NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT

JOB PERFORMANCE MEASURE

Number: NRCADM061C-CO1-SRO

Title: DETERMINATION OF SPENT FUEL POOL HEAT LOAD/REMOVAL PARAMETERS

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP B-8DS1, Core Unloading, Attachment 9.3 and 9.4, Rev. 39

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 Minutes

Critical Steps: 2, 3, 4, 5

Job Designation: SRO

Task Number: G2.1.23

Rating: 4.4

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

Directions: **No plant controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the procedure and told the step with which to begin.

Required Materials: Calculator

Initial Conditions: Unit 1 is currently in Mode 6 with fuel offload in progress during 1R15.

Current Plant parameters are as follows:

- Mode 3 was entered 6 days ago at 1500
- Current time is 1500
- 165 fuel assemblies have been offloaded to the spent fuel pool
- CCW flow rate on FI-197 is 3200 gpm
- CCW Heat exchanger outlet temperatures are: TI-181 - 72°F
  TI-182 - 74°F
- Spent Fuel Pool Pump 1-2 D/P is 38 psid
- Spent Fuel Pool Temperature is 127°F

Initiating Cue: Shift Foreman directs you to determine if Spent Fuel Pool Heat Load/Removal parameters are met by performing Attachment 9.3 and 9.4 of OP B-8DS1, "Core Unloading."

Task Standard: Attachment 9.3 and 9.4 of OP B-8DS1, "Core Unloading," completed and Shift Foreman notified of results.

Start Time: _____

Step	Expected Operator Actions
1. Operator obtains the correct procedure.	Operator obtains OP B-8DS1, Attachments 9.3 & 9.4.
1.1	**Note: Provide exam copy of OP B-8DS1, Attachments 9.3 & 9.4.**
	Step was: Sat: _____ Unsat _____*
2. **Determine Mode 3 Entry, date & time.	Operator determines MODE 3 entry date and time and enters on Attachment 9.3.**
2.1	**Note: Operator should use a date that was 6 days ago and "1500" for the time.**
	Step was: Sat: _____ Unsat _____*
3. **Determines current offload rate.	Operator enters current date and "1500" on Attachment 9.3.**
3.1	3.2 Determines that 144 hours have elapsed from start of core offload and enters on Attachment 9.3.**
	3.3 Determines that number of fuel assemblies offloaded is 165 and enters on Attachment 9.3.**
	3.4 Determines that elapsed time and number of assemblies removed is within the acceptable area of chart. Checks "Yes."**
	Step was: Sat: _____ Unsat _____*

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Step	Expected Operator Actions
	Operator enters current date and "1500" on Attachment 9.4.**
	Note: The following steps do not need to be performed in this sequence; however, the SFM should be notified immediately when the SFP temperature is determined to be unacceptable.
4. **Determines Spent Fuel Pool Cooling System Status.	
4.1	4.2 Determines CCW flow rate from FI-197 is 3200 gpm and enters on Attachment 9.4.**
	4.3 Determines that CCW flowrate is acceptable.
	4.4 Determines that the CCW Heat Exchanger Outlet Temperatures are 72°F on TI-181 and 74°F on TI-182 and enters on Attachment 9.4.**
	4.5 Determines that CCW Heat Exchanger Outlet Temperature is acceptable.
	4.6 Determines that SFP Pump 1-2 D/P is 38 psid and enters on Attachment 9.4.**
	4.7 Determines that SFP Pump 1-2 D/P is acceptable.
	4.8 Determines that Spent Fuel Pool Temperature is 127°F.**
	4.9 Determines that the Spent Fuel Pool temperature is unacceptable.**
	Step was: Sat: _____ Unsat _____*

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Step	Expected Operator Actions
5. **Notifies Shift Foreman 5.1	Notifies Shift Foreman that Spent Pool Heat Load/Removal Parameters are not met due to high Spent Fuel Pool Temperature.**

Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Initial Conditions: Unit 1 is currently in Mode 6 with fuel offload in progress during 1R12.

Current Plant parameters are as follows:

- Mode 3 was entered 6 days ago at 1500
- Current time is 1500
- 165 fuel assemblies have been offloaded to the spent fuel pool
- CCW flow rate on FI-197 is 3200 gpm
- CCW Heat exchanger outlet temperatures are: TI-181 - 72°F

  TI-182 - 74°F
- Spent Fuel Pool Pump 1-2 D/P is 38 psid
- Spent Fuel Pool Temperature is 127°F

Initiating Cue: Shift Foreman directs you to determine if Spent Fuel Pool Heat Load/Removal parameters are met by performing Attachment 9.3 and 9.4 of OP B-8DS1, "Core Unloading."

Task Standard: Attachment 9.3 and 9.4 of OP B-8DS1, "Core Unloading," completed and Shift Foreman notified of results.

ATTACHMENT 9.3

NOTE: Tracking offload rate is not required if 148 hours have elapsed since MODE 3 entry.

1. The Control Operator shall verify every four hours that the rate of core offload does not exceed the ability of the SFP cooling system to dissipate the heat load by ensuring that the offload rate is within the parameters shown on the chart.

2. MODE 3 Entry, Date/Time: __6 days ago__/_1500_

Current Date/Time	Hours Since Mode 3 Entry	Number of Fuel Assemblies Offloaded	Offload Rate Acceptable? Yes	No
Today /1500	144	165	[X]	[ ]
_____/_____			[ ]	[ ]

ATTACHMENT 9.4

5. Upon completion of core offload, forward Attachment 9.4 Data Sheets to the SFM for inclusion in the Operations Shift Log.

Sheet # 1	Date	Time	SFP temp <125°F	FI-197 3000 - 4040 gpm	TI-182 <75°F (VB-1)	TI-181 <75°F (VB-1)	SFP pp 1 p ≥53 psid AND ≤55 psid	SFP pp 2 p ≥37 psid AND ≤39 psid
	Today	1500	127	3200	74	72		38

DIABLO CANYON POWER PLANT
OP B-8DS1
ATTACHMENT 9.3 **1 AND 2**

TITLE: Core Offload Rate

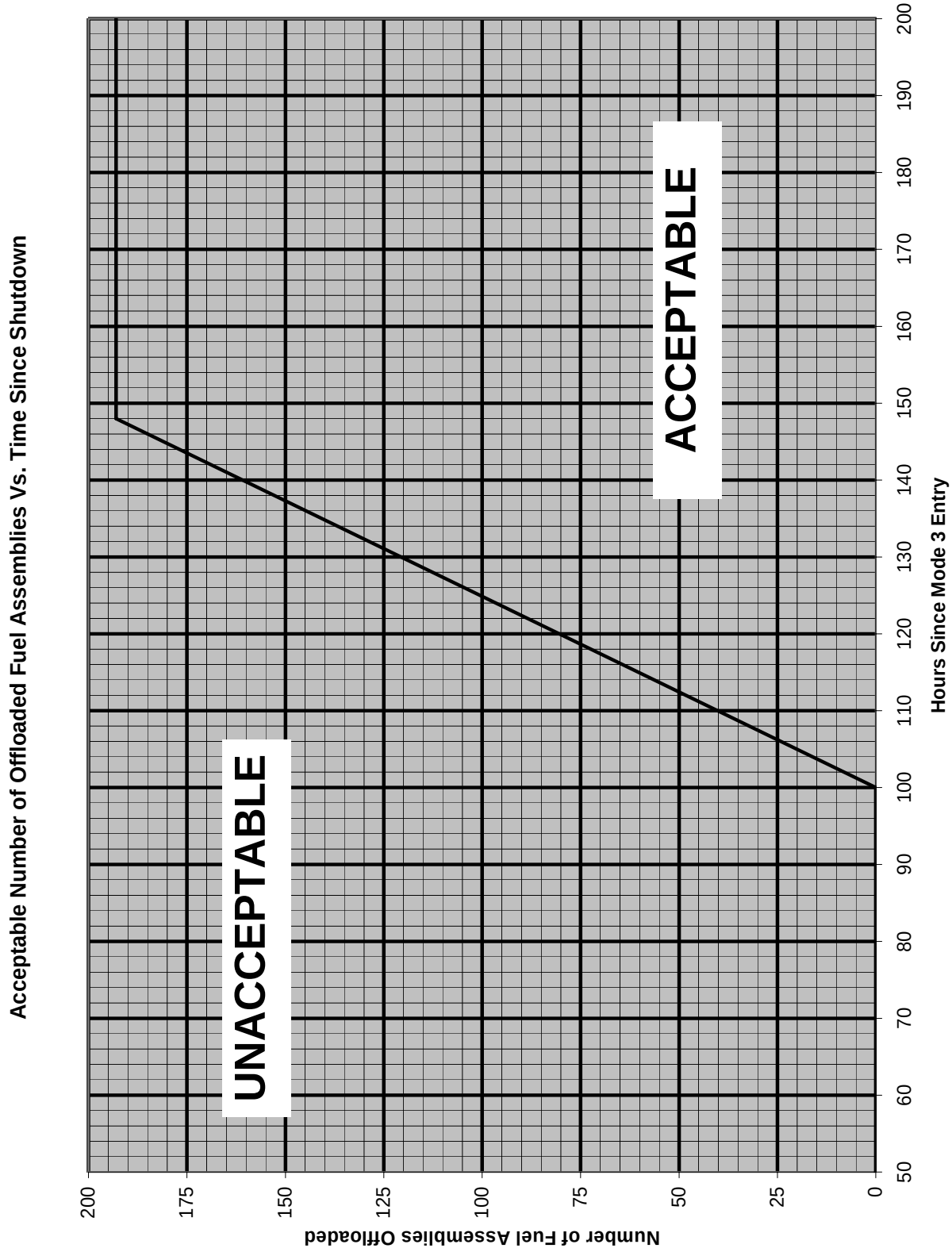
NOTE: Tracking offload rate is not required if 148 hours have elapsed since MODE 3 entry.

1. The Control Operator shall verify every four hours that the rate of core offload does not exceed the ability of the SFP cooling system to dissipate the heat load by ensuring that the offload rate is within the parameters shown on the chart.

2. MODE 3 Entry, Date/Time: _____/_____

Current Date/Time	Hours Since Mode 3 Entry	Number of Fuel Assemblies Offloaded	Offload Rate Acceptable? Yes	No
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]
_____/_____			[ ]	[ ]

TITLE: Core Offload Rate



DIABLO CANYON POWER PLANT
OP B-8DS1
ATTACHMENT 9.4

1 AND 2

TITLE: Spent Fuel Pool Cooling Parameters During Core Offload

3. Record SFP cooling data every two hours when the core is not fully loaded.
4. Notify the SFM immediately if any parameter is approaching the stipulated bounds.
5. Upon completion of core offload, forward Attachment 9.4 Data Sheets to the SFM for inclusion in the Operations Shift Log.

Sheet #	Date	Time	SFP temp <125°F	FI-197 3000 - 4040 gpm	TI-182 <75°F (VB-1)	TI-181 <75°F (VB-1)	SFP pp 1 Δp ≥53 psid AND ≤55 psid	SFP pp 2 Δp ≥37 psid AND ≤39 psid

[ ] Continued on next sheet

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM061C-CO2-SRO

Title: REVIEW OUTAGE SAFETY CHECKLIST

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: AD8.DC55, Outage Safety Scheduling, Rev. 27

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 1, 2

Job Designation: SRO

Task Number: 2.1.32

Rating: 3.8

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

APPROVED BY: N/A DATE: _____
TRAINING LEADER

APPROVED BY: N/A DATE: _____
LINE MANAGER

Directions: **No plant controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. After identifying the appropriate procedure for the task, the examinee may be given the procedure and told the step with which to begin.

Required Materials:
- Handouts of Mode 6 RCS Level Greater Than or Equal to 111'

Initial Conditions: Unit 1 was in Mode 6 when a loss of off site power occurred. All three diesels started, but a fault on Bus H occurred, leaving that bus deenergized. Power was restored within 5 minutes and the plant was stabilized, with the exception of Bus H. Plant Conditions are as follows:

- MDAFW Pump 1-3 was cleared.
- S/G 1-1 and 1-4 were drained for SG cleaning related work.
- S/G 1-2 and 1-3 are at 35% Narrow Range
- CFCUs 1-1 and 1-3 are running

The CO has just completed a new Outage Safety Checklist for current plant conditions.

Initiating Cue: The SFM has directed you to review the new Outage Safety Checklist Core Cooling section for compliance to the Outage Safety Plan.

Task Standard: The Outage Safety Checklist Core Cooling Section for current plant conditions is reviewed and SFM informed of your findings.

Start Time: _____

	Step		Expected Operator Actions
**	1. Review current Mode 6 Outage Checklists.		1.1 Compare conditions in Initial Conditions with the current checklist.
		**	1.2 Identifies discrepancy with RHR pump 1-2 NOT being operable.
		**	1.3 Recognizes Outage Safety Checklist NOT met with RHR 1-2 not operable.
			Step was: Sat: _____ Unsat _____*
**	2. Reports discrepancies.	**	2.1 Informs SFM of findings.
			Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

Initial Conditions: Unit 1 was in Mode 6 when a loss of off site power occurred. All three diesels started, but a fault on Bus H occurred, leaving that bus deenergized. Power was restored within 5 minutes and the plant was stabilized, with the exception of Bus H. Plant Conditions are as follows:

- MDAFW Pump 1-3 was cleared.
- S/G 1-1 and 1-4 were drained for SG cleaning related work.
- S/G 1-2 and 1-3 are at 35% Narrow Range
- CFCUs 1-1 and 1-3 are running

The CO has just completed a new Outage Safety Checklist for current plant conditions.

Initiating Cue: The SFM has directed you to review the new Outage Safety Checklist Core Cooling section for compliance to the Outage Safety Plan.

Task Standard: The Outage Safety Checklist Core Cooling Section for current plant conditions is reviewed and SFM informed of your findings.

DIABLO CANYON POWER PLANT
AD8.DC55
ATTACHMENT 7.4

TITLE: Unit 1 Outage Safety Checklist - Mode 6 RCS Level Greater Than or Equal to 111'

CORE COOLING

- [X] 2 of the following
  - [X] FCV 495 and/or 496 (2nd ASW source)
  - [X] CCW Hx 1-1
  - [X] CCW Hx 1-2
- [X] 2 of the following
  - [X] ASW pump 1-1
  - [X] ASW pump 1-2
  - [X] ASW X-tie FCV-601
- [X] 2 of the following
  - [X] CCW pump 1-1
  - [X] CCW pump 1-2
  - [ ] CCW pump 1-3
- [X] 1 of the following
  - [ ] Reactor head removed
  - [X] 3 of the following
    - [X] 2 incore thermocouples
    - [X] 1 of the following
      - [X] 2 LTOP channels operable
      - [ ] 2.07 square in vent path
    - [X] Rx head fully detensioned.
      (If decay heat is >5 MW, at least one PZR safety must also be removed.)
- [X] 1 of the following
  - [ ] 3 of the following
    - [ ] Cavity level ≥ 23'
    - [ ] Upper internals removed
    - [X] 1 of the following
      - [X] RHR 1-1 operable
      - [ ] RHR 1-2 operable
  - [X] 4 of the following
    - [X] RHR 1-1 operable
    - [ ] RHR 1-2 operable
    - [X] 1 of the following
      - [X] 2 of the following
        - [X] SI pump is not the boration flow path
        - [X] 1 of the following
          - [X] SI pump 1-1 & HL or CL path
          - [ ] SI pump 1-2 & HL or CL path
      - [ ] 2 of the following
        - [ ] Charging pump is not the boration flow path
        - [ ] 1 of the following
          - [ ] CCP 1-1 & its normal or charging inj. flow path
          - [ ] CCP 1-2 & its normal or charging inj. flow path
          - [ ] Charging pump 1-3 & its normal flow path
    - [X] 1 of the following
      - [X] 2 CFCU's available for high speed with ≥ 1650 gpm CCW flow
      - [ ] 3 of the following
        - [ ] No TEMP CNMT PENS installed
        - [ ] Decay heat level ≤ 7.5 Mw
        - [ ] 1 CFCU available for high speed with ≥ 1650 gpm CCW flow

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT

JOB PERFORMANCE MEASURE

Number: NRCADM061C-EC-SRO

Title: VERIFY AFD IS WITHIN TECH SPEC LIMITS

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: This JPM requires that STP I-1C, Attachments 12.1 be filled out ahead of time. The required data is included in an attachment to this JPM.

References: STP I-1C, Routine Weekly Checks Required By Licenses, Attachment 12.1, Rev. 87

Volume 9B, Curves and Miscellaneous Data, Figure R23-1F-1, Unit 1 Cycle 15 RAOC Limits, Rev. 236

Technical Specification 3.2.3, Axial Flux Difference (AFD), DCPP Units 1 & 2

COLR for DCPP Unit 1, Cycle 15, Rev. 0

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 Minutes

Critical Steps: 2, 5, 7, 8, 9

Job Designation: SRO

Task Number: G2.2.42

Rating: 4.6

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No plant controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the procedure and told the step with which to begin.

Required Materials: Completed copy of STP I-1C, "Routine Weekly Checks Required By Licenses," Attachment 12.1 (use instructions on page 7 of this JPM).

Volume 9B, Curves and Miscellaneous Data, Figure R23-1F-1, Unit 1 Cycle 15 RAOC Limits, Rev. 236

Technical Specification 3.2.3, Axial Flux Difference (AFD), DCPP Units 1 & 2

COLR for DCPP Unit 1, Cycle 15, Rev. 0

Initial Conditions: Unit 1 rapidly ramped down power due to a leak on the No. 2 Heater Drain Tank pump. Reactor power is currently stable at approximately 75%.

Current Axial Flux Difference (AFD) readings are as follows:

NI-41C -21.0%

NI-42C -23.0%

NI-43C -23.0%

NI-44C -21.0%

PK03-25, PPPC RX ALARM AXIAL FLUX/ROD POSITION input 1251 activated

Indicated Reactor Power based on U1169A05 75.2%

U4300A05 is not available.

PPC MAX is 100.2%

Initiating Cue: Unit 1 BOPCO has just completed STP I-1C, "Routine Weekly Checks Required By Licenses," Attachment 12.1, Step 1.

Review the completed STP Data sheet and determine if his assessment is correct and implement any actions needed based on your review.

Task Standard: STP I-1C, "Routine Weekly Checks Required By Licenses," Attachment 12.1, Step 1, reviewed for completeness and any actions implemented based on your review.

Start Time: _____

Step	Expected Operator Actions
	Obtains STP I-1C, Attachment 12.1.
1. Obtain the correct procedure.	
1.1	**Note: Provide completed exam copy of STP-I-1C, Attachment 12.1.**
	Step was: Sat: _____ Unsat _____*
2. **Verify current RTP %.	Refers to NOTE 1 of Step 1.a for determination of RTP %.
2.1	2.2 Calculates U1169A05 value (75.2) / PPC Max (100.2) x 100.
	Note: Provide calculator (if necessary).
	2.3 Verifies RTP % to be 75.0%**
	Step was: Sat: _____ Unsat _____*
3. Obtain the correct Figure.	Obtains Figure R23-1F-1 for Unit 1 from Volume 9.
3.1	**Note: Provide exam copy of Figure R23-1F-1 (if necessary).**
	Step was: Sat: _____ Unsat _____*
4. Verify Upper AFD Limit.	References R23-1F-1.
4.1	4.2 Determines Upper AFD Limit to be +17.5%.
	4.3 Verifies +17.5% recorded for Upper AFD Limit.
	Step was: Sat: _____ Unsat _____*

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Step	Expected Operator Actions
	References R23-1F-1.
5. **Verify Lower AFD Limit.	
5.1	5.2 Determines Lower AFD Limit to be -22.0%.
	5.3 Determines that -22.0% recorded for Lower AFD Limit. is wrong. **
	Step was: Sat: _____ Unsat _____*
6. Verify indicated AFD values	Verifies indicated AFD values recorded for each NI.
6.1	**Step was: Sat: _____ Unsat _____***
7. **Verify AFD is within limits.	Verifies that AFD is within limits for NIs 41C and 44C and "Yes" boxes marked.
7.1	7.2 Determines that AFD is outside the limits for NIs 42C and 43C and "Yes" boxes are incorrectly marked.**
	Step was: Sat: _____ Unsat _____*
8. **Verify that 2 excore channels exceed AFD Limit.	Determines that BOPCO has incorrectly initialed that no more than one channel is exceeding the AFD limit. **
8.1	**Step was: Sat: _____ Unsat _____***

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Step	Expected Operator Actions
	Refers to Tech Spec 3.2.3.
9. **Determine AFD exceeds Tech Spec Limits.	
9.1	**Note: Provide exam copy of TS 3.2.3 (if necessary).**
	9.2 Refers to Unit 1 COLR Figure 2.
	Note: Provide exam copy of Unit 1 COLR Figure 2 (if necessary). (Operator may use Figure R23-1F-1 instead of Unit 1 COLR Figure 2 because these figures provide the same information).
	9.3 Determines AFD is not within limits.**
	9.4 Determines actions to be either to return AFD within limits or to reduce thermal power to less than 50% within 30 minutes.**
	Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

*Denotes an entry required on the JPM cover sheet.
**Denotes a Critical Step.

Initial Conditions: Unit 1 rapidly ramped down power due to a leak on the No. 2 Heater Drain Tank pump. Reactor power is currently stable at approximately 75%.

Current Axial Flux Difference (AFD) readings are as follows:

NI-41C -21.0%

NI-42C -23.0%

NI-43C -23.0%

NI-44C -21.0%

PK03-25, PPPC RX ALARM AXIAL FLUX/ROD POSITION input 1251 activated

Indicated Reactor Power based on U1169A05 75.2%

U4300A05 is not available.

PPC MAX is 100.2%

Initiating Cue: Unit 1 BOPCO has just completed STP I-1C, "Routine Weekly Checks Required By Licenses," Attachment 12.1, Step 1.

BOPCO has determined that the AFD for two (2) excore channels are not within the AFD limits.

Review the completed STP Data sheet and determine if his assessment is correct and implement any actions needed based on your review.

Task Standard: STP I-1C, "Routine Weekly Checks Required By Licenses," Attachment 12.1, Step 1, reviewed for completeness and any actions implemented based on your review.

The Simulator is not needed for the performance of this JPM.

DIABLO CANYON POWER PLANT
STP I-1C
ATTACHMENT 12.1

1

TITLE: MODES 1, 2, and 3 Weekly Checklist

OPERATING MODE 1 DATE TODAY TIME NOW

INSTRUCTIONS: Indicate a step is ACCEPTABLE or performed with your INITIALS. A step is NOT ACCEPTABLE if any part of the check or verification is unacceptable for any reason. When a step is NOT ACCEPTABLE, make a note as to why in the REMARKS for this section and include the tracking document number, which should be the Tech. Spec. Sheet # for all TS or ECG items, then enter the note number in the unacceptable step. Indicate N/A for checks not required.

APPL MODE	TECH SPEC REFERENCE	**A. CHECK / VERIFICATION FROM CONTROL ROOM / ELECTRICAL ROOMS**	PERF
1	SR 3.2.3.1	1. AFD Monitor Alarm	

a. When above 50% Rated Thermal Power (RTP) and the AFD Monitor Alarm is OPERABLE, record the pertinent information in the table below. Determine if the AFD for each OPERABLE excore channel is within the AFD limits of Figure R23-1F-1, in Volume 9 of the Plant Manual, and record this in the table below. N/A [ ] *GLH*

NOTE 1: For % RTP, use U4300A05 or $\left(\frac{\text{U1169A05}}{\text{PPC MAX}}\right) \times 100$. "PPC MAX" is from current STP R-2B1 or STP R-2B2.

