Facility: DCPP **Date of Examination:** 02 April 2007
Examination Level: RO **Operating Test Number:** NRCADM051R

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations NRCADM051-501A	R/N	Startup Verifications per OP L-2 Step 6.1.14
Conduct of Operations NRCADM051-301A	R/D	PZR Loop Seal Monthly Checks per STP-I-1D
Equipment Control NRCADM051-503	R/N	Determine Clearance Points
Radiation Control NRCADM051-504 (RO/SRO)	R/N	Stay Time Determination
Emergency Plan	N/A	N/A

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

*** Type Codes & Criteria:**

(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: DCPP **Date of Examination:** 19 March 2007
Examination Level: SRO **Operating Test Number:** NRCADM051S

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations NRCADM051-501B	R/N	Verify Startup Checks per OP L-2 step 6.1.14
Conduct of Operations NRCADM051-301B	R/D	PZR Loop Seal Monthly Checks per STP-I-1D
Equipment Control NRCADM051-502	R/N	IPTE Determination per OP1.ID4
Radiation Control NRCADM051-504 (RO/SRO)	R/N	Stay Time Determination
Emergency Plan NRCADM051-150	R/M	Offsite Dose Assessment EP-R2

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

*** Type Codes & Criteria:**

(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-501A

Title: Startup Verifications

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for RO Candidates in a classroom setting.

References: OP L-2, Hot Standby to Startup Mode, Rev. 36
Vol. 9 Table R19-1T-1, Rev. 17

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 25 minutes

Critical Steps: 1.1,1.2, 1.3, 2.1

Job Designation: RO

Task Number: Generic K/A 2.1.23

Rating: 3.9

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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 L-2, Hot Standby to Startup Mode, Rev. 36 Vol. 9 Table R19-1T-1, Rev. 17
Initial Conditions:	Unit 1 is in MODE 3, preparing for Startup per OP L-2. Current ECP is 135 steps on Control Bank D, cycle 14.
Initiating Cue:	The Shift Foreman has directed you to perform step 6.1.14 of OP L-2.
Task Standard:	**DO NOT READ TO STUDENTS:** Step 6.1.14 of OP L-2 is completed.

Start Time: _____

	Step		Expected Operator Actions
**	1. Calculate rod withdrawal hold points using Attachments 9.1 and 9.2.	**	1.1 Determines ARO = 228.
		**	1.2 Determines ECP-100 = D @ 35
		**	1.3 Determines RIL = C @ 55
			1.4 Determines ECP = D @ 135
			1.5 Determines ECP + 100 = D @ 228
			Step was: Sat: _____ Unsat _____*
**	2. Completes form for remaining hold points using 50 step increments.	**	2.1 Determines 50 step hold points per answer key: • CBA: 0,50,100,150,200 • CBB: 22,72,122,172,183 • CBC: 44, 55(RIL), 105, 155, 163, 213 • CBD: 27, 35(ECP-100), 85, 135(ECP), 228(ARO)
			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 in MODE 3, preparing for Startup per OP L-2. Current ECP is 135 steps on Control Bank D, cycle 14.

Initiating Cue: The Shift Foreman has directed you to perform step 6.1.14 of OP L-2.

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

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-501B

Title: Startup Verifications

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for SRO Candidates in a classroom setting.

References: OP L-2, Hot Standby to Startup Mode, Rev. 36
Vol. 9 Table R19-1T-1, Rev. 17

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 25 minutes

Critical Steps: 1.1, 1.2, 1.3, 1.4, 2.1

Job Designation: SRO

Task Number: Generic K/A 2.1.23

Rating: 4.0

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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: OP L-2, Hot Standby to Startup Mode, Rev. 36

Vol. 9 Table R19-1T-1, Rev. 17

Initial Conditions: Unit 1 is in MODE 3, preparing for Startup per OP L-2. Current ECP is 135 steps on Control Bank D, cycle 14.

Initiating Cue: Review step 6.1.14 of OP L-2 which had been performed by the Control Room Operator, and make any necessary corrections.

Task Standard: **DO NOT READ TO STUDENTS:** Step 6.1.14 of OP L-2 is reviewed and corrected as needed.

Start Time: _____

	Step		Expected Operator Actions
**	1. Verify rod withdrawal hold points using Attachments 9.1 and 9.2.	**	1.1 Verifies ARO = 228.
		**	1.2 **Determines ECP-100 = D @ 35 and corrects Att. 9.1**
		**	1.3 Verifies RIL = C @ 55
		**	1.4 **Determines ECP = D @ 135 and corrects Att. 9.1**
			1.5 Verifies ECP + 100 = D @ 228
			Step was: Sat: _____ Unsat _____*
**	2. Verify form for remaining hold points using 50 step increments and make corrections as needed.	**	2.1 Determines 50 step hold points per answer key and makes corrections to ECP-100 and ECP: • CBA: 0,50,100,150,200 • CBB: 22,72,122,172,183 • CBC: 44, 55(RIL), 105, 155, **163, 213** • CBD: 27, **35(ECP-100), 85, 135(ECP),** 228(ARO)
			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 in MODE 3, preparing for Startup per OP L-2. Current ECP is 135 steps on Control Bank D, cycle 14.

Initiating Cue: Review step 6.1.14 of OP L-2 which had been performed by the Control Room Operator, and make any necessary corrections.

Task Standard: **DO NOT READ TO STUDENTS:** Step 6.1.14 of OP L-2 is reviewed and corrected as needed.

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

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-301A

Title: PZR LOOP SEAL MONTHLY CHECKS

Examinee: _____

Evaluator: _____ _____ _____

Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for RO Candidates.

Use pictures from PowerPoint of same file name.

References: STP I-1D, Modes 1,2 and 3 Monthly Checks, Rev. 73
AR PK05-23, PZR Safety or Relief Line Temp, Rev. 17
T.S. 3.4.10, PZR Safety Valves

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 2.1, 3.2, 3.3

Job Designation: RO

Task Number: G2.1.33

Rating: 3.4

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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: STP I-1D, Modes 1,2 and 3 Monthly Checks

AR PK05-23, PZR Safety or Relief Line Temp

T.S. 3.4.10, PZR Safety Valves

PPC Picture

Ronan Picture

Initial Conditions: Unit 1 is at 100% power.

Initiating Cue: The Shift Foreman has directed you to perform STP I-1D, Monthly Checks on Loop Seal Temperatures, and to perform or identify all appropriate actions, document the results, and report those to the SFM.

Task Standard: **DO NOT READ TO STUDENTS:** The STP, and all appropriate actions, are identified or completed, and results documented for report back to the SFM.

Start Time: _____

	Step		Expected Operator Actions
	1. Document data for STP I-1D Safety Valve Loop Seal Temps.	1.1	Documents temperatures from PPC picture on STP-I-1D for T1469A, T1468A, T1467A, T1466A, T1465A, and T1464A.
		1.2	Notes T1469A, T1468A, T1465A, and T1464A are ≤ 500° and ≥ 221°.
			Step was: Sat: _____ Unsat _____*
**	2. Determine Out of Specification parameter.	** 2.1	Determines T1466A and T1467A are ≤ 221°.
		2.2	References AR PK05-23.
		2.3	Contact system engineer to evaluate
			Step was: Sat: _____ Unsat _____*
**	3. Perform AR PK05-23.	3.1	Determines step 5.8.1.e applies.
		** 3.2	Determines that loop seal temperatures are ≤ 221° and that TS 3.4.10 applies.
		** 3.3	Determines All PZR Safety Valves should be declared inoperable.
			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.

Answer Sheet
Determines T1466A and T1467A are ≤ 221°. Determines that loop seal temperatures are ≤ 221° and that TS 3.4.10 applies. Determines All PZR Safety Valves should be declared inoperable.

Initial Conditions: Unit 1 is at 100% power.

Initiating Cue: The Shift Foreman has directed you to perform STP I-1D, Monthly Checks on Loop Seal Temperatures, and to perform or identify all appropriate actions, document the results, and report those to the SFM.

Document your findings and feedback to the SFM here

- ❑ The simulator is not needed for the performance of this JPM.
- ❑ To setup the PPC for simulator use if desired, do the following:
- ❑ Use any at-power snap
- ❑ In the Expert Screen, enter:
  - ❑ Ramp tprssvls(1)=temp,0,0,0,d,0
  - ❑ Do this for instruments (1) through (3)
  - ❑ Temp (temperature of loop seal you want) should be varied according to original temperatures, ensuring one instrument is below the alarm setpoint of 221°F.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-301B

Title: PZR LOOP SEAL MONTHLY CHECKS

Examinee: _____

Evaluator: _____ _____ _____

Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for SRO Candidates.

Use pictures from PowerPoint of same file name.

References: STP I-1D, Modes 1,2 and 3 Monthly Checks, Rev. 73
AR PK05-23, PZR Safety or Relief Line Temp, Rev. 17
T.S. 3.4.10, PZR Safety Valves

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 2.1, 3.4, 5.1

Job Designation: SRO

Task Number: G2.1.33

Rating: 4.0

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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: STP I-1D, Modes 1,2 and 3 Monthly Checks

AR PK05-23, PZR Safety or Relief Line Temp

T.S. 3.4.10, PZR Safety Valves

PPC Picture

Ronan Picture

Initial Conditions: Unit 1 is at 100% power. During the performance of the monthy checks on loop seal temperatures per STP I-1D, AR PK05-23, PZR Safety Loop Seal Temp Hi/Lo, input 0008 alarmed. Action to contact System Engineering has been completed.

Initiating Cue: As the Shift Foreman, review the completed checks on PZR Safety Valve Loop temperatures and identify any required actions.

Task Standard: **DO NOT READ TO STUDENTS:** The results of the STP I-1D for the Pressurizer Safety Loop Seal Temperatures is reviewed and required actions identified as needed.

