.E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8028

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. XX Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System - Failure by Postulated Pipe Crack.

6. Description of Concern:

FSAR addresses high energy line cracks in line 760. The postulated event, indirectly, may cause failure of the two AFW pump motors. A postulated single failure of the Turbine, or the necessity to isolate steam line 760 results in failure of the AFW System.

7. Significance of Concern:

An evaluation of the crack effect on the motors was not given.

The postulated crack in line 760 could result in the loss of three AFW pumps, which does not meet the licensing commitment.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8028 Revision 2 signed 830104 and provide recommendation for future disposition.

9. Signature: R. Wray for W. E. Cooper 830111 (Originator/Organization)

OPEN ITEM REPORT File No. 8029

SWEC File Revision No. 3

1. Date reported to PG&E and ~~XXX~~ 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task ____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of ____
   b. ☒ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☒ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System - Piping Crack Analysis, PT-434.

6. Description of Concern:

FSAR addresses high energy line cracks in line 760. An evaluation should have been made of the effects of a crack break from line 760 on point 434 and on the effects of a single crack from line 760 on point 434 and pump 1-3 simultaneously.

The jet could envelop PT-434 (calculated temperature approximately 268°F) resulting in the potential failure of LCV113 and LCV115. Blowdown through the crack can be isolated by closing FCV37 and FCV38 or FCV95 rendering the turbine driven pump 1-1 inoperable. A postulated single failure of purple power results in the loss of pump 1-2, and loss of power to LCV110 and LCV111.

In a separate, but similar, pipe crack break incident the following event should have been postulated. The crack is postulated to envelop portions of pump 1-3 motor and PT-434. High environmental temperatures may result in their failure. The turbine is isolated as in the first case. Failure of purple power results in loss of pump 1-2.

7. Significance of Concern:

An evaluation of the crack effect on the targets was not given.

A postulated crack in line 760 and a postulated single failure could result in loss of AFW flow which does not meet the licensing commitment.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8029 Revision 2 signed 830104 and provide recommendation for future disposition.

9. Signature: R Wray for W. E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8030

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable).
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. XX Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System - Piping Crack Analysis, PT-433.

6. Description of Concern:

PT 433 is not identified in FSAR Appendix 3.6, Reference 5 (NSC Report PGE-01-29, "Jet Analysis of Postulated Pipe Break Outside Containment at Diablo Canyon Unit 1", Table B-13). Since high energy line cracks are postulated in line #760 by the FSAR, an evaluation should have been made of the effect of a crack break from line #760 on this transmitter. The jet could envelop PT 433 (calculated temperature approximately 268°F) resulting in the potential failure of LCV110 and LCV111. Blowdown through the crack can be isolated by closing FCV37 and FCV38 or FCV95, rendering the turbine driven pump 1-1 inoperable. A postulated single failure of orange power results in the loss of pump 1-3 and loss of power to LCV113 and LCV115.

7. Significance of Concern:

The Table B-13 did not address this target. An evaluation of the crack effect on the target was not given.

A postulated crack in line #760 and a postulated single failure could result in loss of AFW flow which does not meet the licensing commitment.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8030 Revision 2 signed 830104 and provide recommendation for future disposition.

9. Signature: R C Wray for W. E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8031

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. XX Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System - Piping Crack Analysis LCV113 & LCV115.

6. Description of Concern:

Targets listed below were not identified in FSAR, Appenix 3.6 Reference 5 (NSC Report PGE-01029, "Jet Analysis of Postulated Pipe Break Outside Containment at Diablo Canyon Unit 1," Table B-12). An evaluation should have been made of the effect of a crack break on these targets. A crack break should have been postulated to occur in line #594 downstream of the check valve and FCV38. The jet could envelop POM-113 and POM-115 (calculated temperature = 210°F) or LCV113 and LCV115 (calculated temperature = 217°F) resulting in potential failure of the valves. Blowdown through the crack can be isolated by closing FCV37 & FCV38, rendering the turbine pump inoperable. A postulated single failure of purple power results in loss of pump 1-2 and loss of power to valves LCV110 and LCV111.