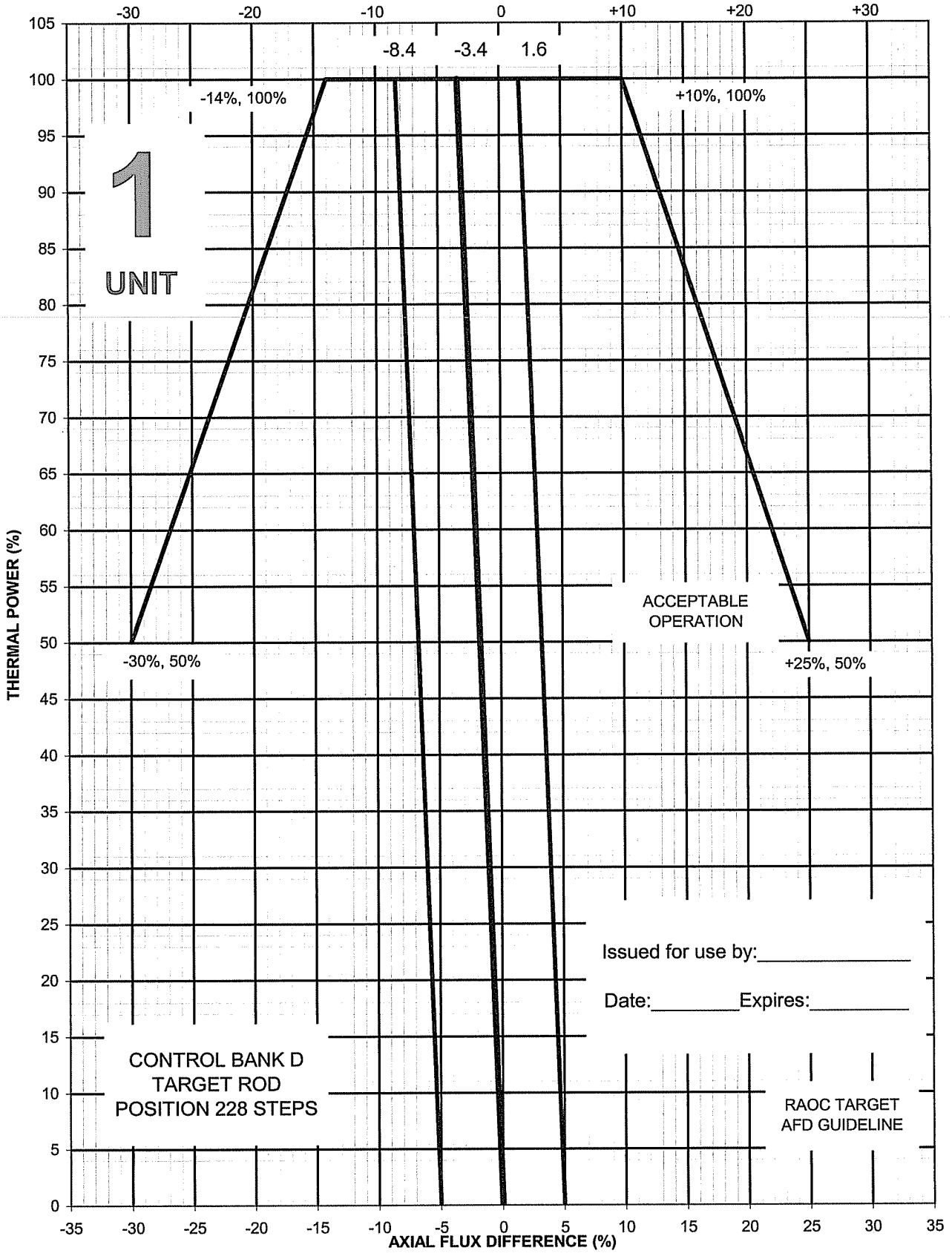
NOTE 2: Upper and Lower AFD limits are determined from Figure R23-1F-1 based on the power level recorded in the column labeled % RTP.

RTP %	Upper AFD Limit	Lower AFD Limit	Indicated AFD		AFD Within Limits Yes	No
75.0	17.5	-25.0	NI-41C	-21.0	[X]	[ ]
			NI-42C	-23.0	[X]	[ ]
			NI-43C	-23.0	[X]	[ ]
			NI-44C	-21.0	[X]	[ ]

b. Verify no more than 1 excore channel exceeding the AFD Limits. N/A [ ] *GLH*

DIABLO CANYON POWER PLANT
FIGURE R23-1F-1
DATA FOR STP I-1C/R-23
UNIT 1 CYCLE 15 RAOC LIMITS

423 EFPD



3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD)

LCO 3.2.3 The AFD in % flux difference units shall be maintained within the limits specified in the COLR.

----------NOTE----------
The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AFD not within limits.	A.1 Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD within limits for each OPERABLE excore channel.	7 days

2.9 Axial Flux Difference (TS 3.2.3)

2.9.1 The Axial Flux Difference (AFD) Limits are provided in Figure 2.

2.10 Boron Concentration (TS 3.9.1)

The refueling boron concentration of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the more restrictive of the following limits:

2.10.1 A k_{eff} of 0.95 or less, with the most reactive control rod assembly completely withdrawn, or

2.10.2 A boron concentration of greater than or equal to 2000 ppm.

2.11 RCS Pressure and Temperature Departure from Nucleate Boiling (DNB) Limits

2.11.1 Pressurizer pressure is greater than or equal to 2175 psig.

2.11.2 RCS average temperature is less than or equal to 581.7°F.

NOTE: The DNBR RCS Tavg limit is based on the slightly lower and bounding value associated with Unit 1 in order to have the same surveillance limits for both Unit 1 and Unit 2.

3. TABLES

3.1 Table 1, "F_Q Margin Decreases in Excess of 2% Per 31 EFPD."

3.2 Table 2A, "Load Follow W(Z) Factors at 150 and 5,000 MWD/MTU as a Function of Core Height."

3.3 Table 2B, "Load Follow W(Z) Factors at 12,000 and 22,000 MWD/MTU as a Function of Core Height."

4. FIGURES

4.1 Figure 1, "Control Bank Insertion Limits Versus Rated Thermal Power."

4.2 Figure 2, "AFD Limits as a Function of Rated Thermal Power."

5. RECORDS

None

6. REFERENCES

6.1 "Diablo Canyon Unit 1 Cycle 15 Final Reload Evaluation, Revision 1," May, 2007.

6.2 WCAP-12473-A (Non-Proprietary), "BEACON Core Monitoring and Operations Support System," August, 1994.

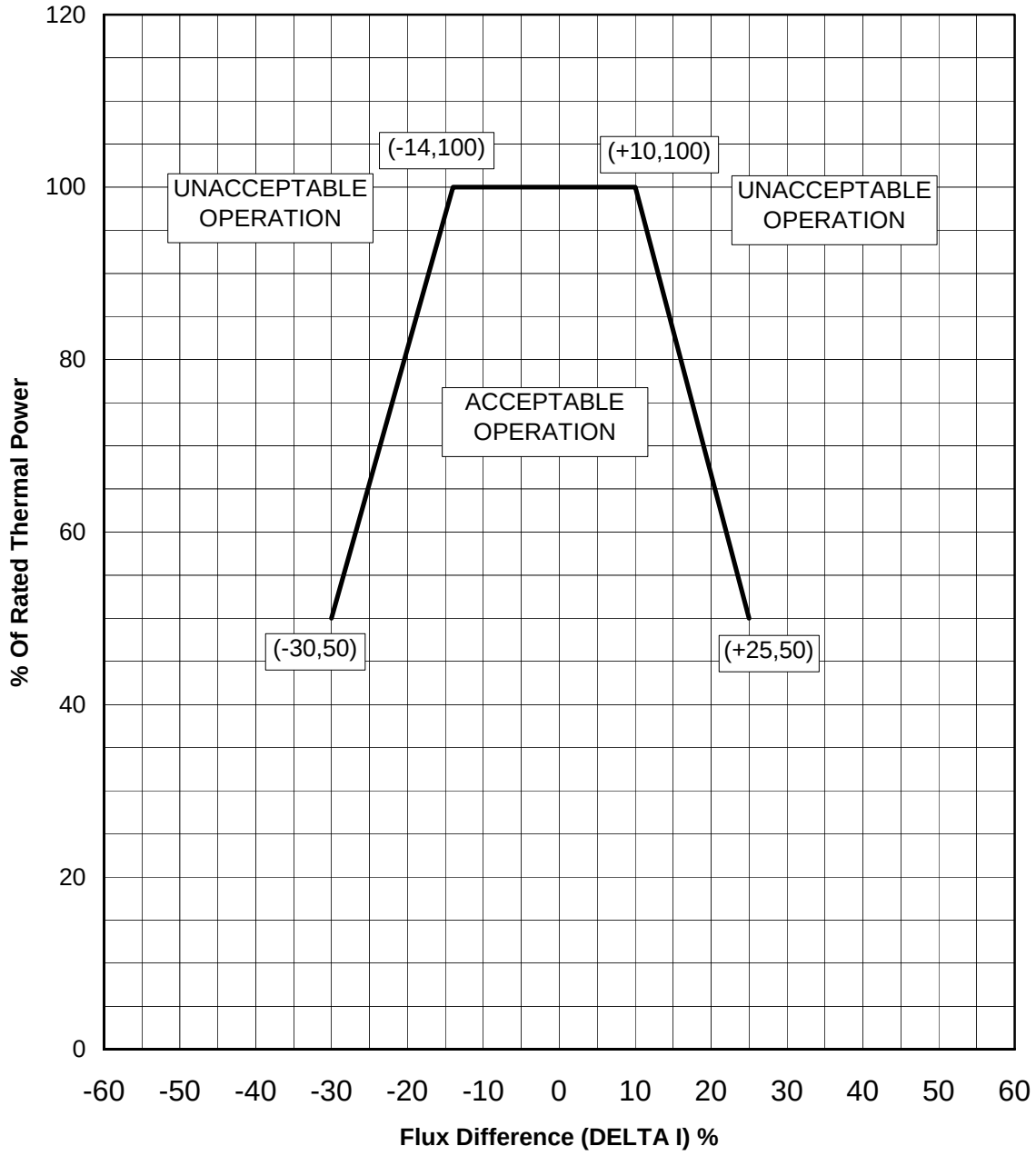


FIGURE 2: AFD Limits as a Function of Rated Thermal Power

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM061C-EP-SRO

Title: PERFORM AN OFF-SITE DOSE ASSESSMENT - FHB ACCIDENT

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: The Simulator is not required for the performance of this JPM.
EP R-2, Attachment 10.1 & 10.2 answer key is included for evaluator use
Examinee Data Sheet should be printed in color.

References: EP R-2, Release of Airborne Radioactive Materials Initial Assessment, Rev. 25
OP AP-22, Spent Fuel Pool, Low Level/High Temp/Hi Rad, Rev. 14A
EP G-1, Emergency Classification and Emergency Plan Activation, Rev. 37

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 25 minutes

Critical Steps: 2, 3, 4, 5, 7

Job Designation: SRO

Task Number: G 2.4.41

Rating: 4.6

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: Calculator and copies of Attachments 10.1 and 10.2 of EP R-2.

Examinee Data Sheet

EAL Charts

Initial Conditions: Unit 1 is is off loading the core. OP AP-22, "Spent fuel pool, low level/high temp/hi rad", is in progress on Unit 1 due to high radiation in the Fuel Handling building from a dropped fuel assembly.

FR-12 is OOS.

1 FHB Fan, 1 AUX Bldg Exh fan, and 1 GE/GW fan running

Initiating Cue: The Shift Manager directs you to perform a dose assessment and to make a recommendation of the emergency classification based on your dose assessment. The program for R-2 calculations is unavailable.

Task Standard: Dose assessed and a recommendation made for the emergency classification in accordance with plant procedures.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure.	1.1 References EP R-2. **Step was: Sat: _____ Unsat _____***
**	2. Determine the plant vent flow rate.	2.1 References Attachment 10.1, page 1, of EP R-2. 2.2 Fills out section 1. 2.3 Requests plant vent flow rate from FR-12 chart recorder. 2.4 Uses alternate method to determine plant vent flow rate. 2.5 Calculates plant vent flow rate of 134,250 cfm. ** **Step was: Sat: _____ Unsat _____***

	Step	Expected Operator Actions
**	3. Determine the Noble Gas Release Rate	3.1 Determines RE-14/87 reading from the radiation monitors of 3.27E-02 uci/cc. 3.2 Calculates Noble Gas release rate to be 2.07 Ci/sec ±0.1** **Step was: Sat: _____ Unsat _____***
**	4. Determine the total effluent release rate.	4.1 Determines Total Effluent Coversation Factor to be 1.11 (GAP).** 4.2 Calculates total effluent release rate to be 2.3 Ci/sec ±0.1.** **Step was: Sat: _____ Unsat _____***
**	5. Perform dose calculations.	5.1 References Attachment 10.2 of EP R-2. 5.2 Determines wind speed at 10M level of 11 m/sec. 5.3 Determines wind direction at 10M level of 290 degrees. 5.4 Determines Site Boundary X/Q at 0.8km of 5.1E-06 Sec/m3. 5.5 Determines DCF for TEDE to be 3.0 E+6 (GAP).** 5.6 Calculates TEDE rate of 35.2 mrem/hr ±1.5 and a total dose ** *(Continue Step on next page.)*

	Step	Expected Operator Actions
		**********
		Cue: If asked, tell examinee to use DEFAULT release information.
		**********
		5.7 Calculates TEDE dose of 105.6 mrem ±4.6.**
		5.8 Determines DCF for CDE to be 6.5 E+7 (GAP)**
		5.9 Calculates Thyroid CDE rate of 762.5 mrem/hr ±33.2**
		5.10 Calculates Thyroid CDE dose to be 2287.4 mrem ±9.5
		Step was: Sat: _____ Unsat _____*
	6. Obtain the correct procedure.	**6.1 References EP G-1, Attachment 7.1**
		Step was: Sat: _____ Unsat _____*
**	7. Determines event classification.	**7.1 Determines event classification as a SITE AREA EMERGENCY (RS1.2) due to TEDE being exceeded (>100 mrem and/or Thyroid CDE >500 mrem). **** **7.2 Reports recommendation to the Shift Manager.**
		Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

Initial Conditions: Unit 1 is is off loading the core. OP AP-22, "Spent fuel pool, low level/high temp/hi rad", is in progress on Unit 1 due to high radiation in the Fuel Handling building from a dropped fuel assembly.

FR-12 is OOS.

1 FHB Fan, 1 AUX Bldg Exh fan, and 1 GE/GW fan running

Initiating Cue: The Shift Manager directs you to perform a dose assessment and to make a recommendation of the emergency classification based on your dose assessment. The program for R-2 calculations is unavailable.

Task Standard: Dose assessed and a recommendation made for the emergency classification in accordance with plant procedures.

Classification

DIABLO CANYON POWER PLANT
EP R-2 (UNITS 1 AND 2)
ATTACHMENT 10.1

TITLE: Release Rate Calculations

PLANT VENT RELEASE

1. **GENERAL INFORMATION**

Date: *Today* Time: *Now* Assessment No. *1*

Assessment By: *Name of Examinee* Unit Releasing *1*

2. **PLANT VENT FLOW RATE DETERMINATION**

A. DIRECT - Plant Vent Flow Rate FR-12 (0-30x10^4 CFM (CFM) = *OOS* (CFM)

OR

B. ALTERNATE – Operating Ventilation Equipment

	(Max No. possible)	#Fans		(CFM/Fan)		
FHB Exhaust	(1)	1	x	35,750	= 35.750	(CFM)
Aux Bldg Exhaust	(2)	1	x	73,500	= 73,500	(CFM)
GE/GW Area	(1)	1	x	25,000	= 25,000	(CFM)
Cont. Purge	(1)		x	55,000	=	(CFM)
Cont. Hydrogen	(1)		x	300	=	(CFM)

Plant Vent Flow Rate = *134,250* (CFM)

3. **RELEASE RATE CALCULATION**

****

CAUTION: Do NOT use SPDS to obtain monitor readings.

****

A. NOBLE GAS RELEASE RATE

	Circle Monitor Used	Reading (Units)		Conversion Factor		Plant Vent Flow Rate (CFM)	Noble Gas Release Rate (Ci/sec)
Primary	RE-14/14R/87	*3.27 E-2*	µCi/cc	x 4.72E-04	x	*134,250*	*= 2.07*
Backup	RE-29		mR/hr	x 4.72E-06	x		

B. TOTAL EFFLUENT RELEASE RATE

NOTE: Refer to Page 3 for criteria in choosing RCS, GAP, or CORE below.

Noble Gas Release Rate (Ci/sec)		Total Effluent Conversion Factor	Total Effluent Release Rate (Ci/sec)
2.07	x	1.00 (RCS) *1.11 (GAP)* 1.50 (CORE)	*= 2.3*

NOTE: If it is not possible to calculate a release rate, refer to the DEFAULT RELEASE RATES on Page 3 of this attachment.

GO TO ATTACHMENT 10.2

DIABLO CANYON POWER PLANT
EP R-2 (UNITS 1 AND 2)
ATTACHMENT 10.1

TITLE: Release Rate Calculations

1. **GENERAL INFORMATION** **ATMOSPHERIC STEAM RELEASE**

Date: _____ Time: _____ Assessment No. _____

Assessment By: _____ Unit Releasing _____

****

CAUTION: WHEN CRITICAL, N-16 ACTIVITY SEEN BY MSL RAD MONITORS CAUSES INVALID READINGS FOR OFFSITE DOSE. POST-TRIP, RE-7X READING IS VALID IF THE RE-7X MONITOR SHOWED AN INITIAL N-16 RESPONSE, OR RESPONDS TO CHECKSOURCE.

****

NOTE: If it is not possible to calculate a release rate, refer to the DEFAULT RELEASE RATES on Page 3.

2. **STEAM RELEASES -** Use this form to calculate steam releases to the atmosphere WHEN NOT critical.

A. Required Information (RUPTURED GENERATOR ONLY)

Check Ruptured S/G	MSL Rad Monitor	Reading (cpm)	S/G Lvl Narrow Range	Level (%)	S/G Flow Rate	Flow Rate (lbs/hr) If <4E5 use 4E5
☐ SG 1	RE-71	_____	LI-517	_____	FI-512	_____
☐ SG 2	RE-72	_____	LI-527	_____	FI-522	_____
☐ SG 3	RE-73	_____	LI-537	_____	FI-532	_____
☐ SG 4	RE-74	_____	LI-547	_____	FI-542	_____

B. Alternate Steam Flow Rate (Only if the RUPTURED S/G Flow Rate is otherwise not available)

Valve Type	# Valves Lifted		Capacity (lbs/hr)		Flow Rate (lbs/hr)
10% Steam Dump (1 per S/G)	_____	x	4.0E+05	=	_____
Safety Reliefs (5 per S/G)	_____	x	8.5E+05	=	_____

Total Steam Flow Rate (lbs/hr) _____ (lbs/hr)

3. **RADIATION MONITOR FACTORS** (Determined based on S/G NR Level indication) (Enter in Section 4 below.)

S/G Level Narrow Range	EMPTY < 4%	NORMAL 4% - 96%	FLOODED > 96%
Monitor Factor	6.08E-10	6.75E-10 (DEFAULT)	3.07E-10

4. **RELEASE RATE CALCULATIONS**

A. TOTAL EFFLUENT RELEASE RATE (RE-7x)

MSL Monitor Reading (cpm)		Flow Rate (lbs/hr)		Monitor Factor	Total Effluent Release Rate (Ci/sec)
_____	x	_____	x	_____	

GO TO ATTACHMENT 10.2

DIABLO CANYON POWER PLANT
EP R-2 (UNITS 1 AND 2)
ATTACHMENT 10.1

TITLE: Release Rate Calculations

1. **SOURCE TERM SELECTION AND DEFAULT RELEASE RATES**

NOTE: Use default release rate only if actual data is not available or if the release is not being monitored.

A. Check the accident type which most closely resembles the current event.

	Accident Source	Default Release Rate (Ci/sec)	Condition	Source Term
☐	LOCA (w/ core melt)	1.74 E+1	RE-30 or 31 >300R/hr	CORE
☐	LOCA (w/o core melt)	5.74 E+0	RE-30 or RE-31 <300R/hr	GAP
			RE-30 or RE-31 not on scale	RCS
☐	Main Steam Line Break	8.61 E-3		RCS
☐	Feedwater Line Break	8.61 E-3		RCS
☐	Blackout	8.62 E-1		RCS
☐	Locked Rotor	1.57 E-2		GAP
X	**FHB Accident**	1.45 E+1		**GAP**
☐	Rod Ejection	1.08 E-2		GAP
☐	GDT Rupture	4.14 E+1		RCS
☐	LHUT Rupture	3.10 E+1		RCS
☐	VCT Rupture	8.29 E-2		RCS
☐	S/G Tube Rupture	1.65 E+0	NR S/G Level < 4%	SG - Empty
			NR S/G Level 4-96%	SG- Normal
			NR S/G Level > 96%	SG - Flooded
☐	Containment FHA Accident with Equip. Hatch Open	S.B. Dose Rates S.B. Doses	TEDE = 13.4 mrem/hr Thy.CDE = 51.4 mrem/hr TEDE = 6.7 mrem Thy. CDE = 25.7 mrem	Go Directly to EP G-1

B. Record the Default Release Rate in Attachment 10.2, Section 4 and use the DCF choice that is listed for the specific accident source above.

GO TO ATTACHMENT 10.2

DIABLO CANYON POWER PLANT
EP R-2 (UNITS 1 AND 2)
ATTACHMENT 10.2

TITLE: Off-Site Dose Calculations

1. **GENERAL INFORMATION**

Date: *Today* Time: *Now* Assessment No. *1*

Assessment By: *Name of Examinee* Unit Releasing *1*

2. **METEOROLOGICAL DATA -** PPC (Plant Process Computer)

Turn On Codes for Met Data are "METP" (Primary Data) or "METB" (Back-up Data)

Parameter	Reading	Units	DEFAULT
Wind Speed (10 Meter Level)	*11*	meters/sec	
Wind Direction (10 Meter Level)	*290*	Degrees	
Site Boundary X/Q (0.8 km)	*0.51 E-5*	Sec/m^3	5.29E-04

3. **DCF Determination** - Select the most appropriate source term for the DCF using the criteria in Attachment 10.1. Circle the corresponding DCF in Section 4 below.

4. **DOSE CALCULATIONS -** (From data calculated using Attachment 10.1)

A. TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE)

Total Effluent or Default Release Rate (Ci/sec)		Site Boundary X/Q (0.8 km) (Sec/m^3)		DCF (circle one)		TEDE Rate (mrem/hr)		Projected Release Duration (hr) (DEFAULT 3 hrs)		TEDE (mrem)
2.3	x	*0.51 E-5*	x	1.1E + 05 (RCS) **3.0E + 06 (Gap)** 1.1E + 07 (Core) 1.1E + 06 (SG-Empty) 1.3E + 04 (SG-Normal) 9.3E + 05 (SG-Flooded)		*= 35.2*	x	*3*		*= 105.6*
Attachment 10.1										

B. THYROID COMMITTED DOSE EQUIVALENT (CDE) (DO NOT COMPLETE FOR GDT, LHUT, OR VCT RUPTURE)

Total Effluent or Default Release Rate (Ci/sec)		Site Boundary X/Q (0.8 km) (Sec/m^3)		DCF (circle one)		Thyroid CDE Rate (mrem/hr)		Projected Release Duration (hr) (DEFAULT 3 hrs)		Thyroid CDE (mrem)
2.3		*0.51 E-5*	x	1.5E + 06 (RCS) **6.5E + 07 (Gap)** 7.7E + 07 (Core) 1.5E + 06 (SG-Empty) 1.5E + 05 (SG-Normal) 1.4E + 07 (SG-Flooded)		*= 762.5*	x	*3*		*= 2287.4*
Attachment 10.1										

5. **REPORTING THE RESULTS** - (Refer to Section 7.3 of Instructions for details)

A. Refer to EP G-1 for EAL criteria.

B. Implement EP RB-10 for PAR criteria

WINDOWS USER: oper ENTER WINDOW NAME: LOGIN NAME: oper

UNIT SIM
U1_COSERVER_A
MODE 1

ALM

Primary Meteorological Data Summary

08/13/2008
11:52:37

LEVEL	WD (DEG)	SIGMA A ()	WS (M/S)	TEMP (DEGC)	DELTA T (DEGC)	ASPIRATOR AMPS
10M	290.0	8.00	11.0	16.8	.....	0.20
46M	.....	.....	.....	16.8	0.00	0.20
76M	290.0	8.00	11.0	16.8	0.00	0.20

DEW POINT @ 10M (DEGC) = 12.3 PRECIPITATION (CM) = 0.50

DIST (KM)	CHI/Q (SEC/M3)	SIGMA Y (METERS)	SIGMA Z (METERS)
0.80	5.100E-6	100.00	400.00
1.00	5.100E-6	120.00	480.00
2.00	5.100E-6	230.00	760.00
4.00	5.100E-6	430.00	1120.00
6.00	5.100E-6	620.00	1400.00
8.00	5.100E-6	800.00	1600.00
10.00	5.100E-6	980.00	1760.00
25.00	5.100E-6	2240.00	2560.00
50.00	5.100E-6	4190.00	3360.00
100.00	5.100E-6	8560.00	4360.00

VERTICAL STABILITY = 5 CALC. WIND SPEED (M/S) = 11.0 MIXING HEIGHT (M) = 500.0

HORIZONTAL STABILITY = 5 CALC. WIND DIRECTION (DEG) = 290.0

SCREENS BACKUP

start Home BCK

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM061C-RC-SRO

Title: Review Liquid Radwaste Discharge Checklist.

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for SRO Candidates in a classroom setting.

References: OP G-1:II, Liquid Radwaste System - Discharge of Liquid Radwaste, Rev. 35A
CAP A-5, Liquid Radwaste Discharge Management, Rev. 41A

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 20 minutes

Critical Steps: 4

Job Designation: SRO

K/A: G 2.3.6; Ability to approve release permits.

Rating: 3.8

Directions: **No plant controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions and initiating cue. The examiner will then ask if any clarifications are needed. After identifying the appropriate procedure for the task, the examinee may be given the procedure and told the step with which to begin.

Required Materials: OP G-1:II, Liquid Radwaste System - Discharge of Liquid Radwaste, Rev. 35A Completed Attachments 9.1 & 9.5

CAP A-5 Completed Attachment 11.1 Parts 1 & 2.