Start Time: _____

	Step		Expected Operator Actions
	1. Review STP I-1D checklist for Safety Valve Loop Seal Temps.	1.1	Notes T1469A, T1468A, T1465A, and T1464A are ≤ 500° and ≥ 221°.
			Step was: Sat: _____ Unsat _____*
**	2. Determine Out of Specification parameter.	** 2.1	Determines T1466A and T1467A are ≤ 221°.
		2.2	Determines AR PK05-23 must be referenced.
		2.3	Contact system engineer to evaluate.
			Step was: Sat: _____ Unsat _____*
**	3. Reviews AR PK05-23.	3.1	Determines step 5.8 applies.
		3.2	Displays PPC group "PK05-23"
			**********
			Cue: Give picture of GRPDIS PK05-23.
			**********
		3.3	Determines step 5.8.1.e applies.
		** 3.4	Determines that loop seal temperatures are ≤ 221° and that TS 3.4.10 applies.
		3.5	Declares All PZR Safety Valves inoperable.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

	4. Apply TS 3.4.10.		4.1 References T.S. 3.4.10. 4.2 Determines Condition B applies with two or more safety valves inoperable. **Step was: Sat: _____ Unsat _____***
**	5. Determine operability.	**	5.1 Determines Required Action is to be in Mode 3 in 6 hours and Mode 4 in 12 hours. **Step was: Sat: _____ Unsat _____***

Stop Time: _____

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

Answer Sheet
Determines T1466A and T1467A are ≤ 221°. Determines that loop seal temperatures are ≤ 221° and that TS 3.4.10 applies. Determines All PZR Safety Valves should be declared inoperable. Determines Required Action is to be in Mode 3 in 6 hours and Mode 4 in 12 hours.

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

Initial Conditions: Unit 1 is at 100% power. During the performance of the monthy checks on loop seal temperatures per STP I-1D, AR PK05-23, PZR Safety Loop Seal Temp Hi/Lo, input 0008 alarmed. Action to contact System Engineering has been completed.

Initiating Cue: As the Shift Foreman, review the completed checks on PZR Safety Valve Loop temperatures and identify any required actions.

Write Answer Here

- ❑ The simulator is not needed for the performance of this JPM.
- ❑ To setup the PPC for simulator use if desired, do the following:
- ❑ Use any at-power snap
- ❑ In the Expert Screen, enter:
  - ❑ Ramp tprssvls(1)=temp,0,0,0,d,0
  - ❑ Do this for instruments (1) through (3)
  - ❑ Temp (temperature of loop seal you want) should be varied according to original temperatures, ensuring one instrument is below the alarm setpoint of 221°F.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-503

Title: Determine Clearance Points

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for RO Candidates in a classroom setting.

References: OP D-1:III, AFW Shutdown and Clearing, Rev. 16
OVID 106703, Sheet 3, Rev. 71
Electrical Print 437903, Rev. 39
Electrical Print 437533, Rev. 35

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 20 minutes

Critical Steps: 1, 2, 3

Job Designation: RO

Task Number: G 2.2.13

Rating: 3.6

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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 D-1:III, AFW Shutdown and Clearing

OVID 106703, Sheet 3, Rev. 71

Electrical Print 437903, Rev. 39

Electrical Print 437533, Rev. 35

Color Pens and Highlighters

Initial Conditions: Unit one is at 100% power. Maintenance is planned for AFW Pump 1-2 to replace the pump seals. A clearance requiring the pump to be deenergized from all sources of energy is required.

Initiating Cue: The Work Control Shift Foreman has directed you to identify all clearance points and their respective position for this clearance, documenting them on the appropriate OVID with clear and understandable notations. Use color coding if necessary.

Task Standard: **DO NOT READ TO STUDENTS:** All clearance points are identified with required position, and documented on the appropriate OVID with clear and understandable notations, and color coded as necessary.

Start Time: _____

	Step		Expected Operator Actions
**	1. Identify breakers needing positioned for isolation of the MDAFWP.	**	1.1 Identifies the following breakers to be OPENED: • 52-HH-8 (motor) • PJ 14-1 BKR 15 (motor heater) **Step was: Sat: _____ Unsat _____***
**	2. Identify valves requiring to be closed to isolate the MDAFWP.	**	2.1 Identify the following valves CLOSED: • FW-1-162 suction valve • FW-1-168 recirc valve • FW-1-169 discharge valve • FW-1-173 chem injection valve • FW-1-179 equalizing valve **Step was: Sat: _____ Unsat _____***
**	3. Identify valves requiring to be opened to isolate the MDAFWP.	**	3.1 Identify the following valves OPEN. • FW-1-163 pump casing drain • FW-1-165 pump casing vent • FW-1-167 recir line drain **NOTE: May CAUTION tag pump control switch, but not required.** **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 one is at 100% power. Maintenance is planned for AFW Pump 1-2 to replace the pump seals. A clearance requiring the pump to be deenergized from all sources of energy is required.

Initiating Cue: The Work Control Shift Foreman has directed you to identify all clearance points and their respective position for this clearance, documenting them on the appropriate OVID with clear and understandable notations. Use color coding if necessary.

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

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-502

Title: Perform IPTE Determination

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for SRO Candidates in a classroom setting.

References: STP M-16Q7,Main Feedwater Control and Bypass Valve Time Response Determination, Rev. 5

OP1.ID4, Conduct of Infrequently Performed Tests or Evolutions, Rev. 0

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 20 minutes

Critical Step: 4 or 6

Job Designation: SRO

Task Number: Generic K/A 2.2.9

Rating: 3.3

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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: STP M-16Q7,Main Feedwater Control and Bypass Valve Time Response Determination, Rev. 5

OP1.ID4, Conduct of Infrequently Performed Tests or Evolutions, Rev. 0

Initial Conditions: Unit one is at 8% power. Questions concerning Main Feedwater Bypass Valve FCV-1510 operability due to maintenance during the shutdown period will be resolved by performing portions of STP M-16Q7, "Main Feedwater Control and Bypass Valve Time Response Determination"

Modifications to the performance of this procedure through the work planning process include:

- Swap control of feedwater from bypass valves to the main control valves by placing the main control valves to auto, slowly closing the feed bypass valves, and when feed control is verified, closing the bypass valve isolation to allow valve operation independent of the plant.

- Lifting leads from the slave relay for all valves but the bypass valves to prevent their operation.

The risk assessment per MA1.DC11, Risk Assessment, was determined to be a Medium Risk level, requiring only Shift Foreman approval on the risk assessment.

Initiating Cue: The Shift Manager has directed you to perform a screen per OP1.ID4 to determine whether the test should be considered an IPTE.

Task Standard: **DO NOT READ TO STUDENTS:** The screen is completed per OP1.ID4, determining whether the test is an IPTE or not.

Start Time: _____

Step	Expected Operator Actions
1. Evaluate Step One of Att. 7.1 of OP1.ID4	1.1 Determines STP M-16Q7 is performed every 24 months 1.2 Determines step 1 is YES **Step was: Sat: _____ Unsat _____***
2. Evaluate Step Two of Att. 7.1 of OP1.ID4	2.1 Determines step 2.a is Yes NOTE: Step 2.b-d could vary **Step was: Sat: _____ Unsat _____***
3. Evaluate Step Three of Att. 7.1 of OP1.ID4.	3.1 Determines step 3.a is YES 3.2 Determines step 3.b is YES 3.3 Determines step 3.c is YES NOTE: Steps 3.d-e could vary **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

**	4. Evaluate Step Four of Att. 7.1 of OP1.ID4.	**	4.1 Determines from Step 4 that the evolution should be classified as an IPTE. **Step was: Sat: _____ Unsat _____***
	5. Evaluate Step Five of Att. 7.1 of OP1.ID4.		5.1 Determines step 5 is YES **Step was: Sat: _____ Unsat _____***
**	6. Evaluates Step 6 of Att. 7.1 of OP1.ID4	**	6.1 Determines from step 6 that the evolutions should be classified as an ITPE. **Step was: Sat: _____ Unsat _____***
			NOTE: Either step 4 or 6 may be used as the critical task as long as the evolution is considered to be an IPTE and justified.

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 one is at 8% power. Questions concerning Main Feedwater Bypass Valve FCV-1510 operability due to maintenance during the shutdown period will be resolved by performing portions of STP M-16Q7, "Main Feedwater Control and Bypass Valve Time Response Determination"

Modifications to the performance of this procedure through the work planning process include:

- Swap control of feedwater from bypass valves to the main control valves by placing the main control valves to auto, slowly closing the feed bypass valves, and when feed control is verified, closing the bypass valve isolation to allow valve operation independent of the plant.

- Lifting leads from the slave relay for all valves but the bypass valves to prevent their operation.

The risk assessment per MA1.DC11, Risk Assessment, was determined to be a Medium Risk level, requiring only Shift Foreman approval on the risk assessment.

Initiating Cue: The Shift Manager has directed you to perform a screen per OP1.ID4 to determine whether the test should be considered an IPTE.

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

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-504

Title: Calculate Stay Time

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: Designed for RO and SRO Candidates in a classroom setting.

References: RP1.ID6, Personnel Dose Limits and Monitoring Requirements, Rev. 7

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 5 minutes

Critical Steps: 3.3

Job Designation: RO/SRO

Task Number: Generic K/A 2.3.4

Rating: 2.5 / 3.1

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

REVIEWED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: _____ DATE: _____
TRAINING LEADER

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: RP1.ID6, Personnel Dose Limits and Monitoring Requirements, Rev. 7 Attachment 8.1

Initial Conditions: The Work Control Shift Foreman (WCSFM) has requested you to hang a clearance in an area where the known radiation dose rate is 425 mrem/hr. Your current year exposure history, according to your NRC Form 4 is as follows:

- Committed Dose Equivalent (CDE) 20 mrem
- Committed Effective Dose Equivalent (CEDE) 100 mrem
- Deep Dose Equivalent (DDE) 200 mrem
- Eye Dose Equivalent (LDE) 15 mrem
- Shallow Dose Equivalent (SDE) 10 mrem

Initiating Cue: The WCSFM has directed you to determine your maximum stay time in the High Radiation Area while hanging clearance before exceeding the DCPP Administrative Dose Guideline for Whole Body Total Effective Dose Equivalent (TEDE).

Task Standard: **DO NOT READ TO STUDENT:** Maximum Stay time is calculated.