7. Significance of Concern:

The table B-12 did not address these targets. An evaluation of the crack effect on these targets was not given.

A postulated crack in line #594 and a postulated single failure could result in loss of AFW flow which does not meet the licensing committment.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8031 Revision 2 signed 830104 and provide recommendation for future disposition.

9. Signature: R. Wray for W. F. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8036

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW Fire Protection - Hydrogen Lines.

6. Description of Concern:

7. Significance of Concern:

8. Recommendation:

TES requests SWEC to issue a Potential Program Resolution Report to process this file as a closed item.

9. Signature: R. Murray for W. E. Cooper 830113 (Originator/Organization)

OPEN ITEM REPORT File No. 8038

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW Fire Portection.

6. Description of Concern:

The ceiling in fire zone 3-Q-2 (AFW motor driven pump room, el. 100'-0") has a large opening (with grating) to zone 3-R el. 115'-0".

7. Significance of Concern:

A fire in zone 3-R could propagate into zone 3-Q-2. The introduction to "Supplementary Information for Fire Protection Review," November 13, 1978 (SIFPR), states "The assuption has been made that any fire stays confined to its fire zone;...".

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8038 Revision 2 signed 830103 and provide recommendation for future disposition.

9. Signature: R. Wray for W.E. Cooper 830111 (Originator/Organization)

OPEN ITEM REPORT File No. 8039

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830113
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

4160 V Fire Protection - Zone Barriers.

6. Description of Concern:

The ceilings in each room (fire zones 12-A, 12-B, and 12-C) have large grated openings up to the 4160 V Switchgear Rooms (fire zones 13-A, 13-B, and 13-C).

7. Significance of Concern:

A fire in one of the 4160 V Cable Spreading Rooms could propagate into a 4160 V Switchgear Room or viceversa, violating licensing commitments.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8039 Revision 1 signed 821204 and provide recommendation for future disposition.

9. Signature: R Wray for W.E. Cooper 830113 (Originator/Organization)

PROGRAM RESOLUTION REPORT

File No. 8041

File Revision No. 4

1. Resolution of an: XX Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 821214
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Refer to Open Item Report, EOI 8041 Revision 0.

6. Program Resolution is:

To demonstrate compliance to the licensing commitments, PG&E to provide the following:

1). definition of "mutually redundant" as it applies to individual components, circuits, subsections of systems, etc.

2). design procedures which control the separation of mutually redundant circuits in raceway and equipment enclosures. (i.e. manual check, computer check, etc.)

3). justification that the use of a common switch for two vital sources will not result in a common mode failure.

7. Potential Program Resolution Report signed by John Krechting (SWEC) on 821207
   Type Name/Organization Date
8. Signature: K E Brogan 821214 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 8042

File Revision No. 4

1. Resolution of an: XX Open Item: ☐ Class ______ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task ________
3. Date Reported to PG&E 821214
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Refer to Open Item Report, EOI 8042, Revision 0.

6. Program Resolution is:

To demonstrate compliance to the licensing commitments, PG&E to provide the following:

1). definition of "mutually redundant" as it applies to individual components, circuits, subsections of systems, etc.

2). design procedures which control the separation of mutually redundant circuits in raceway and equipment enclosures. (i.e. manual check, computer check, etc.)

3). justification that single failure criteria is met. Response shall address breaker positions (open or closed) for alternative gray power source from bus 1G.

7. Potential Program Resolution Report signed by John Krechting (SWEC) on 821207
   Type Name/Organization Date
8. Signature: R.E. Gaza 821213 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 8043

File Revision No. 4

1. Resolution of an: ☒ Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. ☒ Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 821214
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Refer to Open Item Report, EOI 8043 Revision 0.