Initial Conditions: A discharge permit has been issued for PWR 0-1. OP G-1:II Attachments 9.1 & 9.5 have been completed.

Initiating Cue: As the Unit 1 Shift Foreman, review OP G-1:II Attachments 9.1 & 9.5 Discharge Checklists for accuracy and completeness. Document any discrepancies noted and determine if the discharge checklist should be approved or not approved based on your review.

Task Standard: **DO NOT READ TO STUDENTS:** 2 Technical errors are identified and discharge authorization is not approved. This will be documented on the student handout.

Start Time: _____

	Step	Expected Operator Actions
	1. Review checks on page 1 of Attachment 9.1.	1.1 Determines Batch number matches CAP A-5 Att. 11.1 number. 1.2 Identifies that Valve alignment is complete. 1.3 Identifies that independent verification of Valve alignment is complete. 1.4 Identifies that dilution flowrate is adequate. 1.5 Identifies that RE-18 setpoint doesn't require adjustment. **Step was: Sat: _____ Unsat _____***
**	2. Review Manual Valve Lineup Verification on page 2 of Attachment 9.1	2.1 Determines that CCW HX 12 is to be circled to be used, but that valve alignment is for CCW HX 11. **Step was: Sat: _____ Unsat _____***
**	3. Review Attachment 9.5 PWR alignment checklist.	3.1 Determines that PWR 0-2 has been aligned for discharge instead of PWR 0-1. **Step was: Sat: _____ Unsat _____***
**	4. Determine if Authorization should be approved.	4.1 Determines that the Authorization should not be approved, based on either condition not meeting the procedural requirements. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

Initial Conditions: A discharge permit has been issued for PWR 0-1. OP G-1:II Attachments 9.1 & 9.5 have been completed.

Initiating Cue: As the Unit 1 Shift Foreman, review OP G-1:II Attachments 9.1 & 9.5 Discharge Checklists for accuracy and completeness. Document any discrepancies noted and determine if the discharge checklist should be approved or not approved based on your review.

Technical Errors Identified:

[ ] APPROVE Discharge	[ ] DO NOT Approve Discharge

☐ The simulator is not needed for the performance of this JPM.

Initial Conditions: A discharge permit has been issued for PWR 0-1. OP G-1:II Attachments 9.1 & 9.5 have been completed.

Initiating Cue: As the Unit 1 Shift Foreman, review OP G-1:II Attachments 9.1 & 9.5 Discharge Checklists for accuracy and completeness. Document any discrepancies noted and determine if the discharge checklist should be approved or not approved based on your review.

Technical Errors Identified:

Attachment 9.1 page 2, CCW HX 1-2 is circled to be used for the release, but SW-1-67 is opened when SW-1-68 should be opened.
Attachment 9.5 has PWR 0-2 aligned when PWR 0-1 should be.
[ ] APPROVE Discharge [X] DO NOT Approve Discharge

DIABLO CANYON POWER PLANT
OP G-1:II
ATTACHMENT 9.1 **1 AND 2**

TITLE: Liquid Radwaste Discharge Checklist

The following checklist shall be performed prior to any overboard discharge from the Floor Drain Receivers, Processed Waste Receivers, Laundry/Distillate Tanks, Laundry and Hot Shower Tanks, or the Chemical Drain Tanks or the Demin Regen Receivers.

Equipment Drain Receivers will normally be processed through the in-plant waste process stream, i.e., Media Filters and/or Radwaste Ion Exchangers to ultimately end up back in a Processed Waste Receiver (PWR) to be discharged.

Usual operation will be as follows:

1. CDTs, LHSTs, L/DTs and PWRs will be normally discharged through RW filters 0-3 and 0-4 to overboard.
2. EDRs will normally be processed per OP G-1:IV through the Media Filters, Ion Exchangers, Filter 0-5 and on to the Processed Waste Receivers (PWRs).
3. FDRs will usually be discharged through RW filter 0-1 with the exception of during outages when they may be processed due to the presence of colloidal cobalt.
4. DRRs will usually be discharged unless colloidal cobalt is present and processing is required.

In all cases, chemistry will determine the proper method of treatment and disposal of the waste water.

The Discharge Checklist required for discharge should be completed in accordance with OP1.DC10, "Conduct of Operations." The checklist shall be reviewed by the SFM and be attached to the Liquid Discharge Authorization. NO DISCHARGE SHALL BE INITIATED UNTIL THIS CHECKLIST HAS BEEN COMPLETED AND REVIEWED.

Liquid Waste Batch No. 2008-0-036

	YES	NO
Valve alignment for tank to be discharged complete	[✓]	[ ]
Independent verification of valve alignment complete	[✓]	[ ]
Dilution flowrate adequate per discharge authorization requirements	[✓]	[ ]
Does RE-18 setpoint require adjustment?	[ ]	[✓]

(Refer to discharge permit section 2)

If yes, contact the chemistry foreman to verify they have requested a setpoint change of RE-18 per CAP A-5.

OP G-1:II (UNITS 1 AND 2)
ATTACHMENT 9.1

TITLE: Liquid Radwaste Discharge Checklist

VERIFICATION FOR ALL TANKS TO BE DISCHARGED

In Service CCW HX to be used for Liquid Radwaste Discharge:
(circle one)
1-1 (1-2) 2-1 2-2

MANUAL VALVE LINEUP VERIFICATION

VALVE	REQUIRED POSITION	VALVE POS.	INIT	VERIF INIT
LWS-0-436 FLTR DISCH TO UNIT 1 OVERBOARD	Open if 1-1 or 1-2 CCW hxer aligned for discharge Otherwise closed	Open	~~HH~~	RTK
LWS-0-439 FLTR DISCH TO UNIT 2 OVERBOARD	Open if 2-1 or 2-2 CCW hxer aligned for discharge. Otherwise closed	CL	~~HH~~	RTK
SW-1-67 FLTR DISCH TO 1-1 ASW OVERBOARD	Open if 1-1 CCW hxer aligned for discharge. Otherwise closed	Open	~~HH~~	RTK
SW-1-68 FLTR DISCH TO 1-2 ASW OVERBOARD	Open if 1-2 CCW hxer aligned for discharge. Otherwise closed	CL	~~HH~~	RTK
SW-2-67 FLTR DISCH TO 2-1 ASW OVERBOARD	Open if 2-1 CCW hxer aligned for discharge. Otherwise closed	CL	~~HH~~	RTK
SW-2-68 FLTR DISCH TO 2-2 ASW OVERBOARD	Open if 2-2 CCW hxer aligned for discharge. Otherwise closed	CL	~~HH~~	RTK
Sealed Valve Checklist OP K-10L Complete			~~HH~~	RTK
CCW Hxer Aligned for Discharge Verified to be In Service by Checking Hxer D/P (VB-1)			~~HH~~	RTK

Checklist Performed By _____ (Signature) Today / 0600 (Date/Time)

Checklist Verified By _____ (Signature) Today / 0630 (Date/Time)

(Staple this checklist to the discharge permit) ~~HH~~ Init

Liquid radwaste discharge checklist complete and satisfactory

_____ (SFM Signature) _____ (Date/Time)

Comments _____

DIABLO CANYON POWER PLANT
OP G-1:II
ATTACHMENT 9.5

1 AND 2

TITLE: PWR 0-1 and 0-2 Discharge Checklist

TANK TO BE DISCHARGED

BATCH NO. _____				BATCH NO. 2008-0-036			
PROCESSED WASTE RECEIVER 0-1				PROCESSED WASTE RECEIVER 0-2			
VALVE	REQ. POS.	INIT	VERIF INIT	VALVE	REQ. POS.	INIT	VERIF INIT
LWS-0-FCV-722 PWR RECIRC	CLOSED			LWS-0-FCV-722 PWR RECIRC	CLOSED		
LWS-0-FCV-443 SPENT RESIN SLUICE SUPPLY FROM PWRs	CLOSED			LWS-0-FCV-443 SPENT RESIN SLUICE SUPPLY FROM PWRS	CLOSED		
LWS-0-FCV-446 PWR TO WASTE FILTERS	OPEN			LWS-0-FCV-446 PWR TO WASTE FILTERS	OPEN		
LWS-0-FCV-473 CDT PUMP DISCH TO WASTE FLTRS	CLOSED			LWS-0-FCV-473 CDT PUMP DISCH TO WASTE FLTRS	CLOSED		
LWS-0-FCV-475 LAUN PUMP DISCH TO WASTE FLTRS	CLOSED			LWS-0-FCV-475 LAUN PUMP DISCH TO WASTE FLTRS	CLOSED		
LWS-0-FCV-477 WASTE FLTRS DISCH TO EDRs	CLOSED			LWS-0-FCV-477 WASTE FLTRS DISCH TO EDRs	CLOSED		
LWS-0-RCV-18 LIQ WASTE TO OVERBOARD	OPEN			LWS-0-RCV-18 LIQ WASTE TO OVERBOARD	OPEN		
LWS-0-935 PWR PP 0-1 EDUC ISOL	* CLOSED			LWS-0-936 PWR PP 0-2 EDUC ISOL	* CLOSED		
LWS-0-934 PWR PP 0-1 DISCH (SECOND OFF)	* OPEN			LWS-0-937 PWR PP 0-2 DISCH (SECOND OFF)	* OPEN		
LWS-0-936 PWR PP 0-2 EDUC ISOL	* CLOSED			LWS-0-935 PWR PP 0-1 EDUC ISOL	* CLOSED		
LWS-0-1065 LAUN/DISTL TANKS TO RW FILTERS	** CLOSED			LWS-0-1065 LAUN/DISTL TANKS TO RW FILTERS	** CLOSED		

REMARKS: _____

* Manual Valve

** Manual valve located in L/DT Room

DIABLO CANYON POWER PLANT
CAP A-5
ATTACHMENT 11.1

1 AND 2

TITLE: Authorization for Discharge of Liquid Radwaste Batch

Parts 1 and 2 of this form must be completed prior to release of the liquid radwaste batch.
Part 3 must be completed by the Shift Foreman supervising the release. Return the completed form to Chemistry.

Batch No. 2008-0-036

1. SAMPLE INFORMATION AND ANALYSIS

a. Tank Number and Name PWR O-1

b. Tank Level 49 % Volume: 7470 gal

c. Treated by: Filtration

d. Recirculation Flowrate 60 gpm

e. Date/Time Started: Today / 0200

f. Date/Time Sample Collected: First Today / 0400 Second n / a

g. Did the tank recirculate for at least double the volume of the tank contents OR at least 1.5 hours of recirculation for EDRT, FDRT, DRR and possibly PWR. **YES[✓] NO[ ]**

In the case of a PWR which recirc option was used? X Eductor (1.5 hr) _____ Normal (8 hr)

h. Sample pH 6.1

i. Activity

Total Concentration	2.22e-01	µCi/ml	ECL 1.13e+01	µCi/ml
Second Sample	na	µCi/ml	ECL na	µCi/ml
Total Activity	6.28e+06	µCi	Total Concentration (excluding Tritium) 2.29e-05	µCi/ml

j. Prerelease Calculated Doses

			Remaining Allowable, mrem	
			Quarterly	Annually
Total Body	4.28e-05	mrem	1.50e+00	3.00e+00
Maximum Organ	1.03e-04	mrem	5.00e+00	1.00e+01
Basis: Batch flowrate	60	gpm	circ flowrate 8.49e+05	gpm

2. RELEASE AUTHORIZATION (CHEM)

a.

FOR INOPERABLE RE-18	
Date/Time CAUTION TAG attached to FCV-647 Key Switch	n / a
Date/Time 14-day period expires	n / a
SECOND SAMPLE COLLECTION AND ANALYSIS	INDEPENDENT RELEASE RATE CALCULATION
VERIFIED BY: na	VERIFIED BY: na

b. This batch is approved for discharge at the stated rate of release.
Actual (existing) RE-18 HASP (Admin Limit) setting is 80000 cpm.
Expected RE-18 reading above background is 295 cpm.
Notify the Shift Chemistry Tech in accordance with OP G-1:II. OP1.DC2 applies.

c. Limiting batch flowrate 60 gpm d. Minimum dilution water flowrate 8.49e+05 gpm

e. Signed _____ Date/Time Today / 0500
Chemistry Supervision or Authorized Personnel

TITLE: Authorization for Discharge of Liquid Radwaste Batch

Batch No. _____

3. RELEASE INFORMATION AND APPROVAL

a. RE-18 Instrument Check Calibration Expiration Date _____

Source check reading _____ cpm (If inoperable, refer to OP G-1:II.)

Operable [ ] Inoperable [ ]

FR-20: Operable [ ] Inoperable [ ] (If inoperable, refer to OP G-1:II.)

b. The following requirements must be met prior to the release:

1) Never discharge via cartridge filter 0-2 unless authorized by senior chemistry engineer.

2) Flush _____ % of tank contents back to an EDR/DRR per OP G-1:II.

c. Signed _____ / _____	Approved _____ / _____
Operator Date/Time	Shift Foreman Date/Time

CAUTION: If the tank level is different by >1% prior to flush from the tank level stated previously in Section 1.b., THEN THIS PERMIT IS INVALID.

Discharge Start Time	Adequate Dilution? [ ] Yes [ ] No	Start Time +3 hours	Adequate Dilution? [ ] Yes [ ] No	Start Time +6 hours	Adequate Dilution? [ ] Yes [ ] No	Start Time +9 hours	Adequate Dilution? [ ] Yes [ ] No
If at any time during discharge dilution flow rate is NOT adequate, immediately refer to OP G-1:II							

Flow integrator reading at end of discharge
(assumes set to 0 at start of discharge) _____ Date/Time _____ / _____

Total time discharge is interrupted (e.g., filter changeout) _____ Min.

Actual discharge time (beginning - end - interruptions) _____ Min.

e. Perform a channel check on liquid radwaste flow recorder FR-20. Date/Time _____ / _____
Verify flow is recording during the release period.

f. Avg. Flowrate indicated by FR-20 _____ gpm

g. Tank Level prior to flush _____ %

Tank level prior to discharge _____ % = _____ gal

Tank level after discharge _____ % = _____ gal

Volume Discharged = _____ gal

h. Performed By _____ / _____
Operator (signature) Date/Time

i. Comments _____

_____

_____

j. Reviewed: _____ / _____	Noted _____
Shift Foreman Date/Time	Chemistry Supervision Date

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061C-S1

Title: ISOLATE A RUPTURED VCT

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-14, Tank Ruptures, Rev. 13

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 2, 4, 5, 6, 9, 13

Job Designation: RO/SRO

Task Number: 02/004/A2.04

Rating: 3.7/4.1

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure.** All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: None

Initial Conditions: Unit 1 is in MODE 1 at 100% power. RCP seal return is aligned to the top of the VCT. VCT auto makeup has initiated and level is still dropping.

Initiating Cue: It has been determined that the VCT is ruptured. The Shift Foreman directs you to isolate the VCT in accordance with step 8 of OP AP-14.

Task Standard: The VCT is isolated in accordance with step 8 of OP AP-14.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure.	1.1 References OP AP-14. **Step was: Sat: _____ Unsat _____***
**	2. Place LCV-112A control switch in the DIVERT position.	2.1 Places LCV-112A in DIVERT. ** 2.2 Verifies LCV-112A is in DIVERT. **Step was: Sat: _____ Unsat _____***
	3. Verify charging pump suction is aligned to the RWST.	3.1 Verifies 8805A and B are open. 3.2 Verifies LCV-112B and C are closed. **Note: Charging pump suction may have automatically aligned to the RWST prior to operator actions.** **Step was: Sat: _____ Unsat _____***
**	4. Terminate VCT makeup.	4.1 May press STOP on makeup controller to terminate AUTO makeup 4.2 Presses OFF on the makeup controller. ** **Step was: Sat: _____ Unsat _____***

	Step	Expected Operator Actions
**	5. Verify RCP seal return aligned to charging pump suction.	5.1 May contact the auxiliary building watch to check the line-up. ********** **Cue: Seal return is aligned to the top of the VCT.** ********** 5.2 Closes 8100 and/or 8112. ** **Step was: Sat: _____ Unsat _____***
**	6. Isolate Letdown	6.1 Closes 8149C. ** 6.2 Closes LCV-459 and LCV-460. ** **Step was: Sat: _____ Unsat _____***
	7. Reduce charging to minimum.	7.1 Closes HCV-142 and throttles FCV-128 controller to obtain ~8 gpm RCP seal injection flow. **Step was: Sat: _____ Unsat _____***
	8. Verify closed VCT vent header isolation CVCS-8101.	8.1 Observes that 8101 is closed. **Step was: Sat: _____ Unsat _____***

	Step	Expected Operator Actions
**	9. Verify closed pressurizer liquid and steam sample lines, 9355A and B, 9354A and B.	9.1 Verifies 9355A and B are closed. ** 9.2 Verifies 9354A and B are closed. **Step was: Sat: _____ Unsat _____***
	10. Place excess letdown in service.	10.1 Refers to OP B-1A:IV ********** **Cue: Another operator will complete the actions of step 8.** ********** **Step was: Sat: _____ Unsat _____***

Step	Expected Operator Actions

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

Initial Conditions: Unit 1 is in MODE 1 at 100% power. RCP seal return is aligned to the top of the VCT. VCT auto makeup has initiated and level is still dropping.

Initiating Cue: It has been determined that the VCT is ruptured. The Shift Foreman directs you to isolate the VCT in accordance with step 8 of OP AP-14.

Task Standard: The VCT is isolated in accordance with step 8 of OP AP-14.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Enter drill file xxxx or manually insert the following:

	Command	Description
1.	loa cvc10 act,1,0,0,d,0	Opens 8373, seal return to top of VCT
2.	loa cvc9 act,0,0,0,d,0	Closes 8375, seal return to ccp suction
3.	ramp acvcvctw 6500,60,0,d,0	Lowers VCT level
4.	mal cvc 4A act,30,0.1,0,d,0	VCT rupture at bottom of tank
5.	run 60	Runs the simulator for 60 seconds

- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S2

Title: RESPOND TO PRESSURE CONTROL CHANNEL PT-456 FAILED HIGH

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-5, Malfunction of Protection or Control Channel, Rev. 28B

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 2, 4

Job Designation: RO/SRO

Task Number: 03/010/A3.02

Rating: 3.6/3.5

AUTHOR: GARY HUTCHISON DATE: 08/14/08

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure.** All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: None

Initial Conditions: Unit 1 has been operating at 100% power with all systems aligned for normal full power operation.

Within the last minute,
- several annunciators alarmed,
- PZR PORV PCV-456 cycling open and close
- PZR backup heaters automatically energized.

Initiating Cue: The Shift Foreman directs you to respond to the transient using OP AP-5 Malfunction of Eagle 21 Protection or Control Channel.

Task Standard: Procedural actions have been completed so that normal automatic pressurizer pressure control may be restored.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure	1.1 References OP AP-5.
		Step was: Sat: _____ Unsat _____*
**	2. Verify control systems properly controlling in AUTO.	2.1 Determines that the PZR pressure control system is NOT working in AUTO. (Controller demand is acceptable for current plant pressure, pressurizer heaters, and spray valves controlling in AUTO but PCV 456 still has an OPEN signal from PT 456.)
		2.2 After one or more cycles of PCV-456, the operator places PCV-456 control switch in CLOSE. (This may be done at anytime but must be completed before the end of the task.) **
		Note: Operator may take manual control of the PZR PRESS CONTROL HC-455K. However it will not stop PCV-456 cyclic response.
		Step was: Sat: _____ Unsat _____**
	3. Determine extent of instrument failure.	3.1 Observes that PK06-01 and PK06-03 are OFF.
		Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step	Expected Operator Actions
**	4. Verify affected Instrument(s) Channel Outputs are NOT selected for Control or Backup, as required.	4.1 Determines PT-456 is the Instrument Inputs to PZR pressure. 4.2 Verifies Affected Instrument Channel (PT-456) Outputs are not selected for control. • Observes that the P/455A CONTROL PRESS / RELIEF VLVS switch is positioned to PT 457 / PT 456. 4.3 Positions the P/455A CONTROL PRESS / RELIEF VLVS switch to PT 455 / PT 474. **
		Note: Operator may take HC-455K to manual to shift control channels
		Step was: Sat: _____ Unsat _____*
	5. Verify Failed Channel NOT Selected as Recorder Input.	5.1 Determines that PT-456 is NOT selected as recorder input. ********** **Cue: Other operators will complete OP AP-5.** ********** **Step was: Sat or N/A: ____ Unsat ____***

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

Initial Conditions: Unit 1 has been operating at 100% power with all systems aligned for normal full power operation.

Within the last minute,

- several annunciators alarmed,
- PZR PORV PCV-456 cycling open and close
- PZR backup heaters automatically energized.

Initiating Cue: The Shift Foreman directs you to respond to the transient using OP AP-5 Malfunction of Eagle 21 Protection or Control Channel.

Task Standard: Procedural actions have been completed so that normal automatic pressurizer pressure control may be restored.

- ❑ Initialize the simulator to IC-501 (100%, BOL).
- ❑ Enter drill file 1143 or manually insert the following:

Command	Description
xmt pzr18 3,2515,0,0,d,0	Fails PT-456 high (back up channel for control)
run 10	Runs simulator for 10 seconds

- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S3

Title: ISOLATE A LOCA OUTSIDE CONTAINMENT

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: EOP ECA-1.2, LOCA Outside Containment, Rev. 6A

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 4, 5

Job Designation: RO/SRO

Task Number: 04P/E04/EA1.1

Rating: 4.0/4.0

AUTHOR: GARY HUTCHISON DATE: 08/14/08

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
MANAGER OPERATIONS

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure.** All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: None

Initial Conditions: Unit 1 has experienced a Safety Injection. Automatic actuation of safeguards equipment was verified. It was determined that SI cannot be terminated and abnormal radiation has been observed in the auxiliary building.

Initiating Cue: The Shift Foreman directs you to perform the actions for a LOCA outside containment, in accordance with ECA-1.2.

Task Standard: All actions to respond to a LOCA outside containment have been performed and the correct procedure for recovery has been identified.

Start Time: _____

Step	Expected Operator Actions
1. Obtain the correct procedure.	1.1 References EOP ECA-1.2. **Step was: Sat: _____ Unsat _____***
2. Verify the following valves closed: o 8702, RCS RHR Suct LP4 HL o 8701, RCS RHR Suct LP4 HL o 8703, RHR to hot legs 1 and 2 o 8802A, SI to hot legs 1 and 2 o 8802B, SI to hot legs 3 and 4	2.1 Observes that the following valves are closed: o 8702 o 8701 o 8703 o 8802A o 8802B **Step was: Sat: _____ Unsat _____***
3. Try to identify and isolate the leak by closing 8809A, RHR to cold legs 1 and 2.	3.1 Cuts in series contactor toggle switch for 8809A. 3.2 Closes 8809A. 3.3 Diagnoses that RCS pressure (PI-405, PR-403, PPC, or SPDS) is still lowering. 3.4 Reopens 8809A. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step	Expected Operator Actions
**	4. Try to identify and isolate the leak by closing 8809B, RHR to cold legs 3 and 4	4.1 Cuts in series contactor toggle switch for 8809B. **
		Note: The operator shall receive an UNSAT for the following critical sub-step if he later reopens 8809B.
		4.2 Closes 8809B. **
		4.3 Diagnoses that RCS pressure (PI-405, PR-403, PPC, or SPDS) is stable or increasing.
		Step was: Sat: _____ Unsat _____*
**	5. Check if break is isolated.	5.1 Checks RCS pressure (PI-405, PR-403, PPC, or SPDS) increasing.
		5.2 Identifies EOP E-1 as correct procedure for recovery. **
		Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

Initial Conditions: Unit 1 has experienced a Safety Injection. Automatic actuation of safeguards equipment was verified. It was determined that SI cannot be terminated and abnormal radiation has been observed in the auxiliary building.

Initiating Cue: The Shift Foreman directs you to perform the actions for a LOCA outside containment, in accordance with ECA-1.2.

Task Standard: All actions to respond to a LOCA outside containment have been performed and the correct procedure for recovery has been identified.

- ❑ Select IC-510. Click the BYPASS SW CHECK button on the expert screen to continue after control boards are aligned.
- ❑ Enter drill file 1118 or manually enter the following::

Command	Description
ovr xv2o225r act,0,0,0, d,	red lite off 8701.
Ovr xv2o225g act,1,0,0,d,0	green lite on 8701
ovr xv2o226g act,1,0,0,d,0	green lite on 8702
ovr xv2o226r act,0,0,0,d,0	red lite off 8702
ovr xs01d08 act,0,0,0,d,0	8701/8702 monitor lite off
vlv RHR2 2,1,0,0,d,0 #RRHH8702 mal rhr1 act,5000,5,0,d,0 set csis8803=0.01	actions to keep rcs pressure decreasing
set rrhh8701=0.1	8701 opened to 10%
vlv rhr1 2,0,1,0,c,rrhh8809(2) .lt.0.1,0 #rrhh8701	8701 will shut when 8809b goes closed
Ovr xc2i030c act,1,0,0,d,5 #cc2038a	Actuate SI
run	run

- ❑ Trip RCPs , Reset SI, Reset Phase A Isolation, Open FCV-584, then Go to Freeze.
- ❑ Scroll chart for PR-403 forward so operator has a reference point for RCS pressure trends.
- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S4

Title: MANUALLY ISOLATE CVI COMPONENTS

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: EOP E-0, Reactor Trip or Safety Injection, Rev 33A

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 3

Job Designation: RO/SRO

Task Number: 05/103/A3.01

Rating: 3.9/4.2

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: None

Initial Conditions: A Containment Vent was in progress when Unit 1 reactor trip and safety injection occurred.