Start Time: _____

	Step		Expected Operator Actions
	1. Determine TEDE	1.1	TEDE = DDE + CEDE
		1.2	TEDE = 200 mrem + 100 mrem
		1.3	TEDE = 300 mrem
			Step was: Sat: _____ Unsat _____*
	2. Determine DCPP Administrative Limits for TEDE	2.1	Determines DCPP Administrative Limit for TEDE = 4500 mrem
		2.2	Determines DCPP Adminstrative Guideline for TEDE = 2000 mrem
		2.3	Determine **MARGIN** to Administrative Guideline is:
			2000 – 300 = 1700 mrem
			Step was: Sat: _____ Unsat _____*
**	3. Determine maximum stay time	3.1	Stay time = Margin / Dose Rate
		3.2	Stay time = 1700 mrem / 425 mrem/hr
		** 3.3	Stay time = 4 hours
			ACCEPTABLE TIME: 3.8 – 4.0 hours
			Step was: Sat: _____ Unsat _____*

Stop Time: _____

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

* Denotes an entry required on the JPM cover sheet.

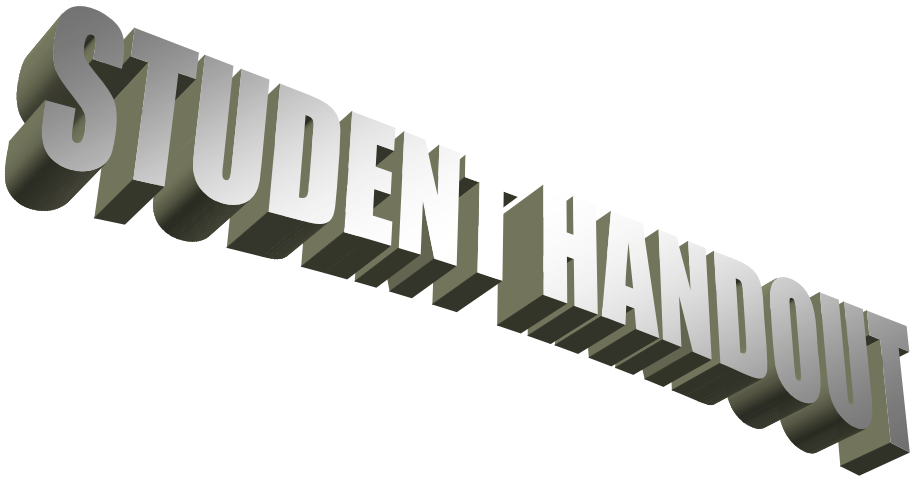
** Denotes a Critical Step.

Initial Conditions: The Work Control Shift Foreman (WCSFM) has requested you to hang a clearance in an area where the known radiation dose rate is 425 mrem/hr. Your current year exposure history, according to your NRC Form 4 is as follows:

- Committed Dose Equivalent (CDE) 20 mrem
- Committed Effective Dose Equivalent (CEDE) 100 mrem
- Deep Dose Equivalent (DDE) 200 mrem
- Eye Dose Equivalent (LDE) 15 mrem
- Shallow Dose Equivalent (SDE) 10 mrem

Initiating Cue: The WCSFM has directed you to determine your maximum stay time in the High Radiation Area while hanging clearance before exceeding the DCPP Administrative Dose Guideline for Whole Body Total Effective Dose Equivalent (TEDE).

Document Your Answer Here



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

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCADM051-150

Title: PERFORM AN OFF-SITE DOSE ASSESSMENT - SGTR WITH A 10% STEAM DUMP LIFT

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: EP R-2, Attachment 10.1 & 10.2 answer key is included for evaluator use
Modified LJC-150, designed for Classroom or Control Room.

References: EP R-2, Release of Airborne Radioactive Materials Initial Assessment, Rev. 23

EP G-1, Accident Classification and Emergency Plan Activation, Rev. 34

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 30 minutes

Critical Steps: 2.6, 3.9, 3.10, 5.1

Job Designation: SRO

Task Number: Generic K/A 2.4.41

Rating: 4.1

AUTHOR: JACK L BLACKWELL DATE: 02/28/2007

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 and initiating cue. 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

EP R-2, Release of Airborne Radioactive Materials Initial Assessment

EP G-1, Accident Classification and Emergency Plan Activation

PPC Pictures

Initial Conditions: Unit 1 has experienced a SGTR in Steam Generator 14. Vacuum has been broken. EOP E-3 is in progress, with early isolation completed for Steam Generator 14. The 10% steam dump on steam generator 14 has been open for 15 minutes and has just been isolated locally.

Initiating Cue: The Shift Manager directs you to perform a dose assessment and recommend an emergency classification, based on your dose assessment. The PPC program for R-2 calculations is unavailable.

Task Standard: **DO NOT READ TO STUDENTS:** Dose assessment is completed and a recommendation is made for the emergency classification.

Start Time: _____

	Step		Expected Operator Actions
	1. Obtain the correct procedure.	1.1	References EP R-2.
			Step was: Sat: _____ Unsat _____*
**	2. Determine the total effluent release rate.	2.1	References Attachment 10.1, page 2, of EP R-2, leaving page one blank (only applicable for plant vent releases).
		2.2	Fills out section 1 and notes the CAUTION referencing RE-74 readings.
		2.3	Determines RE-74 reading from PPC trend recorder photo provided at 225.
		2.4	Determines SG level from picture of LI-547 to be approximately 80%.
		2.5	Determines SG flowrate < 4E5 lbs/hr, and enters 4.0E+05 per the instructions in section 2A.
		** 2.6	Uses section 2A or 2B alternate steam flow rate of 4.0 E+5 lbm/hr. (section 2A and 2B may both indicate 4.0E+05 lbm/hr, but only one of them must have this value for the critical step)
		2.7	Determines monitor factor is 6.75 E-10 for NORMAL S/G leve in section 3l.
		2.8	Determines total effluent release rate of 0.06075 ci/sec (6.075E-02 Ci/sec) in section 4.
		2.9	Ignores the DEFAULT release rate page 3 (leaves blank) and goes to attachment 10.2.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	3. Perform dose calculations.		3.1 References Attachment 10.2 of EP R-2.
			3.2 Fills out section 1.
			3.3 Obtains met data from PPC picture provided.
			3.4 Determines Wind Speed @ 10M level is 2.6 meters/sec.
			3.5 Determines Wind Direction @ 10M level is 200 Degrees.
			3.6 Determines Site Boundary X/Q @ 0.8km is 3.93 E-4 sec/m^3.
			3.7 Determines DCF to be for (SG - Normal).
			3.8 Calculates projected release duration as 15/60.
		**	3.9 Calculates TEDE rate of 1.026 mR/hr (1.013 – 1.031), and a TEDE total dose of 0.2565 mR (0.25325 – 0.25775).
		**	3.10 Calculates thyroid CDE rate of 3.581 mRem/hr (3.530 – 3.596) and a total dose of 0.895 mRem (0.882 – 0.899).
			Step was: Sat: _____ Unsat _____*
	4. Obtain the correct procedure.		4.1 References EP G-1, Attachment 7.1.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
****	5. Recommends event classification	**	5.1 Recommends event classification as an ALERT. (Based on dose RATE being exceeded) (G-1, ALERT #4 or ALERT #25)

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 SGTR in Steam Generator 14. Vacuum has been broken. EOP E-3 is in progress, with early isolation completed for Steam Generator 14. The 10% steam dump on steam generator 14 has been open for 15 minutes and has just been isolated locally.

Initiating Cue: The Shift Manager directs you to perform a dose assessment and recommend an emergency classification, based on your dose assessment. The PPC program for R-2 calculations is unavailable.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Setup PPC Trnd on Quick Plot (or other type of plot) to trend RM-74 (QP SGLEAK)
- ❑ Enter drill file 6150 or manually insert the following:

Command	Description
1. audio off	turns off sound gen during setup
2. xmt rms43 5,225,0,0,d,0	Set RM-43 high limit to 225 cpm
3. mal rcs4d act,100,0,0,d,0	100 gpm SG 14 tube leak
4. mal ppl2a act,0,0,10,d,2	Inadvertent SI, train A
5. mal ppl2b act,0,0,10,d,2	Inadvertent SI, train B
6. cnv mss25 2,1,0,0,c,fnispr.lt.10,0	Fails PCV-22 SG 14 10% stm dump vlv open
7. xmt mfw40 3,81,120,0,c,fnispr.lt.10,0	SG 14 NR level (LI-547) to 81%
8. xmt mfw43 3,80,120,0,c,fnispr.lt.10,0	SG 14 NR level (LI-548) to 80%
9. xmt mfw46 3,79,120,0,c,fnispr.lt.10,0	SG 14 NR level (LI-549) to 79%
10. xmt mfw12 3,94,120,0,c,fnispr.lt.10,0	SG 14 WR level (LR-537) to 94%
11. set cmetchiq=3.93E-04	Sets CHI/Q @ 3.93E-04 at 0.8km
12. pmp cnd6 3,0,0,0,d,0	Blocks start on CB PP set PP 1-3
13. ovr xc3i224o ACT,1,0,0,c,fnispr.lt.10,0	Stops CND/BSTR PP 1-2
14. ovr xc3i194C ACT,1,0,0,c,fnispr.lt.10,0	Places FCV-53 in RECIRC
15. ovr xc3i197C ACT,1,0,0,c,fnispr.lt.10,0	Places FCV-54 in RECIRC
16. vlv afw3 2,0,0,0,d,0	Throttles AFW PP 1-1 LCVs
17. vlv afw4 2,0,0,0,d,0	"
18. vlv afw5 2,0,0,0,d,0	Throttles AFW PP 1-1 LCVs
19. vlv mss10 2,0,0,5,c,fnispr.lt.10,0	Closes MSIV 4
20. vlv sgb8 2,0,0,60,c,fnispr.lt.5,0	Closes I.C. blowdwn isol vlv (FCV-763)
21. vlv afw6 2,0,0,0,d,0	Closes AFW pp 1-1 LCV-109
22. cnv afw4 2,0,10,0,c,fnispr.lt.5,0	Places LCV-113 in manual and closes vlv
23. ovr xv3o152a act,0,0,10,c,fnispr.lt.5,0	"
24. ovr xv30152m act,0,0,10,c,fnispr.lt.5,0	"
25. run 900	Freezes simulator after 900 seconds

- ❑ Perform the following, while the simulator is running:
  1. Place FCV-53/54 in RECIRC.
  2. Place CND/BST pp set 1-3 in manual.
  3. Verify MSR vlvs are closed (hit RESET to close vlvs).
  4. Set PCV-22 10% steam dump pot to 8.67 turns.
  5. Cutout loop 4 WR TH on the PAM panel.
  6. turn the simulator SOUND ON
- ❑ Inform the examiner that the simulator setup is complete.
- ❑ EXAMINER'S DISCRETION: Go to RUN when the examinee is given the cue sheet.