6. Program Resolution is:

To demonstrate compliance to the licensing commitments, PG&E to provide the following:

1). definition of "mutually redundant" as it applies to individual components, circuits, subsections of systems, etc.

2). design procedures which control the separation of mutually redundant circuits in raceway and equipment enclosures. (i.e. manual check, computer check, etc.)

3). justification that the circuits in the identified equipment do not require separation.

7. Potential Program Resolution
   Report signed by John Krechting (SWEC) on 821207
   Type Name/Organization Date
8. Signature: V E Eoyer 821213 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 8044

File Revision No. 4

1. Resolution of an: XX Open Item: ☐ Class ______ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task ______
3. Date Reported to PG&E 830104
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Refer to Open Item Report EOI-8044, Rev. 0 for Description of Concern (Item 6) and Significance of Concern (Item 7).

6. Program Resolution is:

1. Verify that additional splices were not used in the two sample systems (AFW & CRVP) in safety-related circuits. Describe how this verification was accomplished.

2. Where splices are identified above, furnish documentation that splice material used is qualified to the pipe crack environment (Temperature & Humidity).

7. Potential Program Resolution Report signed by John Krechting (SWEC) on 821203
   Type Name/Organization Date
8. Signature: [signature] 830104 (Approved/Program Manager)

PROGRAM RESOLUTION REPORT

File No. 8045

File Revision No. 4

1. Resolution of an: XX Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 821214
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Refer to Open Item Report, EOI 8045 Revision 0.

6. Program Resolution is:

To demonstrate compliance to the licensing commitments, PG&E to provide the following:

1). definition of "mutually redundant" as it applies to individual components, circuits, subsections of systems, etc.

2). design procedures which control the separation of mutually redundant circuits in raceway and equipment enclosures. (i.e. manual check, computer check, etc.)

3). justification that failure of protective devices will not result in a common mode failure.

7. Potential Program Resolution Report signed by John Krechting (SWEC) on 821207
   Type Name/Organization Date
8. Signature: W E Cooper 821213 (Approved/Program Manager)

OPEN ITEM REPORT File No. 8048

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW Long Term Cooling Water Supply System.

6. Description of Concern:

7. Significance of Concern:

8. Recommendation:

TES requests SWEC to issue a Potential Program Resolution Report to process this file as a closed item.

9. Signature: R Wray for W.E. Cooper 830111 (Originator/Organization)

PROGRAM RESOLUTION REPORT

File No. 8049

File Revision No. 5

1. Resolution of an: XX Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 830103
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

A). FSAR Section 3.6.4 Specific Criteria - Piping Outside Containment. Systems, location, loads as applicable to jet impingement from a longitudial break in line 594 (mode 1800) postulated to hit Orange Conduit KK792 and damage Cable No. I0053PI03A (from XPT434 to Rack NU Set 1 CUB.B) such that LCV113 and LCV115 close. LCV113 and LCV115 are associated with Pump 1-3. Postulated failure of purple power causes loss of power to FCV37, LCV110, LCV111, and Pump 1-2. FCV37 stays open and blows down S G-2 in area GE. Pump 1-1 does not function due to the break in Line 594. A postulated break in Line 594 and a postulated single failure, i.e. purple power could result in loss of AFW flow.

B). PGandE Completion Sheet IDVP File No. EOI-8049 Rev. 3 dated 12/15/82 is not responsive to the cited concern.

6. Program Resolution is:

To demonstrate compliance with licensing commitments in FSAR Appendix 3.6, and in Ref. 5 to Appendix 3.6, the DCP should provide the following:

a). Evaluation of the effects of jet impingement forces, i.e., blowdown thrust from break 1800 in line 594, on conduit KK 792.

b). Re-evaluation of the jet envelopment temperature effects on conduit KK 792 resulting from break 1800 in line 594. The method of temperature calculation to be used should be the method outlined in PGE-01-29, Rev. 1, "Jet Effects Analysis of Postulated Pipe Break Outside Containment at Diablo Canyon Unit 1". PGE-01-29, Rev. 1 (Ref. 5 in FSAR Appendix 3.6) has been submitted to NRC by PG&E, and is considered to be the licensing basis for temperature calculations resulting from jet envelopment.