Initiating Cue: You are directed by the Shift Foreman to verify Containment Vent Isolation by performing Appendix E, step 3, of EOP E-0.

Task Standard: All Containment Vent Isolation valves have been verified closed.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure.	1.1 References EOP E-0, Appendix E, Step 3. **Step was: Sat: _____ Unsat _____***
	2. Verify Containment Vent Isolation.	2.1 Observes the following on the CONTAINMENT VENT ISOLATION portion of Monitor Light Box B: o Train A red activate light – OFF o Train B red activate light – OFF o White status lights – OFF **Step was: Sat: _____ Unsat _____***
**	3. Manually actuate CONTMT ISOL PHASE A OR Manually close the Cnm Vent isolation valves with white status lights - ON	**Note: Operator may position CONTMT ISOL PHASE A TRAINS A & B switch to ACTUATE; however, this will not work.** 3.1 Turns the Phase A actuation switch to ACTUATE. (optional) 3.2 Positions the MONITOR LIGHT TEST switch to TEST. 3.3 Identifies open Cnm Vent Isol valves using the CONTAINMENT VENT ISOLATION portion of Monitor Light Box B or Control Board switch indications.

(Continue step on next page.)

Step	Expected Operator Actions
	3.4 Closes each open Containment Vent Isolation valve. ****** • Positions FCV-678 to CLOSE • Positions FCV-679/681 to CLOSE • Positions FCV-662 to CLOSE • Positions FCV-663 to Neutral
	Note: The above step has been performed "Sat" if all Phase A white lights are off at the completion of the step.
	3.5 Verifies that each Containment Isolation Phase A valve has closed. **Step was: Sat: _____ Unsat _____***

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

Initial Conditions: A Containment Vent was in progress when Unit 1 reactor trip and safety injection occurred.

Initiating Cue: You are directed by the Shift Foreman to verify Containment Vent Isolation by performing Appendix E, step 3, of EOP E-0.

Task Standard: All Containment Vent Isolation valves have been verified closed.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Take FCV-662 control switch to nuetral
- ❑ Take FCV-663 control switch to Press Rel position and Depress until red light on
- ❑ Enter drill file 6615 or manually insert the following:

Command	Description
ovr xv1o404o act,0,0,0,d,0	CVI red light trn A off
ovr xv1o405o act,0,0,0,d,0	CVI red light trn B off
vlv ven22 2,1,0,0,d,xv4i385c	Opens FCV-678, closes when C/S to Close
vlv ven23 2,1,0,0,d,xv4i384c	Opens FCV-679, closes when C/S to Close
vlv ven35 2,1,0,0,d,xv4i384c	Opens FCV-681, closes when C/S to Close
vlv ven19 2,1,0,0,d,xv4i160c	Opens FCV-662, closes when C/S to Close
Vlv ven29 2,1,0,0,d,xv4i163a	Opens FCV-663, close when C/S to Neutral
Run 75	
ovr xc2i030c act,1,0,0,d,5	Manual Safety Injection

- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S5

Title: RESPOND TO A LOSS OF CCW FLOW TO ONE RCP

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: AR PK01-08, CCW HEADER C, Rev 17
OP AP-11, Malfunction of Component Cooling Water System, Rev 24

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 4,5,6

Job Designation: RO/SRO

Task Number: 008/08/A2.01

Rating: 3.3/3.6

AUTHOR: GARY HUTCHISON DATE: 08/14/08

REVIEWED BY: N/A DATE: _____
TRAINING LEADER

APPROVED BY: N/A DATE: _____
LINE MANAGER

Directions:	**No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.
Required Materials:	None
Initial Conditions:	Unit 1 is operating at 100% power.
Initiating Cue:	PK01-08, CCW HEADER C, has just alarmed. Input 428, "RCP Thermal Barrier CCW Flow Lo" is causing the alarm.
Task Standard:	The alarms have been responded to and appropriate actions have been taken in accordance with applicable plant procedures.

Start Time: _____

Step	Expected Operator Actions
1. Obtain the correct procedure.	1.1 References AR PK01-08.
	Note: Operator may go directly to OP AP-11
	Step was: Sat: _____ Unsat: _____*
2. Perform actions for RCP lube oil cooler low flow.	2.1 Observes that two CCW pumps are running. 2.2 Observes that FCV-355 and FCV-356 are open.
	Note: Operator may use PPC PICTURE "RCP" or Group Display PK05-02 to monitor RCP 1-2.
	2.3 Observes RCP lower bearing temps normal and proper seal injection flow on RCPs. 2.4 Refers to OP AP-11, Section E.
	Step was: Sat: _____ Unsat _____*
3. Verify CCW Flow To All RCP Lube Oil Coolers: a. Verify CCW Vlvs - OPEN b. RCP L.O. Clr CCW Flow LO Alarm (PK01-08) - NOT IN c. RCP Temp PPC Alarm (PK05-01), 02, 03, 04) - NOT IN	3.1 Reads CAUTION. 3.2 Observes that the following valves are open: • FCV-355 • FCV-356 • FCV-749 • FCV-363 3.3 Observes that PK01-08 is in alarm. 3.4 Determines RCP Lube Oil coolers have CCW flow.
	Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps

	Step		Expected Operator Actions
**	4. VERIFY RCP Seal Injection In Service.		4.1 Observes Seal Injection flow less than 8 gpm.
		**	4.2 Adjusts HCV-142 to increase seal injection flow between 8 and 13 gpm. **
			4.3 Observes RCP Seal #1 Outlet Temps and Radial Brg Outlet Temps NORMAL.
			Step was: Sat: _____ Unsat _____*
**	5. VERIFY CCW Flow to All RCP Thermal Barriers Normal.		5.1 Reads Caution.
			5.2 Verifies FCV-357 Closed and PK01-08 IN.
		**	5.3 Goes to Step 5.b of Section B.**
			Step was: Sat: _____ Unsat _____*
**	6. Isolate Leak.	**	6.1 Closes FCV-750. **
		**	6.2 Locally closes CCW valves for RCPs 1, 2, 3, 4. **
			**********
			Cue: An Operator in the field will close the valves.
			**********
			6.3 Monitors containment sump for expected level increase.
			6.4 Implements OP AP-1 for excessive RCS leakage.
			**********
			Cue: The SFM will take care of sump monitoring and AP-1.
			**********
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps

_____

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

_____

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps

Initial Conditions: Unit 1 is operating at 100% power.

Initiating Cue: PK01-08, CCW HEADER C, has just alarmed. Input 428, "RCP Thermal Barrier CCW Flow Lo" is causing the alarm.

Task Standard: The alarms have been responded to and appropriate actions have been taken in accordance with applicable plant procedures.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Manually insert the following:

Command	Description
1. mal ccw3a act 270,0,0,d,0	CCW RCP Thermal Barrier Leak at 270 gpm
2. run 90	Runs 90 seconds

- ❑ **Open HCV-142 to get seal injection flow at ~ 6.5 gpm, must be < 8 gpm without seal injection flow lo alarms on PK05-01 thru 04 in alarm.**
- ❑ Ensure the annunciator CRT and alarm viewer contains the alarm inputs required by the JPM.
    - o Acknowledge and reset alarms. This should show the RCP Thermal Barrier Return Flow low alarm input (PK01-08) and a Hi Rad alarm. The High Flow for RCP Thermal Barrier alarm clears on closure of 357. The students must diagnose this cause and affect.
- ❑ Ensure PPC alarms acknowledged.
- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee completes reading the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S6

Title: RCS COOLDOWN FOR A STEAM GENERATOR TUBE RUPTURE

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: U1 EOP E-3, Steam Generator Tube Rupture, Rev. 29

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 2, 6, 8

Job Designation: RO/SRO

Task Number: 04S/041/A4.06

Rating: 2.9/3.1

AUTHOR: GARY HUTCHISON DATE: 08/14/08

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
MANAGER OPERATIONS

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure.** All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: None

Initial Conditions: A tube rupture in steam generator 1-2 occurred. All actions of EOP E-3 up to the preparation for RCS cooldown are complete.

Initiating Cue: The Shift Foreman directs you to perform a cooldown of the RCS in accordance with EOP E-3, starting at Step 7.

Task Standard: The RCS has been cooled down to the required temperature in accordance with EOP E-3.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure.	1.1 References EOP E-3. **Step was: Sat: _____ Unsat _____***
**	2. Determine required core exit thermocouple temperature.	2.1 Reads CAUTION prior to step. 2.2 Checks ruptured S/G pressure. **Note: Evaluator should verify that steam generator pressure is accurate for plant conditions (approximately 1020-1030 psig).** 2.3 Determines required core exit temperature based on ruptured S/G pressure using the table Step 7.a. ** **Note: Evaluator should verify that the target temperature is accurate based on actual S/G pressure** **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

Step	Expected Operator Actions
3. Check if condenser steam dump should be used in the pressure control mode.	3.1 Observes that 3 MSIVs are open. 3.2 Observes PK08-14, CONDENSER AVAILABLE C-9 – ON. or Observes adequate condenser vacuum on PI-44 and one circulating water pump running. 3.3 Observes that FCV-230 is closed. 3.4 Depresses the HC-507 MANUAL pushbutton and adjusts controller as necessary to achieve 0% output. **Note: The operator may note that HC-507 has failed at this time.** 3.5 Positions the TAVG / STM PRESS / C7A & C7B RESET switch to the STEAM PRESS position. 3.6 Observes that the steam dump valves are closed, with a DUMP DEMAND (UI-500) of 0%. **Step was: Sat: _____ Unsat _____***
4. Block Low Steamline Pressure Safety Injection.	4.1 Reads CAUTIONS prior to step. 4.2 Observes that RCS pressure is greater than 1915 psig. ********** **Cue: Other operators will complete Step 8 prior to any S/G pressure decreasing to less than 700 psig.** ********** **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step	Expected Operator Actions
	5. Initiate RCS cooldown using 40% steam dumps.	5.1 Reads NOTES prior to step. 5.2 Observes PK08-07, LO-LO TAVG PERMISSIVE P-12 – ON. 5.3 Positions the STEAM DUMP CONTROL BYPASS SELECT switches to BYPASS INTLK. 5.4 Verifies P-12 is bypassed by observing PK07-05, STM DUMP CONTROL BYPASS – ON. 5.5 Depresses the HC-507 controller INCREASE pushbutton to begin dumping steam. 5.6 Diagnoses that the 40% steam dump valves are NOT opening. **Step was: Sat: _____ Unsat _____***
**	6. Use intact S/G 10% steam dump and manually or locally dump steam at maximum rate possible.	6.1 Fully opens PCV-19, 21, and 22. ** 6.2 Verifies PCV-19, 21, and 22 are fully opened. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step	Expected Operator Actions
	7. Check core exit thermocouples less than required temperature (SPDS/PAM 3/4).	7.1 Checks core exit thermocouples. 7.2 Continues to Step 11 until target temperature is reached. ********** **Cue: Other operators will perform Steps 11 through 17 while you continue the cooldown.** ********** **Step was: Sat: _____ Unsat _____***
**	8. Stop RCS cooldown.	8.1 Controls PCV-19, 21, and 22 to stop the RCS cooldown after target temperature is reached. ** **Step was: Sat: _____ Unsat _____***
	9. Maintain the required temperature with steam dumps in AUTO.	9.1 Determines new 10% steam dump setpoint by dividing the average intact S/G pressure by 120. 9.2 Adjust the PCV-19, 21, and 22 controller pots to the new setpoint and shifts the controller to AUTO. **Step was: Sat: _____ Unsat _____***

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

Initial Conditions: A tube rupture in steam generator 1-2 occurred. All actions of EOP E-3 up to the preparation for RCS cooldown are complete.

Initiating Cue: The Shift Foreman directs you to perform a cooldown of the RCS in accordance with EOP E-3, starting at Step 7.

Task Standard: The RCS has been cooled down to the required temperature in accordance with EOP E-3.

- ❑ Select JPM IC-620. Click the BYPASS SWCK button on the expert screen to continue after control boards are aligned.
- ❑ Enter drill file 1090 or manually insert the following:

Command	Description
cnh mss1 2,0,0,0,d,0 #xcnh507	Fails HC-507 to 0% in Auto or Manual
ovr xc2i025c act,1,0,0,c,lpplp11,5 ovr xc2i026c act,1,0,0,c,lpplp11,5	block stm line press si at P-11

- ❑ This SNAP allow entry into EOP E-3 at Step 7 with ruptured steam generator 1-2 level at approximately 24% and increasing slowly.
- ❑ Display PCC screen “E3” on one of the CC2 PPC monitors.
- ❑ Display the THERMOCOUPLE MAP ON SPDS panel B.
- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJC-S7

Title: Verify RM-44A Operable

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP H-4:I Containment Ventilation Make Available and Place In Service, Rev. 31.

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 3

Job Designation: RO/SRO

Task Number: Sys. 073/ A4.03

Rating: 3.1 / 3.2

AUTHOR: GARY HUTCHISON DATE: 08/13/08

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: Marked up OP H-4:1 Attachment 9.4.

Initial Conditions: Unit 1 is at 100% power.The Containment Vent Checklist is being performed. Steps 1-4 of Attachment 9.4 of OP H-4:I have been completed.

Initiating Cue: You are directed by the Shift Foreman to verify RM-44A operable per step 5 of Attachment 9.4 of OP H-4:I.

Task Standard: Step 5 performed and SFM informed of RM-44A status.

Start Time: _____

	Step	Expected Operator Actions
	1. Check RM-44A status on the Control Room RDU.	1.1 Checks status: • LOCAL POWER ON/OFF keyswitch in ON • LOCAL POWER light lit. • Program Mode keyswitch in RUN • No alarm lights lit • Normal light lit • CR PNL light lit. • No clearances or work orders in progress. **Step was: Sat: _____ Unsat _____***
	2. Checks indications prior to performing source check.	2.1 Checks the following: • NORM lamp "ON" • C/S pushbutton lamp "OFF" • TEST lamp "OFF" • Records initial RM-44A reading. **Step was: Sat: _____ Unsat _____***
**	3. Starts source check rountine.	3.1 Press the C/S pushbutton lamp (should hold for at least 3 seconds.)** 3.2 Verify that the C/S light starts flashing. 3.3 While the C/S light is flashing, Records the background reading in CPM. **

(Continue step on next page.)

Step	Expected Operator Actions
	3.4 Verify the change in RM-44A status • C/S pushbutton lamp "ON" solid after flashing 30 seconds • NORM lamp "OFF" • TEST lamp "ON"
	3.5 Records RM-44A reading.** 3.6 Verifies RDU counts have increased by at least 150 cpm. ** 3.7 Press the C/S pushbutton lamp.** 3.8 Verify change in RM-44A status: • NORM lamp "ON" • C/S pushbutton lamp "OFF" • TEST lamp "OFF" 3.9 Verify counts have returned to normal.
4. Reports status to SFM.	Informs SFM that RM-44A is operable.

Step was: Sat: _____ Unsat _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

Initial Conditions: Unit 1 is at 100% power.The Containment Vent Checklist is being performed. Steps 1-4 of Attachment 9.4 of OP H-4:I have been completed.

Initiating Cue: You are directed by the Shift Foreman to verify RM-44A operable per step 5 of Attachment 9.4 of OP H-4:I.

Task Standard: Step 5 performed and SFM informed of RM-44A status.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ No Drill file is needed for this JPM.

- ❑ Inform the examiner that the simulator setup is complete.
- ❑ Go to RUN when the examinee is given the cue sheet.

PACIFIC GAS AND ELECTRIC COMPANY **NUMBER OP H-4:I**
NUCLEAR POWER GENERATION **REVISION 31**
DIABLO CANYON POWER PLANT **PAGE 1 OF 4**
OPERATING PROCEDURE **UNIT**

TITLE: Containment Ventilation Make Available and Place In Service

1

INFO ONLY
EFFECTIVE DATE

PROCEDURE CLASSIFICATION: QUALITY RELATED

1. SCOPE

1.1 This procedure covers the system alignment for the Containment Ventilation System and provides instructions for performing a Containment Vent or Purge.

2. DISCUSSION

2.1 This procedure provides uniform instructions to align the Containment Ventilation System. It does not verify the system is capable of Containment Ventilation Isolation due to high plant vent radiation level or presence of a safety injection signal. That task is performed by:

PROCEDURE	CALLED OUT BY
OP G-4 (Proc Rad Monitors)	Mode transition checklist
STP V-9 (Refuel: hi-rad CVI demo)	OP L-6
STP M-16M1	Mode transition checklist

3. RESPONSIBILITIES

3.1 The Shift Foreman (SFM) is responsible for:

3.1.1 Designating the components/valves to be lined up using step 1 of the Instruction Sheet. (Attachment 9.1)

3.1.2 Performing the valve alignment verification according to the checklist. (Attachment 9.2)

3.1.3 Performing Containment purges utilizing an approved Authorization for Discharge of Containment Atmosphere and a Containment Purge Checklist. (Attachment 9.3)

3.1.4 Performing Containment vents utilizing an approved Authorization for Discharge of Containment Atmosphere and a Containment Vent Checklist. (Attachment 9.4)

3.1.5 Performing Attachment 9.5, Starting and Stopping Fans During a Continuous Purge.

3.2 The chemistry foreman is responsible for authorizing Containment releases by venting or purging by issuance of Form 69-9355, "Authorization For Discharge of Containment Atmosphere."

4. PREREQUISITES

4.1 Instrument Air System in service.

4.2 The 480 Volts Nonvital System in service.

4.3 125 VDC System in service.

5. PRECAUTIONS AND LIMITATIONS

5.1 Venting or purging is not allowed unless it is specifically authorized by chemistry, via an Authorization for Discharge of Containment Atmosphere. Refer to "Gaseous Radwaste Discharge Management" procedure, CAP A-6 on plant policy concerning this matter. A Containment Purge Checklist (Attachment 9.3) or a Containment Vent Checklist (Attachment 9.4) must accompany the completed authorization for each discharge.

5.2 After each operation of the Containment Ventilation Isolation Valves, applicable valve leak test (STP V-661, V-662, V-663) must be performed within the time frame specified by TS SR 3.6.3.7.

5.3 ECG 23.3 limits the use of the Containment Ventilation System during Modes 1, 2, 3, and 4. To ensure the limit is not exceeded, in addition to logging the purge time on the Discharge Permit, record of this time shall be kept in the Containment Purge Valve Record Log so the information can be transferred to Weekly STP I-1C.

5.4 During core alteration or movement of irradiated fuel within the Containment, TS 3.9.4 on Containment Ventilation Isolation System applies.

5.5 At all times, CONTAINMENT INTEGRITY/CONTAINMENT PENETRATIONS must be maintained in accordance to Operational Mode requirements, TS 3.6.1, 3.6.3 and 3.9.4.

5.6 The opening or closing of FCV-663 may cause movement of dampers M-8A and M-8B in the Auxiliary Building Ventilation System.

5.7 TS 3.3.6 restricts the opening of Containment Purge Supply and Exhaust Valves (RCV-11, 12, FCV-660, 661, 662, 663 and 664) in Modes 1, 2, 3 and 4 unless both RM-44A and RM-44B are OPERABLE.

5.8 Do NOT open RCV-11, RCV-12, FCV-660, and FCV-661 in MODES 1-4 without operations manager permission. These valves have shown susceptibility to failure of local leakrate testing; therefore, unless an extreme need exists, do NOT cycle these valves in MODES 1-4. If these valves are opened in MODES 1-4, STP V-2E, V-2Q, V-3T7 and M-16M1 must be current, as applicable.

5.9 Venting or purging containment increases the risk of a Large Early Release. In **MODES 1 - 4**, manage the risk in accordance with AD7.DC6, "On-Line Maintenance Risk Management."

6. INSTRUCTIONS

6.1 SYSTEM MAKE AVAILABLE

6.1.1 Review all Prerequisites, and Precautions and Limitations.

6.1.2 Perform System Alignment Verification Checklist per Attachment 9.2.

****

CAUTION: Review Precautions and Limitations before opening or closing FCV-663.

****

6.1.3 Perform STP V-2E on FCV-661, 663, 664 and RCV-12.

6.1.4 Perform STP V-2Q on FCV-660, 662 and RCV-11.

6.1.5 System alignment is now complete.

6.2 CONTAINMENT PURGE

6.2.1 Verify Attachment 9.2 of this procedure is complete.

6.2.2 Verify the Authorization for Discharge of Containment Atmosphere is current.

6.2.3 Perform a containment purge in accordance with the Authorization for Discharge of Containment Atmosphere and the Containment Purge Checklist (Attachment 9.3).

6.2.4 The system is now in a standby status.

6.2.5 IF desired to start or stop fans while a continuous purge is in progress, THEN perform Attachment 9.5, "Starting and Stopping Fans During a Continuous Purge."

6.3 CONTAINMENT VACUUM RELIEF

6.3.1 Verify Attachment 9.2 of this procedure is complete.

6.3.2 Notify chemistry engineer that a vacuum relief is being performed on Containment.

6.3.3 Verify that a negative pressure exists in Containment.

6.3.4 Open FCV-662 and FCV-664.

6.3.5 When vacuum relief is complete (desired negative pressure or 0 psig containment pressure is reached), close FCV-662 and FCV-664.

6.3.6 Determine the total open time for the containment vacuum relief and enter it in the Containment Purge Valve Record Log.

6.3.7 Perform STP V-663 within the time frame specified by TS SR 3.6.3.7.

6.4 CONTAINMENT VENT

6.4.1 Verify Attachment 9.2 of this procedure is complete.

6.4.2 Verify the Authorization for Discharge of Containment Atmosphere is current.

6.4.3 Perform a containment vent in accordance with the Authorization for Discharge of Containment Atmosphere and the Containment Vent Checklist (Attachment 9.4).

6.4.4 The system is now in standby status.

7. REFERENCES

7.1 Operating Valve Identification Drawings:

7.1.1 106723, Ventilation and Air Conditioning System

7.1.2 106725, Instrument Air/Service Air System

8. RECORDS

8.1 Send the completed alignment checklist to the shift engineer. It will be kept in the Control Room until superseded.

8.2 Route superseded alignment checklists to the control room assistant for entry into the Records Management System (RMS).

8.3 The Containment Purge Checklist (Attachment 9.3) or Containment Vent Checklist (Attachment 9.4) SHOULD be attached to the Authorization for Discharge of Containment Atmosphere and forward to the chemistry foreman for review and disposition. The Discharge Permit is archived in RMS and SHOULD have the applicable Checklist attached.

9. ATTACHMENTS

9.1 "Containment Ventilation - Alignment Verification Instruction Sheet," 10/17/06

9.2 "Containment Ventilation - Alignment Verification Checklist," 11/01/00

9.3 "Containment Purge Checklist," 03/24/08

9.4 "Containment Vent Checklist," 03/24/08

9.5 "Starting and Stopping Fans During a Continuous Purge," 03/24/08

DIABLO CANYON POWER PLANT
OP H-4:I
ATTACHMENT 9.4 **1**

TITLE: Containment Vent Checklist

Authorization for Discharge of Containment Atmosphere Batch No. 2009-1-002

NOTE: This checklist is required to be completed and attached to EACH discharge authorization, even if a continuous vent is in progress.

INITIALS

1. Verify current System Alignment Checklist (Attachment 9.2) complete per Attachment 9.1 of this procedure. *GLH*
2. Verify Authorization for Discharge of Containment Atmosphere is current. *GLH*
3. IF in **MODES 1-4**, perform risk management actions per AD7.DC6 (otherwise mark "N/A"). *GLH*
4. Determine operability requirements of RM-44A and RM-44B: *GLH*
   a. Record the plant operating MODE: 1
   b. Mark the appropriate box below and follow its instructions.

[X]	**MODES 1-4**	Both RM-44A and RM-44B required. Perform steps 5 and 6.
[ ]	**MODE 5**	Neither RM-44A nor RM-44B required. N/A steps 5 and 6 and GO TO step 7.
[ ]	**MODE 6 with NO CORE ALTERATIONS AND no movement of irradiated fuel in Containment in progress**	
[ ]	**Reactor defueled**	
[ ]	**MODE 6 with CORE ALTERATIONS OR irradiated fuel being moved in Containment**	Either RM-44A or RM-44B required. Perform steps 5 and/or 6 on the operable RM(s). N/A one of these steps if not performed.