Facility: _____DCPP_____ **Date of Examination:** __04/02/2007___
Exam Level: RO **Operating Test No.:** _____01_____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. 004 / Establish Emergency Boration NRCLJC051-063	A/D/E/L/P/S (L001)	01
b. 006 / Increase Accumulator Pressure NRCLJC051-077	D/S	02
c. 038 / Depressurize the RCS for SG Backfill NRCLJC051-049	D/E/L/S	03
d. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
e. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p
f. 022 / Place CFCU Drain Collection System In Service NRCLJC051-302	A/D/P/S (L001)	05
g. 062 / Transfer Bus G to Aux Pwr from DG 12 NRCLJC051-087	D/S	06
h. 015 / Remove Pwr Range Ch. N42 From Service NRCLJC051-051	D/S/P (L001)	07
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. 068 / Close SG Blowdown Iso Vlvs O.C. NRCLJP051-096	D/E/R	08
j. 062 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	06
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

@All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / **Shutdown**	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: _____DCPP_____ **Date of Examination:** __04/02/2007___
Exam Level: SRO-I **Operating Test No.:** _____01_____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b. 006 / Increase Accumulator Pressure NRCLJC051-077	D/S	02
c. 038 / Depressurize the RCS for SG Backfill NRCLJC051-049	D/E/L/S	03
d. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
e. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p
f. 022 / Place CFCU Drain Collection System In Service NRCLJC051-302	A/D/P/S (L001)	05
g. 062 / Transfer Bus G to Aux Pwr from DG 12 NRCLJC051-087	D/S	06
h. 015 / Remove Pwr Range Ch. N42 From Service NRCLJC051-051	D/S/P (L001)	07

In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. 068 / Close SG Blowdown Iso Vlvs O.C. NRCLJP051-096	D/E/R	08
j. 062 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	06
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

@All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / **Shutdown**	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: _____DCPP_____ **Date of Examination:** __04/02/2007___
Exam Level: SRO-U **Operating Test No.:** _____01_____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b.		
c.		
d. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
e. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p
f.		
g.		
h.		

In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. 068 / Close SG Blowdown Iso Vlvs O.C. NRCLJP051-096	D/E/R	08
j. 062 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	06
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

@All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / **Shutdown**	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCLJC051-063

Title: ESTABLISH EMERGENCY BORATION

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-6, Emergency Boration, Rev. 15

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 4.1, 4.3, 4.5

Job Designation: RO/SRO

Task Number: 01/004/A2.10

Rating: 3.9/4.2

AUTHOR: JACK BLACKWELL DATE: 02/27/2007

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 and initiating cue. 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 shutdown in MODE 3 and an unexplained increase in reactivity is causing source range counts to increase.

Initiating Cue: The Shift Foreman directs you to emergency borate.

Task Standard: **DO NOT READ TO STUDENTS**: Emergency boration has been established.

Start Time: _____

Step	Expected Operator Actions
1. Obtain the correct procedure.	1.1 References OP AP-6, Emergency Boration. 1.2 Reads NOTES prior to Step 1. **Note: This is an alternate path JPM. Emergency boration will be accomplished via the RWST due to FCV-110B and CVCS-8104 failing closed.** **Step was: Sat: _____ Unsat _____***
2. Initiate emergency boration using make-up controls.	2.1 Verifies charging in service. • PDP in service with normal amps, and flow approximately 87 gpm 2.2 Places VCT MODE-SELECT switch in the BORATE position. 2.3 Sets HC-110 (Boric Acid Flow Controller) pot setting to 9.0 turns. 2.4 Determines amount of boric acid required per Appendix A. **Note: Appendix A guidance is to borate until control is regained.** ********** **Cue: The SFM is referring to EOP FR-S.1 Appendix D to isolate dilution flow paths and directs you to continue emergency boration.** ********** 2.5 Sets desired gallons of boric acid using the BATCH function and data entry keys. 2.6 Press RESET and START keys to enable the integrator

* Denotes an entry required on the JPM cover sheet.
** Denotes Critical Step and Sub Steps.

Step	Expected Operator Actions
	2.7 Places makeup controller 1/MU to the START position and attempts to adjust HC-110 pot setting to 30 gpm boric acid. **Note: Operator may attempt to open FCV-110B manually.** 2.8 Receives PK05-11, CVCS Makeup Deviation Alarm. 2.9 Diagnoses that FCV-110B (Blender to Charging Pump suction) is failed closed. 2.10 Shifts (or verifies) boric acid transfer pump to high speed. 2.11 Closes HCV-104 (BATP 1-1 Recirc) or HCV-105 (BATP 1-2 Recirc), as applicable. 2.12 Verifies HCV-104 (BATP 1-1) or HCV-105 (BATP 1-2) has closed, as applicable. 2.13 Verifies that VCT pressure is less than 30 psig. 2.14 Determines that emergency boration flow of at least 30 gpm is NOT attainable. **Step was: Sat: _____ Unsat _____***
3. Initiate alternate boration method using CVCS-8104.	3.1 Reads NOTE prior to Step 2. 3.2 Attempts to open CVCS-1-8104 (Emergency Boration). 3.3 Diagnoses that 8104 will NOT open. 3.4 Determines that emergency boration flow of at least 30 gpm is NOT attainable. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.
** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	4. Initiate alternate boration method using the RWST.	**	4.1 Opens CVCS-1-8805A and 8805B (RWST Supply valves to Charging).
			4.2 Verifies 8805A and 8805B have opened.
		**	4.3 Closes LCV-112B and LCV-112C (VCT Supply valves to Charging).
			4.4 Verifies LCV-112B and LCV-112C have closed.
		**	4.5 Adjusts charging flow to greater than 90 gpm by increasing the speed of the recip charging pump by taking HC-459A to manual and increasing output.
			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 shutdown in MODE 3 and an unexplained increase in reactivity is causing source range counts to increase.

Initiating Cue: The Shift Foreman directs you to emergency borate.

- ❑ Initialize the simulator to IC-514 (HSB, 550°F, MOL).
- ❑ Trip the reactor.
- ❑ Reset all shutdown bank step counters to zero.
- ❑ Perform a rod bank update on the PPC.
- ❑ Verify NR-45 is displaying source ranges.
- ❑ Enter drill file 1063 or manually insert the following:

Command	Description
set acvcvctw=12000	Increase VCT level
ramp pcvcvct=40,5,0	Ensures VCT pressure < 30 psig
mal nisla act,4,600,0,d,0 mal nislb act,4,600,0,d,0	Causes source range NIs to increase by four decades over 10 minutes.
vlv cvc13 2,0,0,0,d,0 #rcvf110b	FCV-110B fails closed.
vlv cvc28 2,0,0,0,d,0 #rcvh8104	8104 fails closed.
run 10	Runs for 10 sec.
anack	Acknowledges alarms

- ❑ 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: NRCLJC051-077

Title: INCREASE ACCUMULATOR PRESSURE

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: AR PK02-05, ACCUM PRESSURE HI-LO, Rev. 18A

OP B-3B:I, Accumulators – Fill and Pressurize, Rev. 25

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 5.5, 5.7

Job Designation: RO/SRO

Task Number: 02/006/A1.13

Rating: 3.5/3.7

AUTHOR: JACK BLACKWELL DATE: 02/27/2007

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 and initiating cue. 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 100% power, steady state conditions.

Annunciator PK02-05, ACCUM PRESSURE HI-LO, alarm is in.

Initiating Cue: The Shift Foreman directs you to investigate PK02-05 and take actions as required by the alarm response procedure and any subsequent procedures.

Task Standard: **DO NOT READ TO STUDENT:** Accumulator pressure is restored and associated alarms are cleared in accordance with procedures.

Start Time: _____

Step	Expected Operator Actions
1. Obtain the correct procedure.	1.1 References AR PK02-05. **Step was: Sat: _____ Unsat _____***
2. Verify abnormal condition.	2.1 Reads NOTE. ********** **Cue: Operability requirements do not have to be addressed at this time.** ********** 2.2 Checks PI-960 and PI-961 (Accumulator Pressure indicators) to verify the alarm is not due to an instrument failure. **Step was: Sat: _____ Unsat: _____***
3. Check accumulator level.	3.1 Checks accumulator level 1-1 within alarm limits. **Step was: Sat: _____ Unsat _____***
4. Go to OP B-3B:I Section 2.3, Low pressure	4.1 Determines that OP B-3B:I "Accumulator – Fill and Pressurize" is to be entered to recover pressure. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	5. Increase Accumulator pressure using step 6.3 of OP B-3B:I.		5.1 Determines Step 6.3 is applicable and reads Note.
			5.2 Verifies HCV-943 (Accumulator N_2 Header Vent) is closed
			5.3 Checks open valve SI-1-8880 (N_2 Header Fill Isolation).
			5.4 Reads CAUTION.
		**	5.5 Opens SI-1-8875A (accumulator fill and vent isolation valve).
			5.6 Monitors pressure increase to approximately 625 psig
			**********
			Cue: (after pressure has increased to clear the alarm, and on evaluator discretion) Pressure is at 625 psig.
			**********
		**	5.7 Closes SI-1-8875A after pressure returns to normal.
			5.8 Verifies PK02-05 is no longer in alarm.
			5.9 Monitors accumulator 1-1 pressure.
			********** **Cue: Pressure has remained constant for 20 minutes.** **********
			Step was: Sat: _____ Unsat _____*
	6. Return to procedure in effect		6.1 Returns to AR PK02-05
			6.2 Determines no other steps apply
			6.3 Exits AR PK02-05
			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 100% power, steady state conditions.

Annunciator PK02-05, ACCUM PRESSURE HI-LO, alarm is in.