7. Potential Program Resolution Report signed by John Krechting (SWEC) on 821215
   Type Name/Organization Date
8. Signature: W E Cooper 830103 (Approved/Program Manager)

OPEN ITEM REPORT File No. 8049

SWEC File Revision No. 6

1. Date reported to PG&E and XXX 830111
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. XX Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. ☐ Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

AFW System - Pipe Break in Line 594.

6. Description of Concern:

Jet Impingment from a longitudinal break in Line 594 (Node 1800) is postulated to hit Orange Conduit KK792 and damage Cable No. I0053PI03A (from XPT434 to Rack NU Set 1 CUB.B) such that LCV113 and LCV115 close. LCV113 and LCV115 are associated with Pump 1-3. Postulated failure of purple power causes loss of power to FCV37, LCV110, LCV111, and Pump 1-2. FCV37 stays open and blows down S G-2 in area GE. Pump 1-1 does not function due to the break in Line 594.

7. Significance of Concern:

A postulated break in Line 594 and a postulated single failure, i.e. purple power could result in loss of AFW flow.

8. Recommendation:

TES requests SWEC to review the PGandE Completion Sheet IDVP File No. 8049 Revision 2 signed 830103 and provide recommendation for future disposition.

9. Signature: R Wray for W. E. Cooper 830111 (Originator/Organization)

OPEN ITEM REPORT File No. 8053

SWEC File Revision No. 3

1. Date reported to PG&E and XXX 821217
2. Scheduled for TES (Originator) Semimonthly Report No. January
3. Responsive to PG&E Technical Program: Task _____ (if applicable)
4. Prepared as a result of:
   a. ☐ QA Audit and Review Report of _____
   b. ☐ Field Inspection Deficiency
   c. ☐ Independent Calculation Deficiency
   d. ☐ Seismic Input Deficiency
   e. XX Design Methodology Deficiency
   f. ☐ Other Deficiency
5. Structure(s), system(s) or component(s) involved:

Control Room Ventilation and Pressurization System Instrumentation.

6. Description of Concern:

Designation of Class I devices (see 8053, Rev. 0.)

7. Significance of Concern:

Installation may not be Class I.

8. Recommendation:

SWEC to review PG&E response (Reference PG&E Resolution Sheet, IDVP File No. 8053, Rev. 1) and provide recommendation for future disposition.

9. Signature: R L Cox 821217 (Originator/Organization)

PROGRAM RESOLUTION REPORT

File No. 8063

File Revision No. 4

1. Resolution of an: XX Open Item: ☐ Class _____ Error
2. Independent Design Verification Program Resolution is as:
   a. ☐ Closed Item
   b. ☐ Deviation
   c. XX Open Item with future action by PG&E: Task _____
3. Date Reported to PG&E 830103
4. Scheduled for TES Semimonthly Report No. January
5. Resolution based on the following documentation:

Overcurrent relays for the Auxiliary Feedwater Pump Motors should be reset at a tap high enough to prevent relay operation under normal operating conditions. Tap 4.5 is recommended as a minimum which will provide overcurrent protection at 120 percent of motor full load rating.

6. Program Resolution is:

PGandE should report on the action taken concerning the accomplishment of the work specified by their memo Cove/Vahlstrom dated 2/24/82 for relay tap settings.