5. IF applicable, verify RM-44A OPERABLE as follows (otherwise check "N/A" and leave blank substeps 5.a and 5.b): N/A [ ]
   a. Check RM-44A status on the Control Room RDU:
      - LOCAL POWER ON/OFF keyswitch in ON. _____
      - LOCAL POWER light lit. _____
      - Program Mode keyswitch in RUN. _____
      - No alarm lights lit. _____
      - Normal light lit. _____
      - CR PNL light lit _____
      - No clearances or work orders in progress. _____

INITIALS

b. Perform source check on RM-44A as follows:

1) Check the following:

- NORM lamp "ON" _____
- C/S pushbutton lamp "OFF" _____
- TEST lamp "OFF" _____
- Initial reading RM-44A uci/cc_____ _____

2) Press the C/S pushbutton lamp and hold for at least 3 seconds. _____

3) Verify that the C/S light starts flashing. _____

NOTE: RM-44A will display readings in CPM while the C/S light is either flashing or lit solid, regardless of the scale displayed in the NORM operating mode.

4) While C/S light is flashing (approximately 30 seconds), record the background reading from the display: RM-44A CPM _____. _____

5) Verify the change in RM-44A status:

- C/S pushbutton lamp "ON" solid after flashing 30 seconds (C/S solenoid energizes) _____
- NORM lamp "OFF" _____
- TEST lamp "ON" _____
- RM-44A CPM _____ _____

6) Verify RDU counts have increased by at least 150 cpm. _____

7) Press the C/S pushbutton lamp (deenergizes C/S solenoid; if pushbutton is not pressed, solenoid is automatically deenergized after 3 minutes). _____

8) Verify the change in RM-44A lamp status:

- NORM lamp "ON" _____
- C/S pushbutton lamp "OFF" _____
- TEST lamp "OFF" _____

9) Verify that RM-44A counts have returned to normal levels recorded in step 5.b.1). _____

INITIALS

6. IF applicable, verify RM-44B OPERABLE as follows (otherwise check "N/A" and leave blank substeps 6.a and 6.b): N/A [ ]

   a. Check RM-44B status on the Control Room RDU:

      - LOCAL POWER ON/OFF keyswitch in ON. _____
      - LOCAL POWER light lit. _____
      - Program Mode keyswitch in RUN. _____
      - No alarm lights lit. _____
      - Normal light lit. _____
      - CR PNL light lit. _____
      - No clearances or work orders in progress. _____

   b. Perform source check on RM-44B as follows:

      1) Check the following:

         - NORM lamp "ON" _____
         - C/S pushbutton lamp "OFF" _____
         - TEST lamp "OFF" _____
         - Initial reading RM-44B uci/cc_____ _____

      2) Press the C/S pushbutton lamp and hold for at least 3 seconds. _____

      3) Verify that the C/S light starts flashing. _____

      NOTE: RM-44B will display readings in CPM while the C/S light is either flashing or lit solid, regardless of the scale displayed in the NORM operating mode.

      4) While C/S light is flashing (approximately 30 seconds), record the background reading from the display: RM-44B CPM _____. _____

      5) Verify the change in RM-44B status:

         - C/S pushbutton lamp "ON" solid after flashing 30 seconds (C/S solenoid energizes) _____
         - NORM lamp "OFF" _____
         - TEST lamp "ON" _____
         - RM-44B CPM_____ _____

      6) Verify RDU counts have increased by at least 150 cpm. _____

      7) Press the C/S pushbutton lamp (deenergizes C/S solenoid; if pushbutton is not pressed, solenoid is automatically deenergized after 3 minutes). _____

INITIALS

8) Verify the change in RM-44B lamp status:

- NORM lamp "ON" _____
- C/S pushbutton lamp "OFF" _____
- TEST lamp "OFF" _____

9) Verify that RM-44B counts have returned to normal levels recorded in step 6.b.1) _____

7. Perform Release Information Sections of the Authorization for Discharge Form (steps 3a-e). _____

8. Obtain SFM approval per step 3f of the Authorization For Discharge Form. _____

NOTE 1: LERF Risk Assessment per AD7.DC6 required.

NOTE 2: Steps 9 and 10 can be marked N/A if a continuous vent is in progress.

9. IF applicable, start venting as follows (Check "N/A" and leave blank all substeps if a continuous vent is in progress): N/A [ ]

   a. OPEN FCV-662, Inside Containment Vent Isolation Valve. _____

   b. OPEN FCV-663, Outside Containment Pressure Relief Isolation Valve. _____

10. At the completion of vent, secure as follows (Check "N/A" and leave blank all substeps if a continuous vent is in progress): N/A [ ]

    a. CLOSE FCV-662, Inside Containment Vent Isolation Valve. _____

    b. CLOSE FCV-663, Outside Containment Pressure Relief Isolation Valve. _____

11. Perform Release Information and Approval Section of the Authorization For Discharge Form (steps 3h-k). _____

12. IF in **MODES 1-4**, update the Containment Vent Valve Record Log (otherwise mark "N/A"). _____

13. Return the Authorization for Discharge of Containment Atmosphere to SFM/SE. _____

Comments: _____

Checklist Complete (SFM or SE): _____ Date/Time: _____ / _____

NOTE: This checklist SHOULD be attached to the Authorization for Discharge of Containment Atmosphere. Forward to chemistry for their review and disposition.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJP-P1

Title: TRANSFER PRESSURIZER HEATER GROUP 12 TO BACKUP POWER

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP A-4A:I, Pressurizer - Make Available, Rev. 24

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 3, 4, 5, 6, 8, 10, 11

Job Designation: RO/SRO

Task Number: 06/062/A2.12

Rating: 3.2/3.6

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure.** All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: A copy of OP A-4A:I, Section 6.4.

Initial Conditions: Unit 1 is in MODE 1. An electrical fault has deenergized 480VAC bus 13D. Offsite power is available.

Initiating Cue: The Shift Foreman directs you to transfer pressurizer heater group 12 to its backup power supply in accordance with OP A-4A:I, Section 6.4.

Task Standard: Pressurizer heater group 12 has been transferred to the backup power supply in accordance with OP A-4A:I.

Start Time: _____

	Step	Expected Operator Actions
	1. Reference procedure step.	1.1 Reads Caution and Note. ********** **Cue: Another Operator has been assigned to monitor the loading of Bus G 480V transformer.** ********** 1.2 Recognizes that off-site power is available and goes to Section 6.4.1.c. **Step was: Sat: _____ Unsat _____***
	2. Place control switch for heater group 12 in the OFF position.	2.1 Goes to or calls the control room to check the position of the control switch for heater group 12. ********** **Cue: The control switch for heater group 12 is in the OFF position and the green light is ON.** ********** **Step was: Sat: _____ Unsat _____***
**	3. Verify that heater group 12 normal breaker 52-13D-6 is open.	3.1 Locates the normal breaker for heater group 12 on load center 13. 3.2 Verifies that the breaker is open. ** **Note: If breaker is closed due to plant conditions, Cue examinee that breaker is open.** **Step was: Sat: _____ Unsat _____***
**	4. Place the DC control power switch for pzr heater group 12 normal breaker in OFF position.	4.1 Locates the DC control power switch for the heater group 12 normal breaker on load center 13. 4.2 Places the control power toggle switch in the OFF position. ** **Step was: Sat: _____ Unsat _____***

	Step	Expected Operator Actions
**	5. Check heater group 12 backup breaker 52-1G-72 open.	5.1 Locates the heater group 12 backup breaker. 5.2 Checks that the breaker is open. ** **Step was: Sat: _____ Unsat _____*****
**	6. Check open the DC control power knife switch for the heater group 12 backup breaker.	6.1 Locates the DC control power knife switch for heater group 12 (located above the vital breaker). ********** **Cue: You may open the cabinet.** ********** 6.2 Verifies that the knife switch is open. ** ********** **Cue: The knife switch is open.** ********** **Step was: Sat: _____ Unsat _____***
	7. Verify that both white potential lights on the manual transfer switch are not lit.	7.1 Locates the manual transfer switch on the wall next to the 52-1G-72 breaker. **Note: Since the normal breaker is available, a white light may be ON.** 7.2 Observes that neither white light is ON. ********** **Cue: Both lights are OFF.** ********** **Step was: Sat: _____ Unsat _____***

	Step	Expected Operator Actions
**	8. Move the transfer switch down to the backup (vital bus) position.	********** **Cue: The Shift Foreman has assigned another operator to complete all required seal valve change forms.** ********** 8.1 Removes seal. (Simulates.) 8.2 Positions the switch to the backup supply. ** **Step was: Sat: _____ Unsat _____***
	9. Rack in or check racked in 52-1G-72.	9.1 Racks in or checks racked in 52-1G-72. ********** **Cue: Breaker is Racked In.** ********** **Step was: Sat: _____ Unsat _____***
**	10. Close the DC control power knife switch for the heater group 12 backup breaker.	10.1 Closes the DC control power knife switch for 52-1G-72. **Step was: Sat: _____ Unsat _____***
**	11. Verify the D.C. Charging Power Switch for heater group 12 backup breaker (52-1G-72) is on and springs charged.	11.1 Locates the D.C. charging power switch on the lower front of 52-1G-72. 11.2 Verifies the following: • CHARGING POWER switch in the ON position ** • SPRINGS CHARGED flag displayed **Step was: Sat: _____ Unsat _____***

Step	Expected Operator Actions
12. Notify the control room of the status of heater group 12.	12.1 Notifies the control room that heater group 12 has been transferred to the backup power supply. *** **Cue: The Control Operator will complete the procedure and energize heater group 12.** *** **Step was: Sat: _____ Unsat _____***
Stop Time: _____ Total Time: _____	**(Enter total time on the cover page)**

Initial Conditions: Unit 1 is in MODE 1. An electrical fault has deenergized 480VAC bus 13D. Offsite power is available.

Initiating Cue: The Shift Foreman directs you to transfer pressurizer heater group 12 to its backup power supply in accordance with OP A-4A:I, Section 6.4.

Task Standard: Pressurizer heater group 12 has been transferred to the backup power supply in accordance with OP A-4A:I.

TITLE: Pressurizer - Make Available

1

INFO ONLY
EFFECTIVE DATE

PROCEDURE CLASSIFICATION: QUALITY RELATED

1. SCOPE

1.1 This procedure provides direction for making the pressurizer and its associated instrumentation and control systems available in order to properly fill and vent the Reactor Coolant System (RCS) as specified in OP A-2:I.

1.2 Instructions are provided for making individual pressurizer heater groups available after maintenance at power.

1.3 Instructions are provided for placing individual spray valves in service after maintenance at power.

2. DISCUSSION

2.1 The basis of this procedure is to provide instructions for making the pressurizer heaters available from both the normal and backup power supplies, and returning to the normal power supply from the backup power supply.

2.2 Instructions are also provided for placing extra pressurizer heaters in service during normal plant operation. This is primarily utilized for equalizing boron in the RCS, or during unit ramps, or in preparation for a clearance.

2.3 The procedure instructions address six separate evolutions as follows:

2.3.1 Section 6.1 - Pressurizer - Make Available

2.3.2 Section 6.2 - Pressurizer Heaters - Make Available

2.3.3 Section 6.3 – Pressurizer Heaters – Make Individual Heater Groups Available

2.3.4 Section 6.4 - Pressurizer Heaters - Make Available from Backup Power Supply

2.3.5 Section 6.5 - Pressurizer Heaters - Return to Normal Power Supply from Backup

2.3.6 Section 6.6 - Placing Backup Heaters in Service and Shutdown Proportional Heaters

2.3.7 Section 6.7 - Returning to Proportional Heaters Only

2.3.8 Section 6.8 – Returning RCS-1-PCV-455A to Service After Maintenance at Power

2.3.9 Section 6.9 – Returning RCS-1-PCV-455B to Service After Maintenance at Power

3. RESPONSIBILITIES

3.1 Operations personnel are responsible for the performance of the steps described in this procedure.

4. PREREQUISITES

4.1 The following systems should be in service as applicable to the tasks being performed.

4.1.1 Instrument Air System

4.1.2 Plant Electrical System

4.1.3 Pressurizer Relief Tank

4.2 Pressurizer System Alignment Verification Checklist has been completed.

5. PRECAUTIONS AND LIMITATIONS

5.1 When placing instrumentation in service, only the root valves are operations' responsibility. Contact maintenance to cut in, fill and vent instrumentation as required.

5.2 The low pressurizer level automatic trip (<17%) for pressurizer heater groups 1-2 and 1-3 is defeated when the heaters are on vital backup power.

5.3 An SI Signal trips the pressurizer heater groups backup (vital) power supply and will prevent reenergizing the heaters from backup source until SI is reset.

NOTE: The following step is posted on a lamicoid at Pressurizer Heater Distribution Panel 11 (PNPH 11).

5.4 Maintain no more than 5 of the 6 Group 11 heater breakers closed at a time due to inadequate fuse rating for the full heater group.[Ref 7.1/7.2/7.3/7.6]

5.5 Review the following Technical Specification (Tech Spec/ECG) Items:

5.5.1 TS 3.3.3 and ECG 7.8 - Accident Monitoring Instrumentation

5.5.2 TS 3.4.10 - Pressurizer Safety Valves - Operating

5.5.3 TS 3.4.9 - Pressurizer

5.5.4 TS 3.4.11 - Pressurizer Relief Valves (PORVs) and Block Valves

5.5.5 TS 3.4.12 - Overpressure Protection Systems

5.5.6 ECG 7.3 - RCS Safety Valves -Shutdown

5.6 Consider potential changes in reactivity that could occur due to actions taken in this procedure, and perform a reactivity brief if required by the Reactivity Management Program.

5.7 480V vital bus loading is a concern when transferring loads that are not normally connected to the bus (i.e. pressurizer heaters, fire pumps, TSC and Spent Fuel Pool pumps).[Ref 7.5]

5.7.1 All three 480v vital transformers have the potential to be loaded beyond normal continuous rating.

5.7.2 During abnormal or emergency conditions the 480V vital transformers can be loaded to 106% or 113% of rated for short periods of time.

a. PK16-22, PK17-22 and PK18-22 provide time and load restrictions for operating beyond the continuous rating of the transformers.

6.3.4 Pressurizer Heater Group 14 – Make Available

a. Verify heater group 14 control switch is in the OFF position.

b. Verify racked in and open breaker 52-13E-5.

c. Verify heater group 14 control transfer relay 43X-3E-5 is RESET.

d. Verify DC control power toggle switch for heater group 14 is ON.

e. Check heater group 14 control switch green and white lights are on.

f. When ready for automatic operation, place heater group 14 control switch in AUTO.

****

CAUTION: Monitor the load on 480V Vital Bus/Transformer when transferring pressurizer heaters to the backup power supply. Pressurizer heaters ON and CFCUs in FAST speed could result in exceeding transformer normal rated load.[Ref 7.5]

****

NOTE: RED tick marks on transformer MW meter face indicate normal continuous rating value.

6.4 Pressurizer Heaters - Make Available from Backup Power Supply

6.4.1 IF off-site power is available to energize the pressurizer heaters from the back up power supply,
THEN go to step 6.4.1c below;
OR
IF off-site power is not available (diesels supplying vital busses) to energize the pressurizer heaters from the back up power supply,
THEN perform the following:

a. Select the backup power supply to be used (vital Bus G for heater group 12 or vital Bus H for heater group 13), based on the bus with the lowest load indicated on the diesel.

b. Determine if loads must be stripped from the selected vital bus.

1. IF the bus load is <2.6 MW,
THEN go to step 6.4.1c below, it will not be necessary to strip any loads.

****

CAUTION: Any safety injection signal must be reset before loads can be stripped and before the heaters can be energized. Reset only if applicable reset criteria is met in the specific Emergency Operating Procedures.

****

2. IF the bus load is >2.6 MW,
   THEN strip some load using the criteria below:

   a) IF all containment fan coolers are running and average containment air temperature is below 120°F,
   THEN shut down fan cooler 1-3, 1-4 or 1-5, as applicable.

   b) IF all three component cooling water pumps are running,
   THEN one may be shut down. (Either 1-2 or 1-3, as applicable.)

   c) IF the ECCS pump shutdown criteria in the applicable Emergency Operating Procedure is met,
   THEN the following may be shut down as applicable.

      1) SI Pump 1-2

      2) RHR Pump 1-1 OR RHR Pump 1-2

c. Energize the heaters as follows:

1. Place the control switch for the selected heater group (12 or 13) to the OFF position and check the green light on.

2. Verify that the selected heater group normal breaker is open:

   a) 52-13D-6 for heater group 12, (480V bus 13D)

   b) 52-13E-2 for heater group 13,(480V bus 13E)

3. Place the D.C. Control Power Switch for the selected heater group normal breaker in the OFF position (located at Load Center 13 D or E).

4. Check the selected heater group backup breaker open:

   a) 52-1G-72 for heater group 12, (vital bus room G).

   b) 52-1H-74 for heater group 13, (vital bus room H).

5. Check open the D.C. Control Power Knife Switch for the selected heater group backup breaker (located above the vital breaker).

6. Verify that both white potential lights on the manual Pressurizer Heater Transfer Switch are not lit.

7. Move the manual Pressurizer Heater Transfer Switch down to the backup (VITAL) bus position.

   a) Fill out the Sealed Component Change Form in accordance with OP1.DC20.

8. Rack in, or check racked in, the selected heater group backup breaker (52-1G-72 or 52-1H-74).

9. Close the D.C. Control Power Knife Switch for the selected heater group backup breaker (located above the vital breaker).

10. Verify the D.C. Charging Power Switch for the selected heater group backup breaker is in the ON position (located on the lower front of the vital breaker) and springs are charged.

****

CAUTION: The pressurizer heater group breaker auto trip on low pressurizer level is defeated when heaters are on backup power supply. Manually turn heaters OFF if pressurizer level drops below 17%.

****

11. Place the control switch for the selected heater group in the ON position in the Control Room.

NOTE: The indicating lights for this group will not illuminate since they are associated with the normal power supply breaker position.

12. Verify that the heaters are energized by observing the individual wattmeter for the selected heater group.

13. If the selected heater group does not energize as indicated by the associated watt meter, manually close breaker as follows:[Ref.7.4]

    a) Verify the control switch on CC1 is selected to AUTO.

    b) Verify closing springs are charged (charging the closing springs electrically requires the local DC knife switch above the breaker to be closed and the toggle switch on the breaker to be in the "ON" position).

    c) Pull up on the local close lever.

14. Verify that the diesel generator is not overloaded by referencing the capability curve in OP J-6B.

15. Verify 4KV / 480V XFMR HIGH SIDE MWATTS are less than or equal to the red tick mark on meter face.

    a) IF transformer Megawatts are greater than red tick mark, THEN refer to associated "480V BUS" AR PK for guidance on reducing loads on the 480V vital bus.

6.5 Pressurizer Heaters - Return to Normal Power Supply from Backup

6.5.1 To energize pressurizer heaters from the normal power supply after being energized from the backup power supply proceed as follows:

a. Place the control switch for the selected heater group (12 or 13), to the OFF position.

b. Verify that the selected heater group backup breaker is open

1. 52-1G-72 for heater group 12, (480 V vital bus room G).

2. 52-1H-74 for heater group 13), (480 V vital bus room H).

c. Open the D.C. Control Power Knife Switch for the selected heater group backup breaker (located above the vital breaker).

d. Check the selected heater group normal breaker OPEN,

1. 52-13D-6 for heater group 12, (480V 13D)

2. 52-13E-2 for heater group 13, (480V 13E)

e. For heater group 13 only, place 480V Transformer THH10 fan control pad in AUTO. (Located in 480V Bus H room.)

1. Check AUTO/ON light is on (amber.)

f. Verify the D.C. Control Power Cut Out Switch for the selected heater group normal breaker is in the OFF position. (Upper section of 480V Bus 13D OR 13E).

1. 52-13D-6 if heater group 12 is being transferred from backup to normal.

2. 52-13E-2 if heater group 13 is being transferred from backup to normal

g. Verify that both white potential lights on the manual Pressurizer Heater Transfer Switch are not lit, (mounted on wall behind vital breaker.)

h. Move the manual Pressurizer Heater Transfer Switch up to the NORMAL bus position.

1. Complete the Sealed Component Change Form in accordance with OP1.DC20.

i. Rack in, or check racked in, the selected heater group normal breaker (52-13D-6 or 52-13E-2).

j. Place the D.C. Control Power Switch for the selected heater group normal breaker in the ON position (located at Load Center 13D or E).

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJP-P2

Title: ALIGN CHARGING PUMP SUCTION FROM RWST

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: **Give Cue sheet to examinee outside of Radiological Controlled Area. The first steps deal with operations outside the RCA.**

References: U2 OP AP-8B, Control Room Inaccessibility - Hot Standby to Cold Shutdown, Rev OTSC for Rev. 15

Operating Order O-9: Manual "Seating" of Motor Operated Valves, Rev. 19.

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 1, 2, 3, 4

Job Designation: RO/SRO

Task Number: 02/004/A4.12

Rating: 3.8/3.3

AUTHOR: GARY HUTCHISON DATE: 09/18/2008

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: Copy of OP AP-8B, Step 7.e.

Initial Conditions: A fire has occurred in the Unit 2 Control Room, forcing evacuation. A cooldown to cold shutdown has commenced from the Hot Shutdown Panel. VCT level cannot be maintained in AUTO.

Initiating Cue: The SFM directs you to align the Unit 2 charging pumps suction to the RWST, in accordance with OP AP-8B, Step 7.E. RNO.

Task Standard: Charging Pump suction has been aligned to the RWST.

Start Time: _____

	Step	Expected Operator Actions
**	1. Opens either 8805A and/or 8805B supply breakers.	********** **Cue: The 480V breakers for 8805A and 8805B have not been opened.** **********
		Note: Operator must open the supply breaker(s) for the valves he will operate. If only 1 valve is operated then only that breaker step is critical.
		1.1 Opens 52-2F-19 for 8805A. **
		1.2 Opens 52-2G-14 for 8805B. **
		Step was: Sat: _____ Unsat _____*
**	2. Opens either LCV-112B and/or LCV-112C supply breakers.	**Note: Operator must open the supply breaker(s) for the valves he will operate. If only 1 valve is operated then only that breaker step is critical.**
		********** **Cue: The 480V breakers for LCV-112B and LCV-112C have not been opened.** **********
		2.1 Opens 52-2F-12 for LCV-112B. **
		2.2 Opens 52-2G-11 for LCV-112C. **
		Step was: Sat: _____ Unsat _____*

	Step	Expected Operator Actions
**	3. Opens either 8805A and/or 8805B.	1.1 Locates 8805A and 8805B in the 85' pen alcove. 1.2 Engages manual handwheel and opens 8805A and/or 8805B. ** **Step was: Sat: _____ Unsat _____***
**	4. Closes either LCV-112B and/or LCV-112C.	2.1 Locates LCV-112B and LCV-112C in CVCS BlenderRoom, 100'Aux Bldg. 2.2 Engages manual handwheel and closes LCV-112B and/or LCV-112C. ** **Step was: Sat: _____ Unsat _____***

(Enter total time on the cover page)

Stop Time:

Total Time:

Initial Conditions: A fire has occurred in the Unit 2 Control Room, forcing evacuation. A cooldown to cold shutdown has commenced from the Hot Shutdown Panel. VCT level cannot be maintained in AUTO.

Initiating Cue: The SFM directs you to align the Unit 2 charging pumps suction to the RWST, in accordance with OP AP-8B, Step 7.E. RNO.

Task Standard: Charging Pump suction has been aligned to the RWST.