Initiating Cue: The Shift Foreman directs you to investigate PK02-05 and take actions as required by the alarm response procedure and any subsequent procedures.

- ❑ Initalize the simulator to the IC-510 (100%, MOL).
- ❑ Enter drill file 1077 or manually insert the following:

Command	Description
1. delm psisacc(1)	Removes point from monitor screen
2. monv psisacc(1)	Monitors Accumulator 1-1 pressure
3. set psisacc(1)=609	Lowers Accumulator 1-1 pressure to 594 psig
4. ser 1251 act,f,0,0,d,0,	Overrides PPC Alarm
5. run 10	Runs sim 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: NRCLJC051-049

Title: DEPRESSURIZE THE RCS FOR STEAM GENERATOR BACKFILL

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: EOP E-3.1, Post-SGTR Cooldown Using Backfill, Rev. 14

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 20 minutes

Critical Steps: 4.4, 6.1, 7.1

Job Designation: RO/SRO

SF/Sys/KA: 03/038/EA2.15

Rating: 4.2/4.4

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

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 and initiating cue. 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 steam generator tube rupture has occurred on S/G 12. All required actions of EOP E-0 and EOP E-3 have been completed. EOP E-3.1 has been completed up to and including Step 7.

Initiating Cue: The Shift Foreman directs you to perform EOP E-3.1 Steps 8 and 9 to control pressurizer level and depressurize the RCS to backfill from S/G 12.

Task Standard: **DO NOT READ TO STUDENTS:** RCS depressurization in progress with RCS pressure less than ruptured S/G pressure (backfilling) and with adequate RCS subcooling verified in accordance with EOP E-3.1.

Start Time: _____

	Step	Expected Operator Actions
	1. Obtain the correct procedure.	1.1 References EOP E-3.1 steps 8 and 9. **Step was: Sat: _____ Unsat _____***
	2. Control RCS charging flow and letdown to maintain PZR level.	2.1 Verifies Adverse Containment NOT in effect 2.2. Maintains PZR level 17% to 74% and stable during RCS depressurization. • Controls charging using FCV-128 • Controls letdown by isolating if level is low, and verifying in service if level is high • Controls seal injection using HCV-142 **Step was: Sat: _____ Unsat _____***
	3. Review CAUTIONS and NOTES.	3.1 Reviews CAUTION and NOTES prior to Step 9. **Step was: Sat: _____ Unsat _____***
**	4. Depressurize RCS to backfill from ruptured steam generator.	4.1 Observes RCPs 1&2 are running. 4.2 Observes that PZR spray valves PCV-455A & B are already in MANUAL. 4.2 Opens PCV-455A and/or PCV-455B. 4.3 Verifies PCV-455A and/or PCV-455B open and RCS pressure is lowering. ** 4.4 Continues depressurization until RCS pressure is less than ruptured S/G 1-2 pressure (backfilling) **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
	5. Turn on pressurizer heaters as necessary.		5.1 Turns on pressurizer heaters as necessary to maintain subcooling • Prop Htr Grp 1-1 • Backup Htr Grp 1-2 • Backup Htr Grp 1-3 • Backup Htr Grp 1-4. **Step was: Sat: _____ Unsat _____***
**	6. Maintain RCS subcooling greater than 20°F.	**	6.1 Maintains RCS subcooling greater than 20°F using the subcooled margin monitor, YI-31, or Appendix C, Subcooled Liquid Curve. **Step was: Sat: _____ Unsat _____***
**	7. Maintain PZR level stable	**	7.1 Controls RCS charging flow and letdown to maintain PZR level. **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 steam generator tube rupture has occurred on S/G 12. All required actions of EOP E-0 and EOP E-3 have been completed. EOP E-3.1 has been completed up to and including Step 7.

Initiating Cue: The Shift Foreman directs you to perform EOP E-3.1 Steps 8 and 9 to control pressurizer level and depressurize the RCS to backfill from S/G 12.

- ❑ Type "init 649" on the expert screen command line. Click the BYPASS SWCK button on the expert screen to continue after control boards are aligned.
- ❑ Cutout Loop 2 WR T_H on PAM4; then, return to the main screen.
- ❑ This SNAP allows entry into EOP E-3.1 at Step 8. An RCS cooldown is in progress on group 1 condenser dumps is in progress. Ruptured S/G 12 level is 74% and increasing very slowly. RCS pressure is 55 psi above Steam Generator 12 pressure. RCPs 11 and 12 are running.
- ❑ Perform the following:
  1. Display PPC screen "E3" on one of the CC2 PPC monitors.
  2. 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: NRCLJC051-501

Title: PERFORM OP AP-15 IMMEDIATE ACTIONS

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-15, Loss of Feedwater Flow, Rev. 17

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 5 minutes

Critical Steps: 1.1, 2.3, 4.2

Job Designation: RO/SRO

KA Number: 04s/059/A2.07

Rating: 3.0/3.3

AUTHOR:	JACK BLACKWELL	DATE:	02/28/2007
APPROVED BY:	N/A JPM COORDINATOR	DATE:	
APPROVED BY:	N/A TRAINING LEADER	DATE:	

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: None

Initial Conditions: Unit 1 is at 72% and increasing to 100% power following a power reduction for maintenance. All systems aligned for normal full power operation. PK09-12, Main Feedwater Pump Trip, and PK09-13, Main Feedwater Pump No. 11, have just alarmed. The Shift Foreman has announced he is entering OP AP-15, Loss of Feedwater Flow.

Initiating Cue: The SFM directs you to take appropriate actions to respond to plant conditions.

Task Standard: **DO NOT READ TO STUDENTS**: The Immediate Actions for a Loss of Feedwater are performed in accordance OP AP-15, Loss of Feedwater Flow, from memory, with follow up using the procedure.

Start Time: _____

	Step		Expected Operator Actions
			EVALUATOR: **Cue Simulator Operator when ready to start** **DO NOT ALLOW APPLICANT TO REVIEW AP-15 PRIOR TO START OF JPM.** **NOTE: Sequence of performance may vary and is not critical to JPM performance.**
**1.	CHECK Reactor Power Less Than 80%	**	1.1 Checks power at 72% **Step SAT:_____ UNSAT:_____***
**2.	REDUCE Turbine Load: • Check turbine load > 650 MW • Verify programmed ramp occurring	 **	 2.1 Determines turbine load is >650 MW 2.2 Determines programmed ramp NOT occurring 2.3 Manually initiates ramp • Places DEH MW and IMP feedback in service • Sets TARGET LOAD = 650 MW • Sets RAMP RATE for = 225 MW/min • Presses GO **Step SAT:_____ UNSAT:_____***
3.	CHECK Load Transient Bypass Actuated		3.1 Checks Load Transient Bypass Relay actuated • Blue and Red light ON • PK10-07 CNDS SYS TRANSIENT BYPASS alarm ON **Step SAT:_____ UNSAT:_____***

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

	Step		Expected Operator Actions
**4.	VERIFY Rod Control in AUTO		4.1 Checks Rod Control in MANUAL
		**	4.2 Places Rods in Auto and Verifies rods inserting to control T_{AVG} to T_{REF}
			Step SAT:_____ UNSAT:_____*

Stop Time: _____

Total Time: _____

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

Initial Conditions: Unit 1 is at 72% and increasing to 100% power following a power reduction for maintenance. All systems aligned for normal full power operation. PK09-12, Main Feedwater Pump Trip, and PK09-13, Main Feedwater Pump No. 11, have just alarmed. The Shift Foreman has announced he is entering OP AP-15, Loss of Feedwater Flow.

Initiating Cue: The SFM directs you to take appropriate actions to respond to plant conditions.

- ☐ Initialize the simulator in Expert Screen using "init j3bc001c."
- ☐ Ensure Simulator is in FREEZE just at MFP TRIP alarm
- ☐ Inform the examiner that the simulator setup is complete.
- ☐ Go to RUN when the examinee is given the cue sheet.

OR

- ☐ Initialize to IC-510
- ☐ Ramp unit to 72% power and stabilize
- ☐ Place Rods in Manual
- ☐ On Triconex Panel, BYPASS MFP 11 RUNBACK.
- ☐ Insert MAL mfw2a act 25,0,30,d,0
- ☐ Insert MAL cnd1 act1,0,0,d
- ☐ Go to RUN until MFP Trip alarm actuates
- ☐ FREEZE Simulator
- ☐ 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: NRCLJC051-504

Title: Foldout Page for Phase B

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: EOP E-0, Reactor Trip or Safety Injection, Rev. 30A

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 2.1, 2.2, 3.1, 4.1, 6.1

Job Designation: RO/SRO

Task Number: 04p/015/AA2.10

Rating: 3.7/3.7

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

APPROVED 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 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: None

Initial Conditions: Unit 1 has experienced a loss of coolant accident. The Shift Foreman is performing E-0, Reactor Trip or Safety Injection.

Initiating Cue: The Shift Foreman has assigned you Foldout Page item 2.0, Phase B Actuation, for monitoring and implementation as necessary.

Task Standard: **DO NOT READ TO STUDENT:** The assigned foldout page items have been reviewed with plant status, and required actions taken.