7. Potential Program Resolution
   Report signed by John Krechting (SWEC) on 821202
   Type Name/Organization Date
8. Signature: R E Cooper 830103 (Approved/Program Manager)

APPENDIX A

LOOKAHEAD

APPENDIX A

LIST OF TABLES

LIST OF FIGURES

TELEDYNE
ENGINEERING SERVICES

TABLE A-1

LOOKAHEAD REPORT

JANUARY 14, 1983 THROUGH FEBRUARY 11, 1983

There are no activities scheduled for the above period.

TELEDYNE
ENGINEERING SERVICES

TABLE A-2

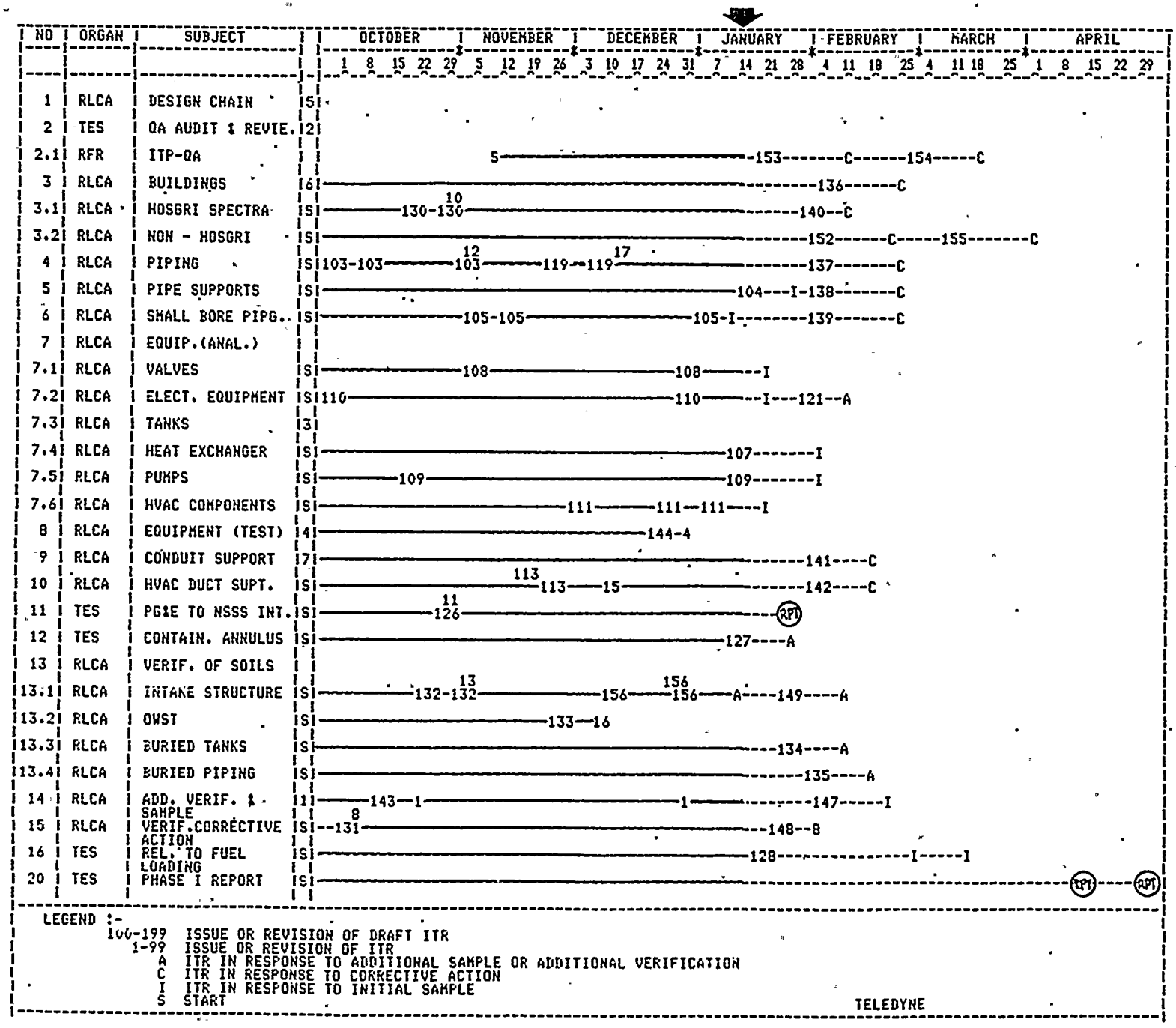
IDVP SCHEDULE RELATIVE TO

DCNPP-1 3-STEP LICENSING

	IDVP REPORTS		
ACTIVITY	FUEL LOAD	LOW POWER	FULL POWER
Phase I	Status 3-1-83	Final 4-15-83	-