ACTION / EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7. INITIATE RCS Cooldown to Cold Shutdown: (Continued)	
d. Manually Open the 10% Steam Dumps to achieve desired cooldown rate in the RCS	d. Locally control the 10% Steam Dumps PER OP C-2:II to achieve the desired cooldown rate.
e. Check VCT level being maintained in AUTO (unless previously aligned to the RWST).	e. Verify charging pump suction aligned to RWST
1) If auto makeup remains in service, a cooldown rate of approximately 40°F/hr should be used if not on natural circulation. Modify the cooldown rate as necessary to stay within the VCT auto makeup capability.	1) Verify 8805A or 8805B Open locally. (85' Pen alcove) 2) Verify Closed LCV-112B or LCV-112C locally. (CVCS Blender Room, 100')
8. VERIFY NO RETURN TO Criticality by Monitoring NI-53 and NI-54 During the Cooldown	Stop the cooldown and allow the RCS to heatup to return to a subcritical condition. PERFORM STP R-19

****

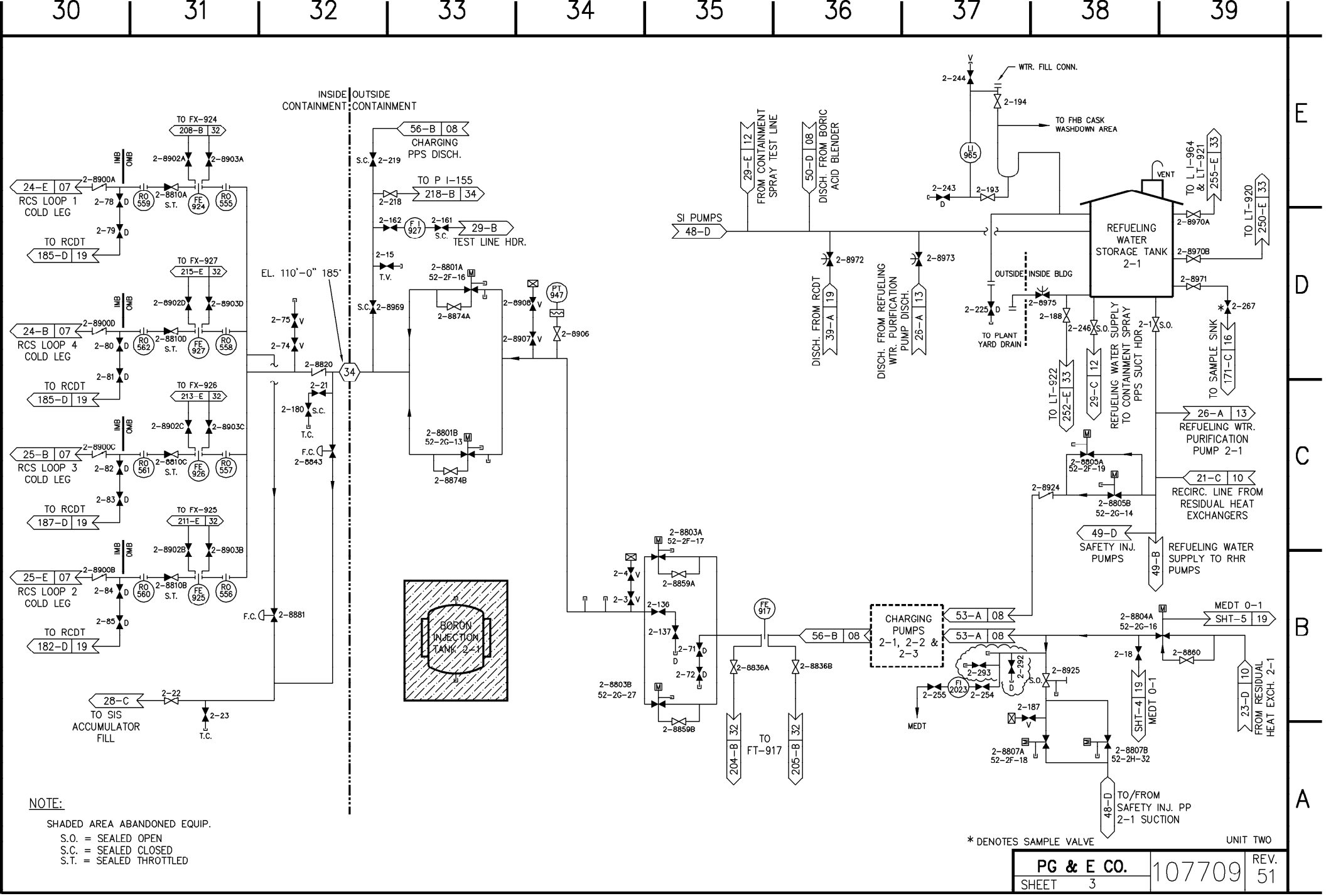
CAUTION: Alternate water sources will be necessary if CST level decreases to LESS THAN 10%. REFER TO OP D-1:V.

****

NOTE 1: S/G levels are cold calibrated. Correct indicated level to actual level using either Figure 2 for wide range level at the HSDP or Figure 3 for the narrow range level at the DSDP.

NOTE 2: IF S/G levels are being properly maintained in automatic, THEN LCV-110, 111, 115 and 113 should be left in AUTO.

9. MAINTAIN S/G Levels:	
a. Verify S/G levels maintained ≈87% actual WR level	a. Ensure S/G levels maintained ≈65% actual NR level.
1) Figure 2, LI-501, 502, 503, 504 at HSD panel	1) Figure 3, LI-516, 526, 536, 546 at DSD panel.
b. Periodically check CST level GREATER THAN 10% on LI-195 (100' FHB Hallway PM-186)	b. IMPLEMENT OP D-1:V.



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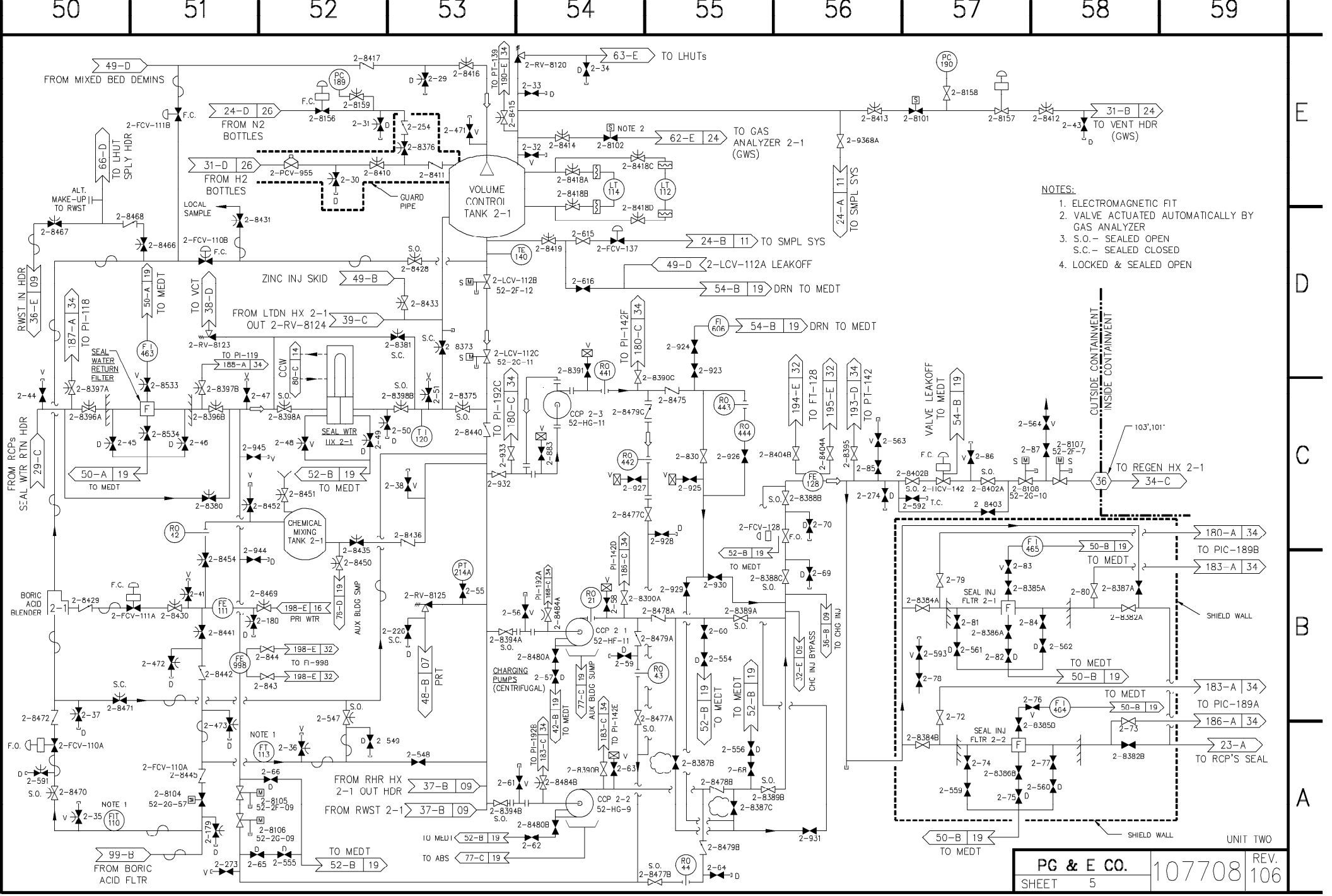
49-D
FROM MIXED BED DEMINS
24-D 26
FROM N2 BOTTLES
31-D 26
FROM H2 BOTTLES
66-D
TO LHUT SPLY HDR
ALT. MAKE-UP TO RWST
LOCAL SAMPLE
GUARD PIPE
VOLUME CONTROI TANK 2-1
63-E
TO LHUTs
62-E 24
TO GAS ANALYZER 2-1 (GWS)
NOTE 2
31-B 24
TO VENT HDR (GWS)
24-A 11
TO SMPL SYS
24-B 11
TO SMPL SYS
49-D
2-LCV-112A LEAKOFF
54-B 19
DRN TO MEDT
ZINC INJ SKID
49-B
FROM LTDN HX 2-1 OUT 2-RV-8124
39-C
RWST IN HDR
36-E 09
TO VCT
38-D
TO MEDT
50-A 19
SEAL WATER RETURN FILTER
TO PI-118
187-A 34
TO PI-119
188-A 34
CCW
80-C 14
SEAL WTR HX 2-1
FROM RCPs SEAL WTR RTN HDR
29-C
50-A 19
TO MEDT
52-B 19
TO MEDT
CHEMICAL MIXING TANK 2-1
BORIC ACID BLENDER 2-1
198-E 16
PRI WTR
AUX BLDG SMP
78-D 19
198-E 32
TO FI-998
48-B 07
PRT
CHARGING PUMPS (CENTRIFUGAL)
AUX BLDG SUMP
77-C 19
42-B 19
TO MEDT
99-B
FROM BORIC ACID FLTR
TO MEDT
52-B 19
FROM RHR HX 2-1 OUT HDR
37-B 09
FROM RWST 2-1
37-B 09
TO MEDT
52-B 19
TO ABS
77-C 19
CCP 2-3 52-HG-11
CCP 2-1 52-HF-11
CCP 2-2 52-HG-9
TO PI-192C
180-C 34
TO PI-142F
180-C 34
TO PI-142D
186-C 34
TO PI-142E
183-C 34
TO PI-192B
183-C 34
TO FT-128
194-E 32
195-E 32
TO PT-142
193-D 34
VALVE LEAKOFF TO MEDT
54-B 19
54-B 19
DRN TO MEDT
CUTSIDE CONTAINMENT
INSIDE CONTAINMENT
103',101'
TO REGEN HX 2-1
36
34-C
TO CHG INJ
36-B 09
CHC INJ BYPASS
32-E 05
TO PIC-189B
180-A 34
183-A 34
TO PIC-189A
183-A 34
186-A 34
23-A
TO RCP'S SEAL
SEAL INJ FLTR 2-1
SEAL INJ FLTR 2-2
SHIELD WALL
SHIELD WALL
50-B 19
TO MEDT
50-B 19
TO MEDT
NOTES:
1. ELECTROMAGNETIC FIT
2. VALVE ACTUATED AUTOMATICALLY BY GAS ANALYZER
3. S.O.- SEALED OPEN
S.C.- SEALED CLOSED
4. LOCKED & SEALED OPEN
UNIT TWO
PG & E CO.
SHEET 5
107708
REV. 106
SYS08\\\770805
OP1.DC23 CONTROL

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRC061CLJP-P3

Title: DE-ENERGIZE SSPS TO BLOCK SAFETY INJECTION

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-8B, Control Room Inaccessibility - Hot Standby to Cold Shutdown, Unit 1, Rev. 16

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 5 minutes

Critical Steps: 2, 4

Job Designation: RO/SRO

Task Number: 07/012/A2.02

Rating: 3.6/3.9

AUTHOR: GARY HUTCHISON DATE: 08/14/08

REVIEWED BY: _____ DATE: _____
TRAINING LEADER

APPROVED BY: _____ DATE: _____
LINE MANAGER

Directions: **No PLANT controls or equipment are to be operated during the performance of this Job Performance Measure**. All actions taken by the examinee should be clearly demonstrated and verbalized to the evaluator. The student will be given the initial conditions, initiating cue, and task standard. The examiner will then ask if any clarifications are needed. The examinee may be given the applicable procedure and step with which to begin.

Required Materials: Copy of OP AP-8B, Step 6.

Initial Conditions: Unit 1 is transitioning from HOT STANDBY to COLD SHUTDOWN from the Hot Shutdown Panel due to Control Room inaccessibility.

Initiating Cue: The Shift Foreman directs you to defeat the Low Steam Line Pressure and Low Pressurizer Pressure Safety Injections in accordance with OP AP-8B, Step 6. You are supplied with a portable phone.

Task Standard: SSPS is de-energized to inhibit Safety Injection actuation.

Start Time: _____

	Step	Expected Operator Actions
	1. Locate PY-11 cabinet and breaker PY-1115.	1.1 Reads CAUTION. 1.2 Locates PY-11 on the 115' area H, battery charger room 1. 1.3 Opens the panel door and locates breaker PY-1115.
		Step was: Sat: _____ Unsat: _____*
**	2. Open breaker PY-1115.	2.1 Opens breaker PY-1115. **
		Step was: Sat: _____ Unsat: _____*
	3. Locate PY-14 cabinet and breaker PY-1418.	3.1 Locates PY-14 on the 115', Area H, battery charger room 3. 3.2 Opens the panel door and locates breaker PY-1418.
		Step was: Sat: _____ Unsat: _____*
**	4. Open breaker PY-1418.	4.1 Opens breaker PY-1418. ** 4.2 Notifies SFM that OP AP-8B, Step 6 is complete.
		Step was: Sat: _____ Unsat: _____*

Stop Time: _____

Total Time: _____ (Enter total time on the cover page)

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

Initial Conditions: Unit 1 is transitioning from HOT STANDBY to COLD SHUTDOWN from the Hot Shutdown Panel due to Control Room inaccessibility.

Initiating Cue: The Shift Foreman directs you to defeat the Low Steam Line Pressure and Low Pressurizer Pressure Safety Injections in accordance with OP AP-8B, Step 6. You are supplied with a portable phone.

Task Standard: SSPS is de-energized to inhibit Safety Injection actuation.

ACTION / EXPECTED RESPONSE	RESPONSE NOT OBTAINED

****

CAUTION: Appendix H will NOT be implemented without the approval of the site emergency coordinator.

****

4. VERIFY All CRDM Fans - RUNNING (CRDM cabinet located adjacent to MCC 12J):

- Verify Dampers Open for Running Fans

START all fans and ensure their dampers are open.

IF CRDM cooling fans are NOT in operation due to loss of nonvital power,

THEN Implement Appendix H to reenergize the nonvital buses if desired by the SFM and emergency operations coordinator.

****

CAUTION: All indicators at the HSDP are susceptible to damage and may not be reliable during a Control Room or CSR fire. REFER TO Appendix A for alternate indication if the HSDP indication does not appear to be functioning correctly. The SPDS or PPC displays in the TSC may provide additional information.

****

NOTE: If using alternate PZR Level indication at the DSDP, convert indicated level to actual level using Figure 1.

5. ESTABLISH PZR Level ≈50%:

a. Slowly adjust PZR level to 50% actual level

b. During RCS cooldown ensure PZR level does not drop below 22% actual level

b. Suspend the RCS cooldown until PZR level can be maintained GREATER THAN 22% actual level.

****

CAUTION: AUTO and MANUAL SI is NOT available with PY-1115 and PY-1418 OPEN. Deactivation is a violation of the Technical Specification and must be approved by a senior reactor operator. This action is authorized pursuant to 10 CFR 50.54(x) and requires a one (1) hour nonemergency report to the NRC per 10 CFR 50.72. Refer to XI1.ID2.

****

6. DEFEAT Lo Stml Press And Low PZR Press SI:

a. Assign an operator with a means of communication to remain near PY-1115 and PY-1418 whenever the breakers are open

- THIS STEP CONTINUED ON NEXT PAGE -

ACTION / EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6. DEFEAT Lo Stml Press And Low PZR Press SI: (Continued)	
b. Open Inst AC Bkrs to inhibit Lo Stml Press SI and Low PZR Press SI 1) Train A Output Cab, PY-1115 2) Train B Output Cab, PY-1418	
7. INITIATE RCS Cooldown to Cold Shutdown:	
a. Begin recording cooldown data approximately every 30 minutes on Attachment 6.1 (Form 69-20682)	
b. Maintain RCS temp and press within operating band of Figure 4 using PI-406 and TI-406 (DSD panel)	
c. If an RCP is in operation, limit cooldown rate to LESS THAN 100°F/hr. If performing a natural circulation cooldown limit cooldown rate to LESS THAN 25°F/hr. (Use TI-406 cold leg/hot leg avg at the DSP Panel)	
d. Manually Open the 10% Steam Dumps to achieve desired cooldown rate in the RCS	d. Locally control the 10% Steam Dumps PER OP C-2:II to achieve the desired cooldown rate.
e. Check VCT level being maintained in AUTO (unless previously aligned to the RWST). 1) If auto makeup remains in service, a cooldown rate of approximately 40°F/hr should be used if not on natural circulation. Modify the cooldown rate as necessary to stay within the VCT auto makeup capability.	e. Verify charging pump suction aligned to RWST 1) Verify 8805A or 8805B Open locally. (85' Pen alcove) 2) Verify Closed LCV-112B or LCV-112C locally. (CVCS Blender Room, 100')

Facility: Diablo Canyon **Scenario No.:** 1 **Op-Test No.:** L061C-1

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Initial Conditions: 100% Reactor power, BOL, Boron at 1182 ppm CFCU 1-2 cleared.

Turnover: High Swell warning is expected in 6 hours. ODM has decided to ramp both units to 25% power at 3 MW/min. OP O-28 actions are complete. OP L-4 preparations are done, at step 6.3.3.m. Turn Pzr Backup heaters on and commence ramp.

Event No.	Malf. No.	Event Type*	Event Description and Time Line
1		N	Turn Pzr Backup Heaters ON.
2		R	Ramp unit to 25% power.
3	Xmt rcs15	I	Loop 1 narrow range Tcold fails high and causes rods to step in. (TS 3.3.1.E & X and 3.3.2.M)
4	Pmp ven	C	CFCU 11 overcurrent trip. (TS 3.6.6.C)
5	Cnv mfw6	C	FCV-540 FW reg valve to S/G 14 fails open
6	mal tur1	C	No Automatic turbine trip, must trip manually. (CT)
7	mal rcs3a	M	Small break LOCA (4") 3 minutes after turbine trip. Will require RCP Trip criteria.(CT)
8	Mal eps	C	4KV Bus G differential trip on Safety Injection.
9	pmp cvc1	C	Charging pump 11 doesn't auto start. (CT)

***(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _1 & 2___ Page _1_ of _7_

Event Description: __Turn on heaters and Ramp unit to 25% power

Time	Position	Applicant's Actions or Behavior
	RO	Turns on Pzr backup heaters
	RO	Adjusts HC-455K to open sprays and returns to Auto.
	SRO	Tailboard ramp to 25%
	SRO	Provide SRO oversight for reactivity changes
	RO	Commence boration
	BOP/RO	Commence ramp to 25% at 3 MW/min

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _3___ **Page _2_ of _7_**

Event Description: __ Loop 1 narrow range Tcold fails high _____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Diagnoses Loop Tavg failure
	RO	Places rods in manual
	SRO	Enters AP-5
	RO	Defeats Loop 1 for Tavg and Δ T
	RO	Withdraws or inserts rods in manual to restore Tavg
	SRO	Refers to Tech Specs (3.3.1.E & X and 3.3.2.M)
	SRO/RO	Returns rod control to AUTO (as time allows)
	SRO	Determines bistables to be tripped
	SRO	Notifies I&C to investigate

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _4___ **Page _3_ of _7_**

Event Description: __CFCU 11 Overcurrent trip _____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Diagnoses CFCU 11 has tripped
	SRO	Refers to PK01-21 CONTMT FAN CLRS
	BOP/RO	Starts additional CFCU per OP H-2:I, "Containment Fan Cooler Units-Make Available and System Operation."
	SRO	Directs Maintenance to investigate CFCU 11 trip.
	SRO	REFER TO TS 3.6.6, "Containment Spray and Cooling Systems".

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _5_ Page _4_ of _7_

Event Description: __FCV-540 fails open _____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Diagnoses FCV-540 is fully open.
	RO/BOP	Attempts to close FCV-540 in manual. Reports no success in isolating FCV-540.
	SRO	Directs manual reactor trip.
	RO	Trips Reactor.

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _6 _ **Page _5_ of _7_**

Event Description: __NO Automatic Turbine trip _____

Time	Position	Applicant's Actions or Behavior
	SRO	Enters E-0
	ALL RO	Perform immediate actions of E-0 "Reactor Trip or Safety Injection" ****** Performs manual turbine trip.**
	ALL	Will probably get Lo Stmline press Safety Injection from the turbine not automatically tripping. This will require the crew to continue in E-0.
	SRO	**If a Safety Injection does not occur**, then crew will transition to E-0.1 "Reactor Trip Response"
	RO	Observes Pzr level is decreasing and recommends SI.
	RO	ACTUATES SI
	SRO	Transitions back to E-0 from E-0.1
		******Denotes Crew Critical Task**

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: _7, 8& 9_ Page _6_ of _7_

Event Description: __ Small break LOCA , 4KV Bus G diff trip, and CCP 11 doesn't auto start___

Time	Position	Applicant's Actions or Behavior
	BOP	Diagnoses failure of 4kV Bus "G"
	ALL	****** Recognize RCP trip criteria and trips RCPs**
	RO	Implement Appendix E, ESF Auto Actions, Secondary And Auxiliaries Status
		• VERIFY Phase A, Cont. Vent Isol., SI, & MFW Isol. actuated properly ****** Starts CCP 1-1** Calls for local isolation on FCV-439.
		• Verify Containment Spray & MSL isolation not required,
		• CHECK ECCS flow and VERIFY pump operation
		• Informs SFM of CCP 1-1 failure to auto start
		• Calls operator to align Battery 12 to Charger 121.
	BOP	Determines TDAFW pp is running (RPM shows zero due to loss of PY-16 from 4KV Bus G trip). May close FCV-37 & 38 or send out operators to throttle flow when S/G level control is required.
	SRO	Determines RCS not intact and recognizes procedure transition criteria met
	RO/BOP	Places 2nd CCW heat exchanger in service, requests FCV-431 to be locally opened.
	SRO	Directs transition to E-1
		******Denotes Crew Critical Task**

Op-Test No.: _L061C-1__ Scenario No.: __01__ Event No.: __ **Page _7_ of _7_**

Event Description: __Response to Small Break LOCA_____

Time	Position	Applicant's Actions or Behavior
	SRO	Conducts tailboard
	RO	Performs E-1 verifications
	BOP	Shuts down D/Gs; returns them to Auto
	RO	Aligns CCW cooling to RHR HXs
	SRO	Determines transition criteria to E-1.2 met
	SRO	Directs transition to E-1.2
	RO	Aligns CCW cooling to RHR HXs
	SRO	Transitions to E-1.2
	SRO	Conducts tailboard
	RO	Secures RHR pumps (if pressure increasing)
	RO	Places steam dumps in Steam Pressure Mode
	SRO	Determines cooldown requirements (may commence cooldown depending on temperature at time of decision)
		Terminate after C/D decision reached or Cooldown commenced

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES

A. Crew places Pzr Backup Heaters in service and commences ramps 25% power at 3 MW/min.

B. Loop 1 Tcold fails high, causing rods to step in rapidly. Reactor operator should place rods in manual and crew will respond per OP AP-5.

C. CFCU 11 will trip on overcurrent. Another CFCU will be placed in service per AR PK01-21.

D. FCV-540 Main Feedwater Regulation valve will fail open. The crew should perform a manual Reactor trip after attempting manual control of the valve.

E. The crew enters E-0 and will transition to E-0.1. The Main Unit Turbine must be manually tripped as part of E-0 immediate actions.

F. A small break LOCA on loop 1 cold leg comes in over 5 minutes requiring the crew to perform a Safety Injection and return to EOP E-0. The RCP's should be tripped after RCS pressure goes below 1300 psig.

G. On the Safety Injection, 4KV Bus G will get a differential trip, which will remove power to Charging pumps 12 & 13. The crew must manually start Charging pump 11, which will fail to auto start on the Safety Injection Signal.

H. The crew will transition from E-0 to E-1, and then to E-1.2.

I. The scenario is terminated after the crew has transitioned to E-1.2 and the decision whether the cooldown can be started has been made.