Start Time: _____

	Step		Expected Operator Actions
			NOTE: Sequence of performance may vary and is not critical to JPM performance.
	1. Verify Phase B Isolation Actuated or Required.		1.1 Checks Phase B Isolation Red lights on. 1.2 Checks Containment pressure over 22 psig. 1.3 Diagnoses Phase B is required 1.4 Diagnoses Phase B Isolation incomplete 1.5 Diagnoses Containment Spray is required but has NOT actuated 1.6 Attempts to manually initiate Phase B and Containment Spray by manually initiating Phase B and Containment Spray using the actuation switches on VB-1. **Step was: Sat: _____ Unsat _____***
**	2. Verify Containment Spray Actuated	**	2.1 Starts CSP 1-1 and 1-2 • Red lites on, green lites off • Normal running amps ** 2.2 Opens: • 9001 A/B (CONTMT SPRAY PP 1-1 AND 1-2 DISCH VLVs) • 8994 A/B (SPRAY ADDITIVE TK OUTLET VLVs A AND B) **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

	Step		Expected Operator Actions
**	3. Stop Recip Chg Pump	**	3.1 Secures PDP • Checks green lite lit, red lite out. **Step was: Sat: _____ Unsat _____***
**	4. Manually align Phase B isolation valves **TIME Valves Closed:_____**	**	4.1 Closes the following valves: • FCV-355 (CCW Header C Supply Vlv) • FCV-356 (CCW Supply to RCP and Reactor Vessel Support Coolers) • FCV-357 (CCW RCP Thermal Barrier Return) • FCV-363 (CCW RCP Lube Oil Cooler Return) • FCV-749 (CCW RCP Lube Oil Cooler Return) • FCV-750 (CCW RCP Thermal Barrier Return) **Step was: Sat: _____ Unsat _____***
	5. Verify Seal Injection between 8-13 gpm.		5.1 Adjusts seal injection using HCV-142 and FCV-128 to between 8-13 gpm. **Step was: Sat: _____ Unsat _____***
**	6. Stop All RCPs	**	6.1 Secures all four RCPs • Red lites off, Green lites on **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 has experienced a loss of coolant accident. The Shift Foreman is performing E-0, Reactor Trip or Safety Injection.

Initiating Cue: The Shift Foreman has assigned you Foldout Page item 2.0, Phase B Actuation, for monitoring and implementation as necessary.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Enter drill file 6701 or manually insert the following:

Command	Description
mal PPL4A act,0,0,d,2	Inadvertant reactor trip, Train A.
mal PPL4B act,0,0,d,2	Inadvertant reactor trip, Train B.
Vlv css4 2,0,0,0,d,xv1i202o vlv css5 2,0,0,0,d,xv1i205o	9001A/B CSP isolation closed until taken open
Vlv css2 2,0,0,0,d,xv1i203o Vlv css3 2,0,0,0,d,xv1i204o	8994A/B Spray outlet valve closed until taken open
Vlv ccw3 1,0,0,0,d,xv1i161c Vlv ccw2 1,0,0,0,d,xv1i162c Vlv ccw8 1,0,0,0,d,xv1i198c Vlv ccw1 1,0,0,0,d,xv1i181c Vlv ccw6 1,0,0,0,d,xv1i180c Vlv ccw7 1,0,0,0,d,xv1i199c	FCV-355 / 356 / 357 / 363 / 749 / 750 CCW Isolation Valves opened until taken closed
Pmp css1 1,0,0,0,d,0 Pmp css2 1,0,0,0,d,0	CSP Pumps fail to auto start
Pmp cvc1 4,0,0,0,c,jmlrcs1,	Trip CCP 1-1
Pmp sis1 4,0,0,0,c,jmlrcs1, Pmp sis2 3,0,0,0,c,jmlrcs1,	Trip SIPs
Mal rcs1 act 2,1,0,d,0	
Run 120 sec	

- ❑ 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: NRCLJC051-302

Title: PLACE CFCU DRAIN COLLECTION SYSTEM IN SERVICE

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: AR PK11-09, RM11 AND RM12 LOW FLOW, Rev. 6B
OP H-2:I, Containment Fan Cooler Units – Make Available, Rev. 25
TS 3.4.15, RCS LEAK DETECTION INSTRUMENTATION

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 5.8, 6.1

Job Designation: RO/SRO

KA Number: 05/022/A4.01

Rating: 3.6/3.6

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

APPROVED BY: N/A DATE: _____
JPM COORDINATOR

APPROVED BY: N/A DATE: _____
TRAINING LEADER

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: None

Initial Conditions: Unit 1 is operating at 100% power with all systems aligned for normal full power operation. PK11-09, input 851, RE-11 AND RE-12 LOW FLOW have just alarmed.

Initiating Cue: The Shift Foreman directs you to respond to the alarms, take all necessary actions per the alarm response procedures and any subsequent actions identified in the alarm response procedures.

Task Standard: **DO NOT READ TO STUDENTS**: RE-11 and RE-12 are determined to be out of service, a CFCU with it's associated drain collection system is in operation per OP H-2:I.

Start Time: _____

	Step		Expected Operator Actions
1.	Obtain correct procedure	1.1	References AR PK11-09 "RE-11 and RE-12 Low Flow" **Step SAT:_____ UNSAT:_____***
2	Check annunciator typewriter print out	2.1	Checks printout for RM-11/12 low flow **IF alarm printer is not working, then:** *************************************** **CUE: Low flow alarm is in.** *************************************** **Step SAT:_____ UNSAT:_____***
3.	Check for blown fuses and pump operations	3.1	Checks RMS panel for RM-11/12 pump operation and discovers: • No blown fuses • Low flow lite – ON
		3.2	Dispatches Operator to investigate • blown fuses • 52-11A21 (power to RM-11) • 52-1G-39 (power to RM-11 pump) ** **CUE: Aux Building NO verifies pump is off and breaker 52-1G-39 has tripped. No fuses blown.** ** **Step SAT:_____ UNSAT:_____***

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

	Step		Expected Operator Actions
4.	Starts CFCU per OP H-2:I section 6.5	4.1	References OP H-2:I section 6.5 for CFCU operation.
		4.2	Reads NOTE • May revew P&Ls but not necessary
			Step SAT:_____ UNSAT:_____*
**5.	** Starts a CFCU in SLOW Speed	5.1	Determines the need to start another CFCU in SLOW speed
		5.2	References section 6.3 to changing a CFCU speed
		5.3	References Attachment 9.3
		5.4	Determines starting 4th CFCU in SLOW is appropriate
		5..5	References section 6.2 to start a CFCU
		5.6	Reads NOTES
		5.7	Selects a non-running CFCU to start
		**5.8	Verifies Speed Select Switch in LOW speed and presses to start • Verifies current stabilizes
		5.9	IF annunciator PK01-21, "Contmt Fan Clrs", alarms, THEN • Check annunciator printout to confirm cause as high vibration on CFCU just started • Press Reset button on VB1 to reset the alarm
			Step SAT:_____ UNSAT:_____*

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

	Step		Expected Operator Actions
**6.	Place CFCU Drain Collection System in service per section 6.5	**6.1	Place Drain Valve Selector Switch in position corresponding to CFCU being used for collection monitoring (i.e., "1", "2", "3", "4", or "5"), to close the drain valve associated with that CFCU
		6.2	Verify associated white light lit.
			******************************
			CUE: SFM will direct other operators to complete the procedure
			********************************
			******************************
			CUE: IF ASKED: SFM will refer to Tech Specs
			********************************
			******************************
			CUE: IF ASKED: SFM will contact Chemistry
			********************************
			Step SAT:___________ UNSAT:________*

Stop Time: ___________

Total Time: ___________

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

Initial Conditions: Unit 1 is operating at 100% power with all systems aligned for normal full power operation. PK11-09, input 851, RE-11 AND RE-12 LOW FLOW have just alarmed.

Initiating Cue: The Shift Foreman directs you to respond to the alarms, take all necessary actions per the alarm response procedures and any subsequent actions identified in the alarm response procedures.

- ☐ Initialize the simulator to IC 510.
- ☐ VERIFY Alarm Printer On
- ☐ Insert Drill File 6210 or manually insert the following:

Command	Description
1. dsc rms1 act,0,0,0,d,0 #i521g39	DSC RMS1 52-1G-39 RY11 CNT AIR & GAS RAD MON

- ☐ Go to RUN 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: NRCLJC051-087

Title: TRANSFER BUS G TO AUX. POWER FROM DG 1-2

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP J-6B:V, Diesel Generator 12, Manual Operations, Rev. 25

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 20 minutes

Critical Steps: 3.2, 3.3, 3.4, 5.1, 5.2, 7.1, 9.1, 10.1, 11.1, 11.3, 11.4, 13.1, 14.1, 14.2, 14.3

Job Designation: RO/SRO

SF/Sys/KA: 06/62/A4.07

Rating: 3.1/3.1

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

APPROVED 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 and initiating cue. 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: DG 1-2 is supplying 4kV bus G in the Isochronous Mode. Auxiliary Power is now available.

Initiating Cue: You are directed by the Shift Foreman to parallel DG 1-2 with Auxiliary Power, transfer 4kV Bus G to Auxiliary Power, then unload and shutdown DG 1-2 in accordance with OP J-6B:V, step 6.4.

Task Standard: **DO NOT READ TO STUDENTS**: Auxiliary power is supplying 4kV Bus G, Diesel Generator 12 is shutdown and in a standby configuration. All in accordance with OP J-6B:V, step 6.4.