Phase II	Status 2-15-83	Status 4-30-83	Final 6-1-83
ITP-QA	Status 1-28-83	-	Final 3-18-83
Construction QA	Status 2-7-82	-	Final 4-1-83
PG&E/W Interface	Final 1-28-83	-	-
Hosgri Spectra	Final 3-1-83	-	-
Non-Hosgri Spectra	Status 2-7-83	-	Final 4-1-83
Verification of ITP Action	Status 3-15-83	Status 4-30-83	Status 6-15-83

$ T PLOT1.DAT

PHASE I IDVP SCHEDULE AS OF JANUARY 14, 1983



LEGEND :-

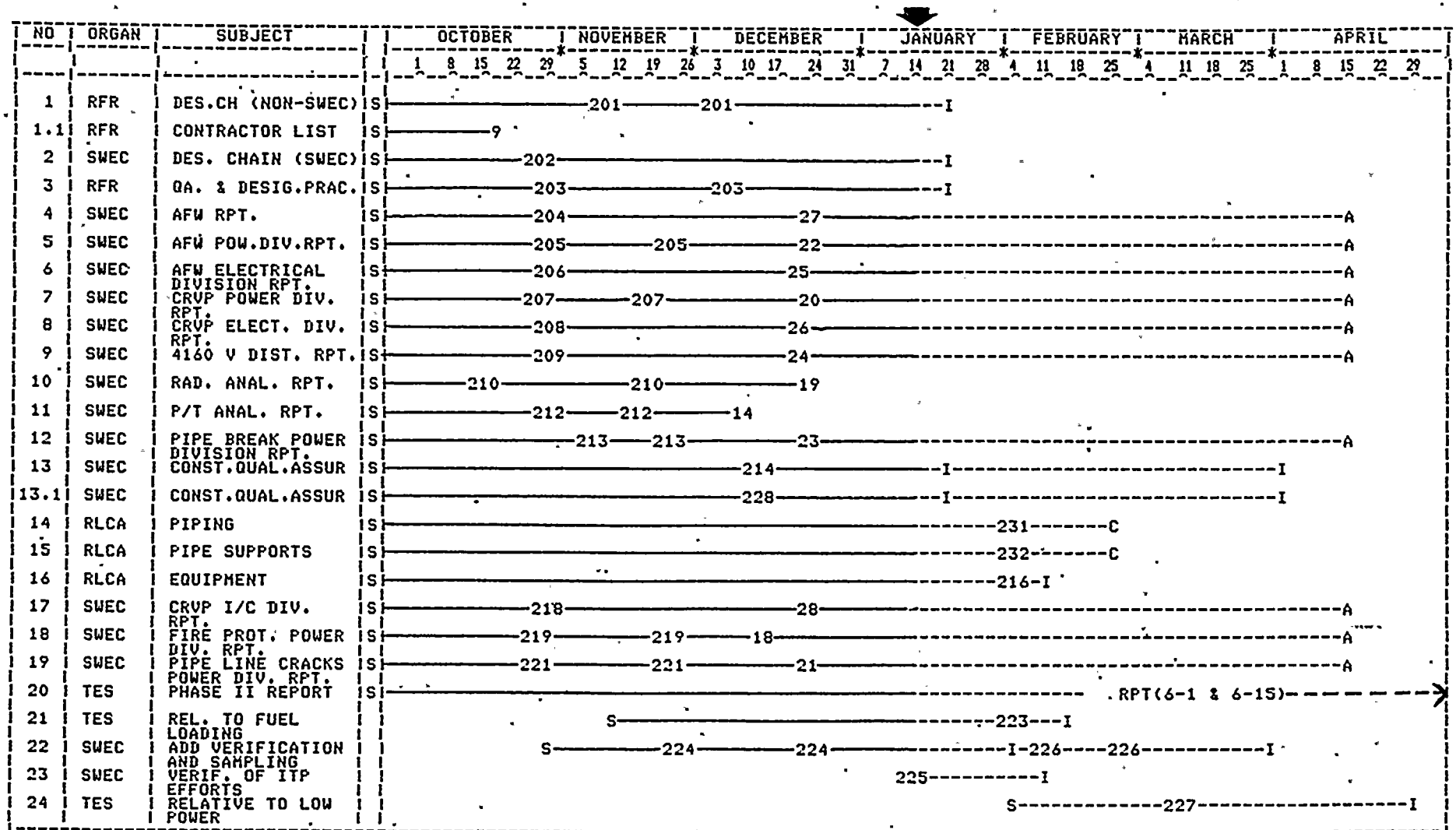
- 100-199 ISSUE OR REVISION OF DRAFT ITR
- 1-99 ISSUE OR REVISION OF ITR
- A ITR IN RESPONSE TO ADDITIONAL SAMPLE OR ADDITIONAL VERIFICATION
- C ITR IN RESPONSE TO CORRECTIVE ACTION
- I ITR IN RESPONSE TO INITIAL SAMPLE
- S START