ATTACHMENT 1 - SIMULATOR SET-UP

TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
Setup Simulator per Checklist	Init 501	100% power, BOL, C_B = 1182 • Integrators: BA - 2 and PW –0 • Tags: CFCU 12
Setup	Drill 81	Reset normal engineering values
Setup	Dsc ven1 act,0,0,0,d,0	Clears CFCU 12
Setup	loa cws8 act,2,0,0,d,0 loa cws32 act,2,0,0,d,0	Starts screen wash pumps

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 0 gal, Boron = 2 gal.
- ☐ Record PPC MAX (BOL = 99.8, MOL = 100.0, EOL = 100.2) on CC2 lamicoid
- ☐ The plant Abnormal Status Board is updated with last CCP C_B near 1182 and current date.
- ☐ Circuit breaker flags are correct.
- ☐ Equipment status lamicoids are correct:

B.A. XFER PP SUPPLYING BLENDER	**- BA Pp 1-2**
SUPPLYING IN-SERVICE SCW HX	**- CWP 1-1**
AUTO RECLOSE FEATURE CUTIN ON THIS CWP	**- CWP 1-1**
SELECTED TO BUS 2F	**- Cont. Rm. Vent Train 1 Bus F**
SELECTED TO BUS 1H	**- Cont. Rm. Vent Train 1 Bus H**

- ☐ The proper Delta-I curve and Reactivity Handbook for the simulator **INIT** are in place
- ☐ The Rod Step Counters indicate correctly.
- ☐ PPC Setup:
  - o QP TAVG, ALM/MODE-1, QP CHARGING, BIG U1169
  - o RBU is updated.
  - o PEN running.
  - o R2B blowdown flows at 90 gpm.
  - o Reactor trip status correct [1](Pg 2 of Group display Mode-1).
  - o Operational mode correct for current conditions.[2]
  - o Delta-I target slope matches Delta-I curve (DeltaI menu →Option 5, constants K0500-0503=100% power target DeltaI / 100)
- ☐ SPDS (screens and time updating), A screen "RM", B screen "SPDS".
- ☐ The chart recorders are operating properly, and advanced.
- ☐ All typewriters are on, with adequate paper/ribbon/etc., and are in the "**ON LINE**" status.
- ☐ The Annunciator Horn is on **(BELL ON)**.
- ☐ Sound Effects are on **(SOUND ON).**
- ☐ **The video and audio systems are SECURED.**

Communications systems are turned on and functional

[1] If not correct, place PPC display in ovrd mode, and press add/omit key. Type point Y0006D and select F2 to restore processing. This should update the trip breaker status.

[2] Allow about ten minutes for the PPC to automatically update the plant mode. If still not correct, place PPC display in ovrd mode, and type APMC. Follow menu to manually override to correct mode.

TIMELINE AND INSTRUCTOR ACTIONS FOR SIMULATION

X = manual entry required

X	0 min	DRILL 6611	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below)
	0 min	mal tur1 act 3,0,0,d,xc3i021c	main turbine auto trip failure, clears on cc3 trip sw
	0 min	pmp cvc1 1,0,0,0,d,0	CCP 11 doesn't start automatically
	30 minutes after ramp started	xmt rcs15 3,679,10,1800,c,ggo,0	Loop 1 Tcold RTD fails high
	30 min after TE-410 > 670 F	pmp ven5 4,0,0,1800, c,txmt410b(1).gt.670,0	CFCU 11 trip
	30 min from cfcu trip	cnv mfw6 2,1,90,1800, c,XV1O231G,0	FCV-540 (MFW Reg valve to S/G 14) fails open
X	**After RX trip**	**Drill 32**	NO Action on reactor trip
	5 min after turbine trip	mal rcs3a act,4,300,300,c,jmltur1,0	Small break LOCA (4") on loop 1 cold leg
	On Safety Injection Signal	mal eps4d act,2,0,0,c,jpplsi,0	4kv bus G differential trip
X	**When requested**	**Vlv mfw2 2,0,300,0,d,0**	Locally close FCV-439.
X	**When requested**	**Drill 47**	Swaps Batt 12 to charger 121
X	**If requested**	**Drill 97**	Swaps PY-16 to backup
X	**If requested**	**Drill 55**	Places H2 analyzers in service
X	**If requested**	**Vlv ccw5 2,1,150,0,d,0**	Locally open FCV-431.

```
* L082 NRC exam scenario #2
* glh1, 8/20/08
*
*all events have 30 min time delay for nrc input
*
* init 501
*
* loop 1 tcold fails high 30 min from ramp start
xmt rcs15 3,679,10,1800,c,ggo,0  #txmt410b(1)
*
* cfcu 11 trip 30 min from rtd failure
pmp ven5 4,0,0,1800,c,txmt410b(1).gt.670,0 #ochfs11
*
* fcv-540 fails open 30 min from cfcu trip
cnv mfw6 2,1,90,1800,c,XV1O231G,0 #rfwf540
*
* main turbine auto trip failure, clears on cc3 trip sw
mal tur1 act 3,0,0,d,xc3i021c
*
* 8000 gpm loca 5 minute after reactor trip
mal rcs3a act,4,300,300,c,jpplp4,0
*
*
* 4kv bus g differential trip on si
mal eps4d act,2,0,0,c,jpplsi,0
*
* prevent charging pp 11 from auto starting
pmp cvc1 1,0,0,0,d,0 #ocvp11
```

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**100**	**%**
GROSS GENERATION:	**1198**	**MWe**
NET GENERATION	**1155**	**MWe**
DAYS AT POWER:	**10**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	Green
PROTECTED EQUIPMENT:	Train A/B, Bus F,G,&H, Prot. Sets I, II,III,IV
HOMELAND SECURITY THREAT LEVEL:	YELLOW
GRID STATUS NEXT SHIFT:	Normal
AVERAGE RCS CALCULATED LEAKRATE:	0.05 gpm

URGENT WORK:

ACTIVE SHUTDOWN TECH SPECS / ECGS:

CFCU 12 cleared for Bearing Replacement (info only)

.

TURNOVER ITEMS:

* High Swell warning is expected in 6 hours. ODM has decided to ramp both units to 25% power at 3 MW/min. OP O-28 actions are complete, camera is not available at intake. OP L-4 preparations are done, at step 6.3.3.m. with the exception of placing Pzr Backup Heaters in service.

OPERABILITY ITEMS:

* None

PRIORITY ITEMS FOR NEXT SHIFT:

* Place Pzr Backup Heaters in service and ramp unit to 25% power.

ANNUNCIATORS IN ALARM

* None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: BOL
   b. Power History: At 100%
   c. Boron concentration is 1182 ppm from a sample taken 2 hours ago.
   d. Borate 40 gallon batches every 20 minutes for first 2 hours of ramp per Reactor Engineering.
   e. Ramp at 3 MW/min to 280 MW.
   f. Leave rods in auto, go to manual if needed to maintain ΔI with +/- 2% of target.

2. No one is in Containment, no entries are expected

3. U-2 is operating at 100% power

COMPENSATORY MEASURES:

None

CONTROL ROOM ABNORMAL STATUS

See Abnormal Status Board.

Facility: Diablo Canyon **Scenario No.:** 2 **Op-Test No.:** L061C-2

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Initial Conditions: 75% Reactor power, MOL, Boron at 848 ppm ASW pp 12 cleared.

Turnover:

Event No.	Malf. No.	Event Type*	Event Description and Time Line
1	Vlv pzr5	C	PCV-456 Pzr PORV fails open, must isolate using block valve. (TS 3.4.11) (CT)
2	Mal mfw2a	R – CO C - BO	Ramp unit to 50% power due to FWP 11 high vibration.
3	Xmt mfw37	I N – CO N -BOP	LT-459 Pzr level channel fails to 10% (TS 3.3.1.M, 3.3.3.F, 3.3.4) Restores letdown flow.
4	Mal rcs4c	M	S/G 13 tube leak ramps to 400 gpm (CT)
5	Pmp asw1	C	ASW pp 11 trips on overcurrent on reactor trip, requires x-tie with U-2. (CT)
6	Cnv mss	C	PCV-21 fails open after RCS cooldown complete. Transition to ECA 3.1

***(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

Op-Test No.: _L061C-2__ Scenario No.: __02__ Event No.: _1___ **Page _1_ of _6_**

Event Description: __PCV-456 fails open _____

Time	Position	Applicant's Actions or Behavior
	BOP	Diagnose PORV PCV-456 has opened partially.
	RO	Determine that PORV PCV-456 should be closed based on Pressurizer Pressure.
	SRO	Direct BOP to close PORV PCV-456.
	BOP	Diagnose that PORV PCV-456 will not close and report to SRO
	SRO	Direct BOP to close PORV Block Valve 8000C.
	BOP	**Closes PORV Block valve 8000C. ******
	RO	Acknowledge alarm PK 05-20, input 1211, PZR Relief/Safety Valve OPEN
	SRO	Responds per Annunciator Response Procedure PK 05-20. • Refers to Tech Spec 3.4.11B (Determines 1 hour close block valve and remove power from block valve, also 72 hrs to restore PORV.) • May refer to AP-13, "Malfunction of Reactor pressure Control System".
		******Denotes Critical Task**

Op-Test No.: _L061C-2__ Scenario No.: __02__ Event No.: _2___ **Page _2_ of _6_**

Event Description: __ FWP 11 high vibration _____

Time	Position	Applicant's Actions or Behavior
	SRO	Respond to PK09-13 "MAIN FEEDWATER PUMP 11"
	RO/BOP	Determines Pump bearing vibration > 5 mils from VB4.
	SRO	Directs ramp to 50% with a ramp rate of 50 – 200 MW/min.
	SRO	Refers to OP AP-25 "Rapid Load Reduction".
	RO/BOP	Commences ramp to 550 MW.
	RO	Verfies Rods inserting properly in Auto
	RO	Turns Backup Heaters on.
	BOP	Verifies a CCP in service.
	RO/BOP	Takes charging to manual to prevent flashing in letdown system.
	RO/BOP	Verifies DFWCS controlling S/G levels
	RO	Commences boration
	SRO	Provides Reactivity Oversight.
	BOP	Trips MFW pp 11 when unit load at 550 MW.

Op-Test No.: _L061C-2__ Scenario No.: __02__ Event No.: _3_ Page _3_ of _6_

Event Description: __LT-459 Pzr level channel fails to 10% _____

Time	Position	Applicant's Actions or Behavior
	SRO	Diagnoses LT-459 failing low
	BOP	Takes manual control of PZR level control
	SRO	Enters AP-5
	SRO	Selects B/U channel for control
	SRO	Re-establishes letdown
	SRO	Refers to Tech Specs 3.3.1.M, 3.3.3.F, 3.3.4
	SRO	Determines bistables to be tripped
	SRO	Directs Asset Team to investigate

Op-Test No.: _L061C-2__ Scenario No.: __02__ Event No.: _4 & 5 _ **Page _4_ of _6_**

Event Description: __ 400 GPM S/G 13 tube leak and ASW pp 11 overcurrent trip_____

Time	Position	Applicant's Actions or Behavior
	SRO	Responds to AR PK11-18 and/or PK11-06
	SRO	Diagnoses S/G tube rupture; may enter AP-3.
	RO	Determines leak too large to maintain Pzr level
	SRO	Directs SI and enters E-0
	ALL	Perform remaining immediate actions of E-0 "Reactor Trip or Safety Injection"
		• VERIFY reactor tripped • VERIFY turbine tripped • VERIFY vital 4kV buses energized • CHECK SI – Actuated
	BOP/RO	Implements Appendix E
	BOP/RO	Determines ASW pp 11 has tripped on overcurrent and Unit has no ASW flow.
	BOP/RO	Refers to AP-10
	BOP/RO	• coordinates with U-2 to align ASW flow from U-2.
	BOP/RO	• **Opens FCV-601 and verifies Heat Exchanger DP increases******
	SRO	May directs early isolation of S/G 1-3
	SRO	Determines S/G 1-3 is ruptured and recognizes procedure transition criteria met
	ALL	Implements F-0; monitors CSFST's
	SRO	Directs transition to E-3
		******Denotes Critical Task**

Op-Test No.: _L061C-2__ Scenario No.: __02__ Event No.: _6_ **Page _6_ of _6_**

Event Description: __ PCV-21 fails open_____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	**Isolates S/G 13 *****
	BOP	• **Sets 10% steam dump to 8.67 turns**
	RO/BOP	• **Isolates S/G 1-3 MSIV**
	RO/BOP	• **Isolates AFW flow when S/G level > 6%**
	RO/BOP	• **Isolates steam to TDAFP (close FCV-38)**
	SRO	Determines cooldown target temperature
	RO	Blocks Lo Stm Line Press SI
	RO	Cools down the RCS
	SRO	Continues with E-3 while cooling RCS to target temperature
	BOP	Shuts down the RHR pumps
	RO	Stabilizes RCS at target temperature
	BOP	Checks S/G 13 pressure – Determines PCV-21 has failed open
	BOP	• Places PCV-21 controller in manual and decreases demand to zero
	BOP	• Cuts in backup air and attempts to close PCV-21
	BOP	• Dispatches operators to locally isolate PCV-21
	SRO	Determines S/G pressure continues to decrease to LESS THAN 250 PSI above Intact S/Gs Pressure
	SRO	Transitions to ECA 3.1
	BOP	Establish Instrument Air to containment (open FCV-584)
	RO	Turns Pzr Heaters Off.
	SRO	Evaluates Plant Status, RCS leakage not indicated.
		Terminate scenario after ECA 3.1 step 10, Evaluation Of Plant Status
		****Denotes Critical Task**

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES

A. PCV-456 Pzr PORV fails open. Operators try to close PORV, but must use block valve.

B. High Vibration alarm occurs on MFW pump 11. Responds per PK 09-13. Commences ramp to 50% power using AP-25. RO should perform boration for the ramp.

C. LT-459, Pzr level channel fails to 10%. Crew responds per AP-5 and takes charging to manual to control pzr level. Crew should restore letdown flow after swapping to another level channel.

D. A 400 gpm tube leak occurs on S/G 13. The crew may respond per AP-3 and should perform a manual Safety Injection.

E. On the reactor trip, ASW pp 11 trips on overcurrent. Since ASW pp 12 was cleared, this will cause a complete loss of ASW. Crew should crosstie with Unit 2 per AP-10.

F. The crew should transition from E-0 to E-3 to isolate S/G 13. After completing the cooldown steps of E-3, PCV-21 (S/G 13 10% dump valve) will fail open. The crew should try to isolate the 10% dump, but will not be successful. This will require a transition to ECA 3.1.

G. The scenario is terminated after Evaluation Of Plant Status in step 10 of ECA 3.1.

ATTACHMENT 1 - SIMULATOR SET-UP

TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
Setup Simulator per Checklist	Init 511	75% power, MOL, C_B = 848 • Integrators: BA - 0 and PW –40 • Tags: ASW pp 12
Setup	Drill 81 Loa ASW7 act,0,0,0,d,0 Ser 0219 act,0,0,0,d,0	Reset normal engineering values **Place ASW pp 12 stby select switch to manual**

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 40 gal, Boron = 0 gal.
- ☐ Record PPC MAX (BOL = 99.8, MOL = 100.0, EOL = 100.2) on CC2 lamicoid
- ☐ The plant Abnormal Status Board is updated with last CCP C_B near 848 and current date.
- ☐ Circuit breaker flags are correct.
- ☐ Equipment status lamicoids are correct:

B.A. XFER PP SUPPLYING BLENDER	**- BA Pp 1-2**
SUPPLYING IN-SERVICE SCW HX	**- CWP 1-1**
AUTO RECLOSE FEATURE CUTIN ON THIS CWP	**- CWP 1-1**
SELECTED TO BUS 2F	**- Cont. Rm. Vent Train 1 Bus F**
SELECTED TO BUS 1H	**- Cont. Rm. Vent Train 1 Bus H**

- ☐ The proper Delta-I curve and Reactivity Handbook for the simulator **INIT** are in place
- ☐ The Rod Step Counters indicate correctly.
- ☐ PPC Setup:
  - o QP TAVG, ALM/MODE-1, QP CHARGING, BIG U1169
  - o RBU is updated.
  - o PEN running.
  - o R2B blowdown flows at 90 gpm.
  - o Reactor trip status correct [1](Pg 2 of Group display Mode-1).
  - o Operational mode correct for current conditions.[2]
  - o Delta-I target slope matches Delta-I curve (DeltaI menu →Option 5, constants K0500-0503=100% power target DeltaI / 100)
- ☐ SPDS (screens and time updating), A screen “RM”, B screen “SPDS”.
- ☐ The chart recorders are operating properly, and advanced.
- ☐ All typewriters are on, with adequate paper/ribbon/etc., and are in the “**ON LINE**” status.
- ☐ The Annunciator Horn is on **(BELL ON)**.
- ☐ Sound Effects are on **(SOUND ON).**
- ☐ **The video and audio systems are SECURED.**

Communications systems are turned on and functional

[1] If not correct, place PPC display in ovrd mode, and press add/omit key. Type point Y0006D and select F2 to restore processing. This should update the trip breaker status.

[2] Allow about ten minutes for the PPC to automatically update the plant mode. If still not correct, place PPC display in ovrd mode, and type APMC. Follow menu to manually override to correct mode.

TIMELINE AND INSTRUCTOR ACTIONS FOR SIMULATION

X = manual entry required

X	0 min	DRILL 6612	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below) **30 minute delays btwn events to allow NRC to direct each event**
	5 min	vlv pzr5 2,1,10,1800,d,0	PCV-456 fails open
X	When requested	Dsc pzr3 act,0,0,0,d,0	Opens bkr for 8000c
	After 8000C closed	mal mfw2a act,11,600,1800, c,XV2I197C,0	MFW pp 11 high vibration
	after ramp started	xmt pzr40 3,10,10,1800, c,ggo,0	LT-459 fails to 10%
	After letdown isolation	mal rcs4c act,400,300,1800, c,XV2O214G,0	400 gpm tube leak on S/G 13
	After reactor trip	pmp asw1 4,0,0,5,c,jpplp4,0	ASW pp 11 overcurrent trip
X	**After RX trip PA**	**Drill 32**	NO Action on reactor trip
X	**When requested**	**Loa asw5 act,1,0,0,d,0**	Aligns ASW 22 to U-1
	After RCS cooldown < 515 F	cnv mss24 2,1,5,1800, c,tcfmtc(48).lt.515,0	PCV-21 fails open
X	**When requested**	**Can't get to PCV-21 to isolate due to steam in area.**	

Drl_6612.txt

```
* L082 scenario # 3
* glh1, 9/16/8
*
* init 511
* use 30 min btwn events to allow nrc control
*
* PORV PCV-456 fails open
vlv pzr5 2,1,10,1800,d,0 #rrcp456
*
* mfw pp 11 hi vibration after 8000C closed
mal mfw2a act,11,600,1800,c,XV2I197C,0
*
* lt-459 fails to 10% after ramp started
xmt pzr40 3,10,10,1800,c,ggo,0 #lqm459
*
* sg 13 tube leak, ramps to 400 gpm after l/d iso
mal rcs4c act,400,300,1800,c,XV2O214G,0
*
* asw pp 11 oc trip on reactor trip
pmp asw1 4,0,0,5,c,jpplp4,0  #ocwasp11
*
* pcv-21 opens after rcs < 515 f
cnv mss24 2,1,5,1800,c,tcfmtc(48).lt.515,0 #rmsp21
```

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**75**	**%**
GROSS GENERATION:	**900**	**MWe**
NET GENERATION	**865**	**MWe**
DAYS AT POWER:	**120**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	Green
PROTECTED EQUIPMENT:	Train A, Bus F&H, Prot. Sets I, III, IV
HOMELAND SECURITY THREAT LEVEL:	YELLOW
GRID STATUS NEXT SHIFT:	Normal
AVERAGE RCS CALCULATED LEAKRATE:	0.05 gpm

URGENT WORK:

* None

ACTIVE SHUTDOWN TECH SPECS / ECGS:

* ASW pp 12 (TS 3.7.8) cleared for bearing replacement.

.

TURNOVER ITEMS:

* Unit at 75% power at request of TOC for testing of new 500KV line impedance relays. Unit was ramped to 75% power yesterday morning. Relay testing should be completed tomorrow.

OPERABILITY ITEMS:

* None

PRIORITY ITEMS FOR NEXT SHIFT:

* Continue 75% power operations.

ANNUNCIATORS IN ALARM

* None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: MOL
   b. Power History: At 75%
   c. Boron concentration is 848 ppm from a sample taken 4 hours ago.
   d. Diluting 40 gallons every 2 hours.
   e. Last dilution was 30 minutes ago.
   f. ΔI stable with in target band.

2. No one is in Containment, no entries are expected

3. U-2 is operating at 100% power

COMPENSATORY MEASURES:

None

CONTROL ROOM ABNORMAL STATUS

See Abnormal Status Board.

Facility: Diablo Canyon **Scenario No.:** 3 **Op-Test No.:** L061C-3

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Initial Conditions: 100% Power, MOL, 782 ppm CB

Turnover: PRA Status: Yellow. Protected Equipment – Train B, Buses H& G, Prot. Sets II, III, IV. RHR pp 11 is cleared for seal repair. U-2 at 100% power.

Event No.	Malf. No.	Event Type*	Event Description and Time Line
1	mal cvc8	C	RCP seal injection filter plugs up, reducing charging flow to seals.
2		R	TOC requests ramp to 900 MW at 25 MW/min
3	xmt rcs93	I	NI-44 fails high, requires rods to manual. (TS 3.3.1.D, E, S, T)
4	mal eps4c	C	4KV bus F diff trip (TS 3.0.3 due to loss of both RHR pumps)
5	mal mfw2a mal mfw2b	C	Both MFW pumps trip spuriously.
6	mal ppl5a mal ppl5b	M	Reactor trip breakers won't open from the control room. ATWS. (CT)
7	ovr xv5i245o	C	52-hd-13 fdr for bus 13d fails to open, so 1 MG set stays in service. Crew must insert rods and go to FR S.1. (CT)
8	vlv afw7	C	TDAFW pp 11 fcv-95 won't open automatically, crew must open at VB3. (CT)

***(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

Op-Test No.: L061C-3 **Scenario No.:** 3 **Event No.:** 1 **Page 1 of 5**

Event Description: **RCP seal injection filter plugs.**

Time	Position	Applicant's Actions or Behavior
	RO	Diagnose RCP seal injection filter plugging.
	RO	Acknowledge alarm PK 04-22, input 498, RCP Seal Injection Filter 1 Delta P Hi
	SRO	Responds per Annunciator Response Procedure PK 04-22. • Direct RO to throttle HCV-142 as needed to control flow. • Monitor RCP operation – PPC Display – RCP • Direct Nuclear Operator to swap seal injection filters. • Direct RO to reestablish RCP seal flow, when filter is swapped. • Contacts Maintenance to replace seal injection filter.
	RO	Reestablish seal injection flow of >8 gpm using HCV-142.
	BOP	Monitor RCP parameters as directed by SRO.

Op-Test No.: L061C-3 **Scenario No.:** 3 **Event No.:** 2 **Page 2 of 5**

Event Description: **Ramp to 900 MW at 25 MW/min**

Time	Position	Applicant's Actions or Behavior
	SRO	Receives call from TOC – Ramp to 900 MW at 25 MW/MIN.
	SRO	Enters AP-25 "Rapid Load Reduction or Shutdown.
	BOP/RO	Sets up ramp on DEHC Console per SRO direction using OP C-3:III, "Main Unit Turbine – At Power Operations. (May use Committed Posting for Direction) • Places MW feedback in service. • Set desired Ram Rate. (25MW/Min) • Set Target to desired load. (900 MW) • Commence ramp by Pressing GO
	RO	Verify Control Rods inserting in Auto in response to Ramp.
	RO	Verifies Backup Pressurizer Heater groups are ON.
	BOP/RO	Verify Charging System operation is adequate. • Verifies at Least One Charging Pump is in service. • Controls charging in Manual as needed to prevent Letdown system flashing.
	RO	Performs Boration of RCS using Boration Checklist and Makeup controller. • Set Target Batch on flow controller (as determined by SRO) • Verify Boric Acid Flow rate set to desired flow. • Start Boration and verify response.

Op-Test No.: L061C-3 **Scenario No.:** 3 **Event No.:** 3 **Page 3 of 5**

Event Description: **NI-44 fails high at 1000 MW.**

Time	Position	Applicant's Actions or Behavior
	RO	Reports unexpected control rod motion
	RO	Diagnoses NI-44 failure
	RO	Places Rod Control in Manual
	SRO	May direct RO/BOP to place Ramp on HOLD.
	SRO	Enters AP-5, "Malfunction of Eagle 21 Protection or Control Channel."
	BOP	Removes NI-44 from service per Attachment 4.1
	RO	Restores Tavg to Tref
	SRO	Provides appropriate reactivity oversight
	SRO	Refers to TS 3.3.1.D, E, S, T
	RO	Returns Rod control to Automatic when Tavg/Tref is within 1˚F.
	RO/BOP	Resumes ramp (as time permits)

Op-Test No.: L061C-3 **Scenario No.:** 3 **Event No.:** 4 **Page 4 of 5**

Event Description: 4KV bus F diff trip

Time	Position	Applicant's Actions or Behavior
	BOP	Diagnoses failure of 4kV Bus "H"
	RO	Acknowledges multiple alarms – Determines PK 16-17 is highest priority, 4 kV bus H UV.
	SRO	Responds per Annunciator response Procedure PK16-17 (PK16-16 and 16-22) • Determines AP-27, "Loss of Vital 4 kV and/or 480V Bus" is appropriate procedure to address event.
	SRO	Enters AP-27, "Loss of Vital 4 kV and/or 480V Bus."
	BOP	Manually starts alternate equipment as required: • CFCU 12 or 15
	BOP	Assigns Nuclear operators to : • Transfer Batt 13 to charger 131 per OP J-9:II • Transfer PY-15 to backup per OP J-10:VII • Diesel Fuel Transfer PP 01 to backup per OP O-13. • Comm. Room Power to backup per OP O-13. • Control Room Vent Pwr Panel A-2 switch to backup per OP O-13.
	BOP	Positions PCV-456 to close
	BOP	Shuts down D/G 1-1
	SRO	Refers to Tech Specs, determines unit in TS 3.0.3 due to a loss of both RHR pumps.