Start Time: _____

	Step		Expected Operator Actions
	1. Obtain the correct procedure.	1.1	References OP J-6B:V, Step 6.4.
			Step was: Sat: _____ Unsat _____*
	2. Check auxiliary power available.	2.1	Reads NOTE.
		2.1.1	May read P&Ls but not required
		2.2	Checks breaker 52-HG-13 available with green light on.
		2.3	Checks white potential light ON.
			Step was: Sat: _____ Unsat _____*
**	3. Prepare DG 1-2 for paralleling to auxiliary power.	3.1	Reads CAUTION.
		** 3.2	Places DG 1-2 MODE SEL Switch to MANUAL.
		3.2.1	PK17-03 "DIESEL 12 ON LOCAL CONTROL" alarms
		** 3.3	Adjusts DG 1-2 Manual Speed Control switch to obtain frequency of 60 Hz, as necessary.
		** 3.4	Places 4kV Bus G Auto Xfer to S/U PWR C/O switch to CUT-OUT.
		3.5	Verifies that Bus G Auto Xfer indicating light (blue light) is off.
		3.6	Verifies D/G PROT RELAYS CUT-IN have all 3 white lights lit.
			Step was: Sat: _____ Unsat _____*
	4. Verify 4kV bus G at 60 Hz.	4.1	Verifies 60 Hz indicated on Bus G frequency indication.
		4.2	Adjusts DG 1-2 Man Speed Control switch to obtain 60 Hz, as necessary.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	5. CUT IN the Aux Feeder Sync Switch.	**	5.1 Inserts Sync key into Auxiliary Feeder Breaker switch. ** 5.2 Turns key to ON position. **Step was: Sat: _____ Unsat _____***
	6. Verify proper operation of the Synchroscope.		6.1 Observes light off at the 12 o'clock position. 6.2 Observes lights full bright at 6 o'clock position. **Step was: Sat: _____ Unsat _____***
**	7. Adjust DG 1-2 speed.	**	7.1 Adjusts DG 1-2 Man Speed Control switch to obtain synchroscope turning slowly in the counterclockwise (SLOW) direction. **Note: This is identified as NORMAL in the procedure.** **Step was: Sat: _____ Unsat _____***
	8. Adjust DG 1-2 voltage.		8.1 Adjusts DG 1-2 Man/Auto Voltage Control switch to match diesel voltage, w/i 2 volts, to the incoming auxiliary power voltage, as necessary. **Step was: Sat: _____ Unsat _____***
**	9. Close Auxiliary Feeder Bkr. (52-HG-13).	**	9.1 When Synchroscope is slightly before 12 o'clock (counter clockwise direction), closes 52-HG-13. 9.2 Verifies breaker is closed (Red light on). 9.3 Observes VARS-OUT present. 9.4 Turns AUX FDR SYNC SW OFF. 9.5 Determines Section 6.5 is applicable to separate DG 1-2 from 4160V Bus G. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	10. Unload DG 1-2 per step 6.5.	**	10.1 Adjusts D/G 1-2 Manual Speed Control switch to obtain about 0.5 MW at ≤ 0.5 MW every two minutes 10.2 Hold DG 1-2 at 0.5 MW for 5 minutes. ********** **Cue: DG 1-2 has been at 0.5 MW for 5 minutes.** ********** **Step was: Sat: _____ Unsat _____***
**	11. Separate DG 1-2 from bus.	**	11.1 Turns D/G FDR SYNC SW to ON. 11.2 Reads CAUTION ** 11.3 Reduces load to about 0.1 MW using D/G Manual Speed Control switch. ** 11.4 Opens Bkr. 52-HG-5, DG 1-2 Output Bkr. 11.5 Verifies breaker is opened (red lite out, green lite on). 11.6 Adjusts DG 1-2 speed and voltage to approximately 60 Hz and 119 VAC indicated, as required. **Step was: Sat: _____ Unsat _____***
	12. Turn off synchroscope.		12.1 Verifies 52-HG-5 open 12.2 Verifies speed approximately 60 Hz and voltage at 119 VAC. 12.3 Turns D/G FDR SYNC SW to OFF. **Step was: Sat: _____ Unsat _____***
**	13. Shutdown DG 1-2 per step 6.6.	**	13.1 Takes Man Mode Stop/Start switch to STOP. 13.2 Verifies D/G 1-2 stopped. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	14. Return diesel generator 12 to standby configuration.	**	14.1 Places D/G DIR PWR, LOSS OF FLD & BKR OC PROT RLYS C/O SW to CUT-OUT.
			14.1.1 PK13-10 "Diesel Gen Prot Rlys. CUT-IN" alarm clears.
		**	14.2 Places D/G 1-2 MODE SEL Switch to AUTO.
			14.2.1 PK17-03 "Diesel 12 on Local Control" alarm clears.
		**	14.3 Places 4kV Bus G Xfer to S/U PWR C/O switch to CUT-IN.
			**********
			Cue: Diesel fuel oil leak off lines have NOT been installed.
			**********
			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: DG 1-2 is supplying 4kV bus G in the Isochronous Mode. Auxiliary Power is now available.

Initiating Cue: You are directed by the Shift Foreman to parallel DG 1-2 with Auxiliary Power, transfer 4kV Bus G to Auxiliary Power, then unload and shutdown DG 1-2 in accordance with OP J-6B:V, step 6.4.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ There is no drill for this JPM
- ❑ Go to RUN on the simulator.
- ❑ Perform the following:
    1. Place diesel generator 12 Mode Select switch in MANUAL.
    2. Start diesel generator 12.
    3. Parallel to bus G and pick up 0.5 MW Load.
    4. Open Aux Transformer Breaker for bus G.
    5. Place diesel generator 12 Mode Select switch in AUTO.
    6. CUT-IN protective relays.
- ❑ Go to FREEZE on the simulator.
- ❑ 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: NRCLJC051-051

Title: REMOVE POWER RANGE CHANNEL N42 FROM SERVICE

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-5, Malfunction of Protection or Control Channel, Attachment 4.1, Rev. 27

Alternate Path: Yes _____ No X

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 2.1, 3.1, 4.1, 5.1, 6.1

Job Designation: RO/SRO

SF/Sys/KA: 07/15/A2.02

Rating: 3.1/3.5

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

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 and initiating cue. 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 at 100% power. A malfunction caused power range channel N42 to fail high. Rod control was placed in MANUAL after rods stepped in five (5) steps.

The Shift Foreman has requested Maintenance to:
- trip bistables BS421C and BS421D, and
- remove the control power and instrument power fuses.

Initiating Cue: The Shift Foreman directs you to remove power range channel N42 from service, with the exception of pulling fuses and tripping bistables, in accordance with OP AP-5, Attachment 4.1.

Task Standard: **DO NOT READ TO STUDENTS:** Power range channel N42 has been removed from service, with the exception of tripping bistables and pulling fuses, in accordance with OP AP-5.

Start Time: _____

	Step		Expected Operator Actions
	1. Obtain the correct procedure.	1.1	References OP AP-5, Attachment 4.1, "Actions to be performed for NI failure."
			Step was: Sat: _____ Unsat _____*
**	2. Place rod stop bypass switch the failed channel position.		********** **Cue: If the operator refers to the requirement to use concurrent verification, state that requirement is waived for this JPM.** **********
		** 2.1	Places the ROD STOP BYBASS switch in the BYPASS PR N42 position.
			Note: May verify PK07-07, PWR RNG 42 ROD STOP BYPASSED -- ON.
			Step was: Sat: _____ Unsat _____*
**	3. Place power mismatch bypass switch to the failed channel position.	** 3.1	Places the POWER MISMATCH BYPASS switch in the BYPASS PR N42 position.
			Step was: Sat: _____ Unsat _____*
**	4. Place quadrant power tilt alarm upper section switch to the failed channel position.	** 4.1	Places the QUADRANT POWER TILT ALARM UPPER SECTION switch in the PRN42 position.
		4.2	Verifies that the CHANNEL DEFEAT light has lit.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	5. Place quadrant power tilt alarm lower section switch to the failed channel position.	**	5.1 Places the QUADRANT POWER TILT ALARM LOWER SECTION switch in the PRN42 position. 5.2 Verifies that the CHANNEL DEFEAT light has lit. ********** **Cue: The SFM has responsibility for ECGs.** ********** **Step was: Sat: _____ Unsat _____*****
**	6. Place the comparator defeat switch to the failed channel position.	**	6.1 Places the COMPARATOR CHANNEL DEFEAT switch in the N42 position. 6.2 Verifies that the COMPARATOR DEFEAT light has lit. ********** **Cue: Maintenance Services will remove the control power and instrument power fuses.** ********** **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 at 100% power. A malfunction caused power range channel N42 to fail high. Rod control was placed in MANUAL after rods stepped in five (5) steps.

The Shift Foreman has requested Maintenance to:

trip bistables BS421C and BS421D, and

- remove the control power and instrument power fuses.

Initiating Cue: The Shift Foreman directs you to remove power range channel N42 from service, with the exception of pulling fuses and tripping bistables, in accordance with OP AP-5, Attachment 4.1.

- ❑ Initialize the simulator to IC-510 (100%, MOL).
- ❑ Enter drill file 1051 or manually insert the following:

Command	Description
1. mal nis6b act,200,0,20,d,0	Fails power range channel N42 high
2. run 30	Runs simulator to allow rods to step in 5 steps.

- ❑ Perform the following:

  Place rod control in MANUAL as soon as the Rods step in 5 steps. (Done manually vice in drill file to prevent rod motion after returning to Run.)

- ❑ 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: NRCLJP051-096

Title: CLOSE STEAM GENERATOR BLOWDOWN ISOLATION VALVES OUTSIDE CONTAINMENT

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

References: OP AP-8A, Control Room Inaccessibility - Establishing Hot Standby, Rev. 20A

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 10 minutes

Critical Steps: 2.2, 3.1, 3.2

Job Designation: RO/SRO

Task Number: 08/068/AA1.03

Rating: 4.1/4.3

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

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 and initiating cue. 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-8A, Step 27.

Initial Conditions: Units 1 and 2 are in MODE 3, being controlled from the Hot Shutdown Panel following a Control Room Evacuation.

Initiating Cue: The Unit 1 Shift Foreman directs you to verify closed the Unit 1 steam generator blowdown isolation valves outside containment, in accordance with OP AP-8A, Step 27.

Task Standard: **DO NOT READ TO STUDENT:** The steam generator blowdown isolation and sample isolation valves outside containment have been verified closed in accordance with OP AP-8A.

Start Time: _____

	Step	Expected Operator Actions
	1. Verify steam generator blowdown isolation (O.C.) are closed. (Penetration area GE, 100' elev.)	1.1 Checks the position of steam generator blowdown sample isolation valves: • FCV-250 • FCV-248 • FCV-246 • FCV-244 ********** **Cue: Valves stems are out to full open limit.** ********** 1.2 Checks position of steam generator blowdown isolation valves: • FCV-160 • FCV-157 • FCV-154 • FCV-151 ********** **Cue: Valves stems are out to full open limit.** ********** **Step was: Sat: _____ Unsat _____***
**	2. Close the air supply valves to the steam generator blowdown isolation valve solenoid valves.	2.1 Locates air supply valves in PM-123. ** 2.2 Closes air supply valves: • Closes AIR-I-1-1295. • Closes AIR-I-1-1301. **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	3. Vent the air supply header to the steam generator blowdown isolation valve diaghragm operators.	**	3.1 Removes vent caps from: • AIR-I-1-1300 • AIR-I-1-1306. ********** **Cue: Provide Cue that a crescent wrench has been obtained after Operator has verbalized where they would obtain one. (Aux Board, HSDP, etc.)** ********** ** 3.2 Opens air supply header vent valves: • AIR-I-1-1300. • AIR-I-1-1306. ********** **Cue: The air has been vented 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. Check steam generator blowdown isolation valves closed.	4.1 Checks closed • FCV-250 • FCV-248 • FCV-246 • FCV-244 ********** **Cue: Valves stems are fully inserted to the in limit position.** ********** 4.2 Checks closed • FCV-160 • FCV-157 • FCV-154 • FCV-151 ********** **Cue: Valves stems are fully inserted to the in limit position.** ********** **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: Units 1 and 2 are in MODE 3, being controlled from the Hot Shutdown Panel following a Control Room Evacuation.