TELEDYNE

$ T PLOT2.DAT

PHASE II IDVP SCHEDULE AS OF JANUARY 14, 1983

NO	ORGAN	SUBJECT
1	RFR	DES.CH (NON-SWEC)
1.1	RFR	CONTRACTOR LIST
2	SWEC	DES. CHAIN (SWEC)
3	RFR	QA. & DESIG.PRAC.
4	SWEC	AFW RPT.
5	SWEC	AFW POW.DIV.RPT.
6	SWEC	AFW ELECTRICAL DIVISION RPT.
7	SWEC	CRVP POWER DIV. RPT.
8	SWEC	CRVP ELECT. DIV. RPT.
9	SWEC	4160 V DIST. RPT.
10	SWEC	RAD. ANAL. RPT.
11	SWEC	P/T ANAL. RPT.
12	SWEC	PIPE BREAK POWER DIVISION RPT.
13	SWEC	CONST.QUAL.ASSUR
13.1	SWEC	CONST.QUAL.ASSUR
14	RLCA	PIPING
15	RLCA	PIPE SUPPORTS
16	RLCA	EQUIPMENT
17	SWEC	CRVP I/C DIV. RPT.
18	SWEC	FIRE PROT. POWER DIV. RPT.
19	SWEC	PIPE LINE CRACKS POWER DIV. RPT.
20	TES	PHASE II REPORT
21	TES	REL. TO FUEL LOADING
22	SWEC	ADD VERIFICATION AND SAMPLING
23	SWEC	VERIF. OF ITP EFFORTS
24	TES	RELATIVE TO LOW POWER



LEGEND :-

- 200-299 ISSUE OR REVISION OF DRAFT ITR
- 1-99 ISSUE OR REVISION OF ITR
- A ITR IN RESPONSE TO ADDITIONAL SAMPLE OR ADDITIONAL VERIFICATION
- C ITR IN RESPONSE TO CORRECTIVE ACTION
- I ITR IN RESPONSE TO INITIAL SAMPLE
- S START

TELEDYNE
ENGINEERING SERVICES

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