Op-Test No.: L061C-3 **Scenario No.:** 3 **Event No.:** 5, 6, 7, 8 **Page 5 of 5**

Event Description: **Feed Pumps trip / ATWS**

Time	Position	Applicant's Actions or Behavior
	BOP	Reports to SRO both MFW pumps are tripped, no main Feedwater flow is available.
	SRO	Directs a manual reactor trip.
	RO/BOP SRO	Recognizes Reactor Trip Initiate without Actuation.
	SRO	Directs RO and BOP to Perform Immediate Actions
	RO	Attempts a manual Reactor Trip – Reports Reactor did not trip
	BOP	Attempts to open 13D/13E breakers – Reports 13D will not open.
	RO	**Manually inserts control rods ******
	BOP	**Trips main turbine ******
	SRO	Enters E-0, "Reactor Trip or Safety Injection" • Determines Reactor will not trip. • Determines Transition to FR-S.1"Response to Nuclear Power Generation ATWS" is required.
	SRO	Enters FR-S.1, Response to Nuclear Power Generation ATWS"
	BOP	Dispatch personnel to open Reactor Trip Breakers Locally.
	BOP	**Diagnoses that AFW Pump 1-1 has failed to start.** • **Starts TDAFW pump ******
	RO	Initiates emergency boration
	BOP	Manually closes CVI valves
	RO	Checks Reactor is subcritical on Intermediate & Power Range channels.
	SRO	Requests STP R-19 Calculation for SDM
	SRO	Transitions back to E-0
	SRO	Transitions to E-0.1
		Terminate scenario at step 8 of E-0.1
		****** Denotes critical task**

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES

A. RCP seal injection filter plugs up, reducing charging flow to seals. Crew refers to PK 04-22 and swaps to other filter.

B. TOC requests ramp down to 900 MW at 25 MW/min.

C. At 1000 MW, a Loop 3 Tcold RTD fails high, which causes rods to drive in. Rod control is taken to manual and crew refers to AP-5 for actions.

D. 4KV Bus F de-energizes due to a differential trip. Crew refers to AP-27 for actions.

E. Both MFW pumps trip spuriously. Crew should try to manually trip the reactor. Crew goes from E-0 to FR S.1 since 52-HD-13 breaker will not open from the control room.

F. Turbine driven AFW pp 11 must be manually started from VB3.

G. Crew transitions back to E-0 from FR S.1 and then to E-0.1 for Reactor trip recovery.

H. Terminate scenario at step 8 of E-0.1.

ATTACHMENT 1 - SIMULATOR SET-UP

TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
Setup Simulator per Checklist	Init 510	100% power, MOL, C_B = 782 • Integrators: BA - 0 and PW – 40 • Tags: CT – RHR pp 11
Setup	Drill 81	Reset normal engineering values
Setup	• loa rhr9 act,0,0,0,d,0 • ser 0219 act,0,0,0,d,0	Clears RHR pp 1-1, overides DC undervoltage alarm off to simulate Breaker racked out

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 40 gal, Boron = 0 gal.
- ☐ Record PPC MAX (BOL = 99.8, **MOL = 100.0**, EOL = 100.2) on CC2 lamicoid
- ☐ The plant Abnormal Status Board is updated with last CCP C_B near 782 and current date.
- ☐ Circuit breaker flags are correct.
- ☐ Equipment status lamicoids are correct:

B.A. XFER PP SUPPLYING BLENDER	**- BA Pp 1-2**
SUPPLYING IN-SERVICE SCW HX	**- CWP 1-1**
AUTO RECLOSE FEATURE CUTIN ON THIS CWP	**- CWP 1-1**
SELECTED TO BUS 2F	**- Cont. Rm. Vent Train 1 Bus F**
SELECTED TO BUS 1H	**- Cont. Rm. Vent Train 1 Bus H**

- ☐ The proper Delta-I curve and Reactivity Handbook for the simulator **INIT** are in place
- ☐ The Rod Step Counters indicate correctly.
- ☐ PPC Setup:
  - o QP TAVG, ALM/MODE-1, QP CHARGING, BIG U1169
  - o RBU is updated.
  - o PEN running.
  - o R2B blowdown flows at 90 gpm.
  - o Reactor trip status correct [1](Pg 2 of Group display Mode-1).
  - o Operational mode correct for current conditions.[2]
  - o Delta-I target slope matches Delta-I curve (DeltaI menu →Option 5, constants K0500-0503=100% power target DeltaI / 100)
- ☐ SPDS (screens and time updating), A screen "RM", B screen "SPDS".
- ☐ The chart recorders are operating properly, and advanced.
- ☐ All typewriters are on, with adequate paper/ribbon/etc., and are in the "**ON LINE**" status.
- ☐ The Annunciator Horn is on **(BELL ON)**.
- ☐ Sound Effects are on **(SOUND ON).**
- ☐ **The video and audio systems are SECURED.**
- ☐ **Communications systems are turned on and functional.**

[1] If not correct, place PPC display in ovrd mode, and press add/omit key. Type point Y0006D and select F2 to restore processing. This should update the trip breaker status.

[2] Allow about ten minutes for the PPC to automatically update the plant mode. If still not correct, place PPC display in ovrd mode, and type APMC. Follow menu to manually override to correct mode.

TIMELINE AND INSTRUCTOR ACTIONS FOR SIMULATION

X = manual entry required

X	0 min	DRILL 6607	After SRO reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below)
	0 min	mal pp15a act,3,0,0,d,0 mal pp15b act,3,0,0,d,0	ATWS (13D & E Available)
	0 min	ovr xv5i245o act,0,0,0,d,0	52-hd-13 fdr for bus 13d fails to open
	0 min	vlv afw7 1,0,0,0,d,xv3i219	tdafwp fcv-95 won't open automatically, clears when c/s taken to open
	3 min	mal cvc8 act 100,120,1800,d,0	SEAL INJECTION FILTER 11 PLUGGED
X	**When requested**	**Report Seal Injection Filter 11 dP is pegged high.**	
X	**Aux Bldg watch**	loa cvc3 act,1,30,0,d,0	valve in seal injection filter 12
X	**Aux Bldg watch**	loa cvc2 act,0,30,0,d,0	valve out seal injection filter 11
X	**When desired**	**CALL AS TOC**	**Require Ramp to 900 Mw Net. Start ramp within 5 minutes, request 25 MW/min ramp rate.**
	At 1000 MW	mal nis6d act,200,120,0, c,smss.lt.1000,0	NI-44 fails high
	After NI-44 failure	mal eps4e act 2,0,1800, c,,jmnis6d	4KV bus H diff trip
X	**When requested**	**Report burnt insulation smell from 4KV bus H room.**	
X	**When reqested**	Drill 96	transfers PY-15 to backup
X	**When requested**	Drill 48	swap batt 13 -> chrg 131
	After Bus H failure	mal sei1 act,0.29,10,1800, c,jmeps4e,0	0.29 earthquake
	On Siesmic	mal mfw2a act 25,5,10,c,jmlsei1, mal mfw2b act 25,5,10,c,jmlsei1,	both MFW pp's trip
X	**When requested**	mal pp15a clr mal pp15b clr	Locally opens Train A & B RTBs

Drl_6607.txt

```
* L061C Scenario 3 NRC simulator exam
* glh1, 9/18/08
*
* init 510 100% mol
*
* clears rhr pp 11
* open dc knife sw - loa rhr9 act,0,0,0,d,0 #jrocrhr1
* clear dc uv alarm - ser 0219 act,0,0,0,d,0 #alm337c
*
* all time delays 30 min to allow NRC to direct activation
*
* CVC8 SEAL INJECTION FILTER PLUGGED
mal cvc8 act 100,120,1800,d,0
*
* use loa cvc3 act,1,30,0,d,0 to valve in seal inj filter 12
* use loa cvc2 act,0,30,0,d,0 to valve out seal inj filter 11
*
* Call as system dispatcher for ramp to 900 MW at 25 MW/min
*
* NI-44 fails high at 1000 MW
mal nis6d act,200,120,0,c,smss.lt.1000,0
*
* 4KV bus h diff trip 30 min after ni-44 failure
mal eps4e act 2,0,1800,c,jmnis6d,0
*
* use drill 48 to swap batt 13 -> chrg 131
*
* 30 min after bus diff -> Seismic of 0.29 g ,ATWS
mal sei1 act,0.29,10,1800,c,jmeps4e,0
mal ppl5a act 3,0,0,d,0
mal ppl5b act 3,0,0,d,0
*
* both MFW pp's trip on seismic
mal mfw2a act 25,5,10,c,jmlsei1,
mal mfw2b act 25,5,10,c,jmlsei1,
*
* 52-hd-13 fdr for bus 13d fails to open
ovr xv5i245o act,0,0,0,d,0 #vb5100e
* tdafwp fcv-95 won't open automatically, clears when c/s taken to open
vlv afw7 1,0,0,0,d,xv3i219o #rmsf095
```

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**100**	**%**
GROSS GENERATION:	**1198**	**MWe**
NET GENERATION	**1155**	**MWe**
DAYS AT POWER:	**120**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	YELLOW – RHR PP 1-1 MOW
PROTECTED EQUIPMENT:	Train B, Buses H & G, Prot. Sets II,III,IV
HOMELAND SECURITY THREAT LEVEL:	YELLOW
GRID STATUS NEXT SHIFT:	Midway #3 line cleared
AVERAGE RCS CALCULATED LEAKRATE:	0.05 gpm

URGENT WORK:

* None

ACTIVE SHUTDOWN TECH SPECS / ECGS:

* RHR PP 1-1 -pump seal repair. T.S 3.5.2.A - 72 hours. Due in 62 hours.

.

TURNOVER ITEMS:

* RHR PP 1-1 was cleared 10 hours ago to repair a pump seal. It is expected to be returned to service in 8 hours.

OPERABILITY ITEMS:

* None

PRIORITY ITEMS FOR NEXT SHIFT:

* RHR PP 1-1 pump seal repairs.

ANNUNCIATORS IN ALARM

* None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: MOL
   b. Power History: 100%
   c. Boron concentration is 782 ppm from a sample taken 4 hours ago.
   d. Diluting 40 gallons every 2 hours
   e. Last dilution was 30 minutes ago
   f. ΔI is stable

2. No one is in Containment, no entries are expected

3. U-2 is operating at 100% power

COMPENSATORY MEASURES:

None

CONTROL ROOM ABNORMAL STATUS

See Abnormal Status Board.

Facility: Diablo Canyon **Scenario No.:** BU **Op-Test No.:** LO61C-BU

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Initial Conditions: 4% Reactor power, with Main Feedwater in service.

Turnover: CFCU 14 high vibration alarm occurred at 4 % power. Investigation showed dirty alarm contacts, which have been cleaned and CFCU 1-4 has been restarted. At OP L-3 step 6.26, ready to continue rod pull to 8% power. Continue with plant startup and parallel main generator, then increase power to 30%.

Event No.	Malf. No.	Event Type*	Event Description and Time Line
1		R	Increase power to 8% using rods.
2	Pmp ccw2	C	CCW pp 12 overcurrent trip at 6 % power. (TS 3.7.7.A)
3	Ovr xv2i214c	C N	8149C ground, causes letdown isolation . (TS 3.6.3.A) Restores letdown with another orfice valve.
	Ser 1147	C	Ground alarm on DC bus 11
4	Cnh pzr2	I	PCV-455B (Pzr Spray Valve Loop 2 controller) fails high in auto. (CT)
5	Mal mss2b	M	Steam line break to S/G 12 inside containment. (CT)
6	Vlv mss8	C	FCV-42 MSIV to S/G 12 fails to close automatically. (CT)
7	Mal ppl1a	C	Phase A train A doesn't actuate on S.I. (CT)

***(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

Op-Test No.: _LO61C-BU_ Scenario No.: __BU_ Event No.: _1___ Page _1_ of _7_

Event Description: __Pull rods to 8% power_____

Time	Position	Applicant's Actions or Behavior
	SRO	Tailboard power increase to 8%
	SRO	Provide SRO oversight for reactivity changes
	RO	Increase reactor power to 8% by pulling one full rod step at a time.
	RO	Allows SUR to return to ~zero between steps.
	BOP	Verify PPC mode changes to power operation.
	SRO	Makes PA announcement that plant is in MODE 1.

Op-Test No.: _LO61C-BU_ _ Scenario No.: __BU_ _ Event No.: _2___ Page _2_ of _7_

Event Description: __CCW pp 12 trip_____

Time	Position	Applicant's Actions or Behavior
	SRO	Respond to PK01-09 "CCW Pumps"
	BOP	Starts CCW pp 13
	SRO/BOP	Direct Turbine Bldg watch to walkdown 4KV Bus G
	SRO/BOP	Direct Aux Watch to inspect CCW pump 12.
	SRO	Refers to TS. 3.7.7.a
	SRO	Notifies Maintenance

Op-Test No.: _LO61C-BU_ _ Scenario No.: __BU_ _ Event No.: _3___ Page _3_ of _7_

Event Description: __8149C ground causes letdown isolation _____

Time	Position	Applicant's Actions or Behavior
	SRO	Respond to PK20-22 "125V DC BUS 11, 12 13 GROUND"
	SRO	Respond to PK04-21 "LETDOWN PRESS / FLO TEMP"
	RO/BOP	Observes letdown flow at zero and 8149C is closed.
	BOP	Contact I&C to investigate
	RO	Reduces charging to seals only
	SRO	Directs excess letdown to be placed in service.
	SRO	Tailboards reactivity change for placing excess letdown in service.
	BOP	Notifies Rad Protection to implement SPG-3.
	BOP/RO	Places letdown in service per OP B-1A:IV 1. Place or verify the excess letdown divert valve CVCS-1-8143 in the normal or divert position as required by plant operating conditions. 2. Open the CCW from Excess Letdown Heat Exchanger Isolation Valve FCV-361 at VB-1.. 3. Check Excess Letdown Pressure Control Valve HCV-123 CLOSED 4. Open 8166 and 8167 at VB2. 5. SLOWLY open HCV-123 to establish excess letdown flow. Do not exceed 190°F on TI-122, excess letdown temperature 6. Adjust HCV-123 as necessary for letdown flow requirements. 7. Reduce demand on FCV-128 while adjusting RCP seal injection flow to maintain between 8 GPM and 13 GPM per RCP using HCV-142, until HCV-142 is fully closed. 8. Maintain RCS inventory control using HCV-123 as applicable.
	SRO	Refers to T.S. 3.6.3 Containment Isolation Valves after call received that 8149C solenoid has a short causing the ground.

Op-Test No.: _LO61C-BU__ Scenario No.: __BU__ Event No.: _4_ Page _4_ of _7_

Event Description: __Pzr Spray controller fails high _____

Time	Position	Applicant's Actions or Behavior
	BOP/RO	Diagnoses PCV-455B open due to high controller demand
	RO	****** Takes manual control of PCV-455B controller**
		And reduces demand to close Pzr Spray valves.
	RO	Turns on backup heaters to restore pressure.
	SRO	Contacts maintenance about PCV-455B failure.
		****** Dentotes critical task**

Op-Test No.: _LO61C-BU__ Scenario No.: __BU__ Event No.: _5 & 6_ Page _5_ of _7_

Event Description: __ Steam line break on S/G 12 inside containment

Time	Position	Applicant's Actions or Behavior
	SRO	Enters E-0
	ALL	Perform remaining immediate actions of E-0 "Reactor Trip or Safety Injection"
		• VERIFY reactor tripped • VERIFY turbine tripped • VERIFY vital 4kV buses energized • CHECK SI – Actuated
	BOP/RO	Announces Adverse Containment Criteria met.

Op-Test No.: _LO61C-BU_ _ Scenario No.: __BU_ _ Event No.: _6& 7_ Page _6_ of _7_

Event Description: __ Phase A components and and FCV-42 fails to close automatically _____

Time	Position	Applicant's Actions or Behavior
	RO	Implement Appendix E, ESF Auto Actions, Secondary And Auxiliaries Status
		• VERIFY Phase A, Cont. Vent Isol., SI actuated properly – ****must manually align phase A Train A components
		• VERIFY MFW Isol,
		• Verify Containment Spray, • MSL Isol response correct ****** Must manually close FCV-42 (S/G 12 MSIV)**
		• CHECK ECCS flow and VERIFY pump operation
		• Isolates Excess letdown (8166 & 8167)
		• VERIFY two trains CCW
		****** Dentotes critical task**

Op-Test No.: _LO61C-BU_ _ Scenario No.: __BU_ _ Event No.: __ **Page _7_ of _7_**

Event Description: __Steam line break isolation and S.I. termination_____

Time	Position	Applicant's Actions or Behavior
	SCO	Transitions to E-2
	SCO	Implements F-0; monitors CSFST's
	BOP	Isolates S/G 1-4
		• Verify Faulted S/Gs Mn Fdwtr Isol Vlvs - CLOSED
		• Verify Faulted S/Gs Blowdown Isol Vlvs - CLOSED
		• Verify Faulted S/Gs 10% Steam Dump Vlv - CLOSED
		• ****** Verify Faulted S/Gs AFW System Control Vlvs - CLOSED**
		• ****** Verify Steam Supply Valves from Faulted S/Gs to TD AFW Pp – CLOSED (Close FCV-37)**
		• Verify AFW flow available to at least one intact S/G
	BOP	REMOVE Subcooled Margin Monitor Input From S/G 1-2
	SRO	Checks for a ruptured S/G
	SRO	Checks if ECCS flow should be reduced.
	SCO	Transitions to E-1.1
	RO	Resets SI
	RO	stops all but one CCP
	BOP	isolates charging injection
	RO	Establishes normal charging flow
		Terminate scenario after normal charging established.
		****** Dentotes critical task**

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES

A. Crew increases power to 8% using control rods.

B. CCW pump 12 trips on overcurrent at 6.5% power. They will respond per AR PK01-09, resolving the problem by placing CCW pump 13 in service.

C. 8149C ground causes a letdown isolation. Crew responds per AR PK04-21 and places excess letdown in service.

D. Pzr Spray controller for PCV-455B fails high in auto. RO takes manual control of PCV-455B and restores pressure control..

E. A Steam line break occurs on S/G 12 inside containment. This will require a reactor trip. A safety injection will occur due to low steamline pressure.

F. On the Safety Injection, FCV-42 doesn't automatically close, and must be isolated by the operator.

G. On the Safety Injection, train A of Phase A does not actuate. The operator must align Phase A components manually.

H. The crew will transition from E-0 to E-2, and to E-1.1 to terminate S.I.

I. The scenario is terminated after normal charging is established in E-1.1.

ATTACHMENT 1 - SIMULATOR SET-UP

TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
Setup Simulator per Checklist	Init 599	4% power, MOL, MFW in service, C_B = 1202 • Integrators: BA - 0 and PW –100 • Tags: None
Setup	Drill 81	Reset normal engineering values

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 100 gal, Boron = 0 gal.
- ☐ Record PPC MAX (BOL = 99.8, MOL = 100.0, **EOL = 100.2**) on CC2 lamicoid
- ☐ The plant Abnormal Status Board is updated with last CCP C_B near 1202 and current date.
- ☐ Circuit breaker flags are correct.
- ☐ Equipment status lamicoids are correct:

B.A. XFER PP SUPPLYING BLENDER	**- BA Pp 1-2**
SUPPLYING IN-SERVICE SCW HX	**- CWP 1-1**
AUTO RECLOSE FEATURE CUTIN ON THIS CWP	**- CWP 1-1**
SELECTED TO BUS 2F	**- Cont. Rm. Vent Train 1 Bus F**
SELECTED TO BUS 1H	**- Cont. Rm. Vent Train 1 Bus H**

- ☐ The proper Delta-I curve and Reactivity Handbook for the simulator **INIT** are in place
- ☐ The Rod Step Counters indicate correctly.
- ☐ PPC Setup:
  - o QP TAVG, ALM/MODE-1, QP CHARGING, BIG U1169
  - o RBU is updated.
  - o PEN running.
  - o R2B blowdown flows at 90 gpm.
  - o Reactor trip status correct [1](Pg 2 of Group display Mode-1).
  - o Operational mode correct for current conditions.[2]
  - o Delta-I target slope matches Delta-I curve (DeltaI menu →Option 5, constants K0500-0503=100% power target DeltaI / 100)
- ☐ SPDS (screens and time updating), A screen "RM", B screen "SPDS".
- ☐ The chart recorders are operating properly, and advanced.
- ☐ All typewriters are on, with adequate paper/ribbon/etc., and are in the "**ON LINE**" status.
- ☐ The Annunciator Horn is on **(BELL ON)**.
- ☐ Sound Effects are on **(SOUND ON).**
- ☐ **The video and audio systems are SECURED.**

Communications systems are turned on and functional

[1] If not correct, place PPC display in ovrd mode, and press add/omit key. Type point Y0006D and select F2 to restore processing. This should update the trip breaker status.

[2] Allow about ten minutes for the PPC to automatically update the plant mode. If still not correct, place PPC display in ovrd mode, and type APMC. Follow menu to manually override to correct mode.

TIMELINE AND INSTRUCTOR ACTIONS FOR SIMULATION

X = manual entry required

X	0 min	DRILL 6610	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below)
	0 min	mal ppl1a act,2,0,0,d,0	Phase A train A fails to actuate on SI
	0 min	vlv mss8 1,0,0,0,d,XV3I184C	FCV-42 doesn't close automatically, will close by VB3 control switch
	>6.5% power	Pmp ccw2 6,7.02,5,0, C,fnispr.gt.6.5	CCW pump 12 trips on overcurrent
X	**When requested**	**CCW pp 12 motor hot to touch, B phase overcurrent flag dropped at breaker**	
	30 min after CCW pp 12 trips	ser 1147 act,1,0,1798,c,XV1O245B,3	Ground alarm on Batt 11, clears after 3 seconds
		ovr xv2i214c act,1,0,1800,c,XV1O245B,0	8149C closes
X	**Maintenance**	**Notify control room that 8149c Solenoid has short causing ground, valve has failed closed and will not operate until repaired.**	
	30min after HCV-123 open	cnh pzr2 6,1,5,1800, c,rcvh123.gt.0.1	PCV-455b goes high in auto
	30 min after PCV-455B fails high	mal mss2b act 9e+06,120,1800,c,xcnh455f.gt.0.7	steam line break on S/G 12 Inside cnm
	After RX trip PA	Drill 32	NO Action on reactor trip

```
* NRC L082 Scenario 1
* glh1,8/14/08
* use 30 min time delays to allow nrc to direct events
*
* use snap 599 4% mol with mfw in service.
*
* at op l-3 6.26, pull rods to go to 8% power
*
* CCW 12 oc trip at 6.5%
pmp ccw2 6,7.02,5,0,c,fnispr.gt.6.5  #occp11
*
* 8149C ground after ccw pp 13 started
*   causes ground alarm on dc bus 11 until fuse blows
ser 1147 act,1,0,1798,c,XV1O245B,3
ovr xv2i214c act,1,0,1800,c,XV1O245B,0
*
* pcv-455b goes high in auto after hcv-123 open
cnh pzr2 6,1,5,1800,c, rcvh123.gt.0.1, #xcnh455f
*
* FCV-42 S/G 12 MSIV must be closed manually
vlv mss8 1,0,0,0,d,XV3I184C  #rmsf042
*
* steam line break on S/G 12 Inside cnm after pcv-455b fails high
mal mss2b act 9e+06,120,1800,c,xcnh455f.gt.0.7,
*
* No phase A on SI, must be done manually
mal ppl1a act 2,0,0,d,0
```

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**4**	**%**
GROSS GENERATION:	**0**	**MWe**
NET GENERATION	**0**	**MWe**
DAYS AT POWER:	**120**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	Green
PROTECTED EQUIPMENT:	Train A/B, Bus F,G,&H, Prot. Sets I, II,III,IV
HOMELAND SECURITY THREAT LEVEL:	YELLOW
GRID STATUS NEXT SHIFT:	Normal
AVERAGE RCS CALCULATED LEAKRATE:	0.05 gpm

URGENT WORK:

* None

ACTIVE SHUTDOWN TECH SPECS / ECGS:

* None

.

TURNOVER ITEMS:

* Plant Startup in progress after going to mode 3 to replace Governor Valve 4 valve plug. Plant was in mode 3 for 36 hours. Power ascension to 8% was stopped at 4% due to a CFCU 14 hi vibration. Investigation showed dirty alarm contacts, which have been cleaned and CFCU 1-4 has been restarted**.** Continue plant startup per OP L-3 6.26, pull rods to go to 8% power.

OPERABILITY ITEMS:

* None

PRIORITY ITEMS FOR NEXT SHIFT:

* Continue with plant startup per L-3.

ANNUNCIATORS IN ALARM

* Numerous

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: MOL
   b. Power History: At 4%
   c. Boron concentration is 1202 ppm from a sample taken 2 hours ago.
   d. Use rods to continue power ascension to 8% per OP L-3 6.26.

2. No one is in Containment, no entries are expected

3. U-2 is operating at 100% power

COMPENSATORY MEASURES:

None

CONTROL ROOM ABNORMAL STATUS

See Abnormal Status Board.