Initiating Cue: The Unit 1 Shift Foreman directs you to verify closed the Unit 1 steam generator blowdown isolation valves outside containment, in accordance with OP AP-8A, Step 27.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCLJP051-216

Title: ALIGN AND CHECK 4 KV BUS F ENERGIZED

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments:

This JPM starts at the Unit 1 Hot Shutdown Panel

References: OP AP-8A Control Room Inaccessibility – Establish Hot Standby Rev. 20a

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 20 Minutes

Critical Steps: 1.2, 2.3, 3.4, 3.5

Job Designation: RO/SRO

SF/Sys/KA: 06/062/A4.07

Rating: 3.1/3.1

AUTHOR: JACK BLACKWELL DATE: 12/01/2006

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 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.

Note: This JPM begins at the Unit 1 Hot Shut Down Panel.

Required Materials: OP AP-8A Attachment 6.3 and 6.4, Sync key

Initial Conditions: The control room was evacuated and OP AP-8A was implemented from the Hot Shutdown Panel. Diesel Generator 1-3 has been started, but has not been synched to the bus.

Initiating Cue: The Shift Foreman directs you to perform the actions of OP AP-8A Attachment 6.4 steps 1-3, and Attachment 6.3 step 2.i, to energize Unit 1 4kV bus F. You are handed the sync key and instructed to only perform the actions necessary to energize Bus F.

Task Standard: **DO NOT READ TO STUDENTS**: Bus F is energized from any DG 1-3.

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

Start Time: _____

	Step		Expected Operator Actions
**	1. Aligns Vital 4kV buses per Attachment 6.4.		1.1 Reads CAUTION and NOTEs prior to step 1.
		**	1.2 Positions the following Control Transfer Device switches: • D/G 13 Device 43HF7 to Local • ASW11 Device 43HF8 to HSD PNL • AFW13 Device 43HF9 to HSD PNL • MCC Transformer No. 1F (480V) Device 43HF10 to Local • CCP 11 Device 43HF11 to HSD PNL • CCW 11 Device 43HF12 to HSD PNL • 4160V Standby Startup Feeder (S/U Fdr) Device 29HF14 to Local Control.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

	Step	Expected Operator Actions
**	2. Prepares to Energize 4kV Vital Bus F.	2.1 Checks 52-HF-12 white potential lights lit (3 potential lights for phases). '********** **CUE: The potential lights are NOT lit.** '********** 2.2 Checks 52-HF-14 white potential lights lit (3 potential lights for phases). '********** **CUE: The potential lights are NOT lit.** '********** ** 2.3 Verifies the following load breakers open: • ASW Pp 11 52HF8 • AFW Pp 13 52HF9 • CCP 11 52HF11 • CCW Pp 11 52HF12 • Aux Trans Fdr 52HF13 • STBY S/U Trans Fdr 52HF14 • SI Pp 1 52HF15 '********** **CUE: Green lights ON/Red lights OFF for all bus breakers.** '********** **Step was: Sat: _____ Unsat _____***

* Denotes an entry required on the JPM cover sheet.

** Denotes a Critical Step.

	Step	Expected Operator Actions
**	3. Close DG13 breaker 52HF7 per Attachment 6.3 step 2.i.	3.1 Reads CAUTION and NOTEs prior to step2 and CAUTION prior to 2.i.
		3.2 Checks for differential and overcurrent relays on the following breakers. • 52HF13 Aux Feeder • 52HF14 S/U Feeder ‘********** **CUE: There are NO flags (differential or overcurrent relays indicated).** ‘********** 3.3 Verifies OPEN: • 52HF13 Aux Feeder • 52HF14 S/U Feeder ********** **CUE: GREEN lights ON, RED lights OFF.** ********** ** 3.4 Turns D/G 1-3 Feeder sync switch ON. **NOTE: Incoming Voltage = 4160** ** 3.5 Closes D/G Output Breaker 52HF7. ‘********** **CUE: Potential lites lit, breaker has RED flag with RED lights** **Note: If sync scope is not turned on, give Cue that breaker will not close.** ‘********** 3.6 Turns Sync Scope OFF. **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: The control room was evacuated and OP AP-8A was implemented from the Hot Shutdown Panel. Diesel Generator 1-3 has been started, but has not been synched to the bus.

Initiating Cue: The Shift Foreman directs you to perform the actions of OP AP-8A Attachment 6.4 steps 1-3, and Attachment 6.3 step 2.i, to energize Unit 1 4kV bus F. You are handed the sync key and instructed to only perform the actions necessary to energize Bus F.

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
JOB PERFORMANCE MEASURE

Number: NRCLJP051-062

Title: ISOLATE DILUTION FLOW PATHS

Examinee: _____

Evaluator: _____ _____ _____
Print Signature Date

Results: Sat _____ Unsat _____ Total Time: _____ minutes

Comments: **This is a Unit 2 JPM**

References: EOP FR-S.1, Response to Nuclear Power Generation/ATWS, Rev. 11

Alternate Path: Yes X No _____

Time Critical: Yes _____ No X

Time Allotment: 15 minutes

Critical Steps: 1.2, 2.2, 3.2, 4.2, 4.4, 5.2, 5.4, 6.2, 6.4, 7.2, 7.4, 8.3

Job Designation: RO/SRO

SF/Sys/KA: 01/004/A2.06

Rating: 4.2/4.3

AUTHOR: JACK BLACKWELL DATE: 02/28/2007

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 and initiating cue. 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 EOP FR-S.1, Appendix D for **UNIT 2**

Initial Conditions: Unit 2 is experiencing an inadvertent dilution.

Initiating Cue: The Shift Foreman directs you to check and isolate any dilution flowpaths to the RCS in accordance with EOP FR-S.1 Appendix D, step 2.

Task Standard: **DO NOT READ TO STUDENTS:** Dilution flow paths to the RCS have been checked and isolated in accordance with EOP FR-S.1.

Start Time:

	Step		Expected Operator Actions
**	1. Verify CVCS-2-8539, primary water to mixed bed demineralizer 21, CLOSED.	1.1	Locates valve CVCS-2-8539 at the demineralizer manifold on the 100' elevation (Mixed Bed 2-1 outside wall) of the auxiliary building.
		** 1.2	Verifies CVCS-2-8539 is closed.
			Step was: Sat: _____ Unsat _____*
**	2. Verify CVCS-2-8538, primary water to mixed bed demineralizer 22, CLOSED.	2.1	Locates valve CVCS-2-8538 at the demineralizer manifold on the 100' elevation (Mixed Bed 2-2 outside wall) of the auxiliary building.
		** 2.2	Verifies CVCS-2-8538 is closed.
			Step was: Sat: _____ Unsat _____*
**	3. Verify CVCS-2-8519, primary water to cation demineralizer 21, CLOSED.	3.1	Locates valve CVCS-2-8519 at the demineralizer manifold on the 100' elevation (Outside wall of cation demin) of the auxiliary building.
		** 3.2	Verifies CVCS-2-8519 is closed.
			Step was: Sat: _____ Unsat _____*
**	4. Verify CVCS-2-8500A & 8500B, primary water to deborating demineralizer 21 and 22 inlet and outlet, CLOSED.	4.1	Locates valve CVCS-2-8500A at the demineralizer manifold on the 100' (Outside wall of Deborating Demins).
		** 4.2	Verifies CVCS-2-8500A is closed.
		4.3	Locates valve CVCS-2-8500B
		** 4.4	Verifies CVCS-2-8500B is closed.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	5. Verify CVCS-2-8506A & 8506B, CLOSED.		5.1 Locates valve CVCS-2-8506A at the demineralizer manifold on the 100' elevation (Outside wall of Deborating Demins).
		**	5.2 Verifies CVCS-2-8506A is closed.
			5.3 Locates valve CVCS-2-8506B
		**	5.4 Verifies CVCS-2-8506B is closed.
			Step was: Sat: _____ Unsat _____*
**	6. Verify CVCS-2- 8464A & 8464B, primary water to boric acid pumps 21 & 22, CLOSED.		**Note: If area is a surface contamination area, allow the operator to point to the valves from outside the SCA**
			6.1 Locates valve CVCS-2-8464A at the boric acid pump skid on the 100' elevation of the auxiliary building.
		**	6.2 Verifies CVCS-2-8464A is closed.
			6.3 Locates valve CVCS-2-8464B
		**	6.4 Verifies CVCS-2-8464B is closed.
			Step was: Sat: _____ Unsat _____*

* Denotes an entry required on the JPM cover sheet.

** Denotes Critical Step and Sub Steps.

	Step		Expected Operator Actions
**	7. Verify chemical mixing tank is isolated.	7.1	Locates valve CVCS-2-8435 outside the blender room on the 100' elevation of the auxiliary building.
		** 7.2	Verifies CVCS-2-8435 is closed.
		7.3	Locates valve CVCS-2-8454 outside the blender room on the 100' elevation of the auxiliary building.
		** 7.4	Verifies CVCS-2-8454 is closed.
			Step was: Sat: _____ Unsat _____*
**	8. Check flow on FIT-111.	8.1	Locates flow indicating transmitter FIT-111 outside the blender room on the 100' elevation of the auxiliary building.
			**********
			Cue: FIT-111 indicates flow.
			**********
		8.2	Locates valve CVCS-2-8469 outside the blender room on the 100' elevation of the auxiliary building.
		** 8.3	Closes CVCS-2-8469.
			**********
			Cue: FIT-111 indicates NO flow.
			**********
			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 2 is experiencing an inadvertent dilution.

Initiating Cue: The Shift Foreman directs you to check and isolate any dilution flowpaths to the RCS in accordance with EOP FR-S.1 Appendix D, step 2.

Facility: __DCPP____ **Scenario No.: _01_** **Op-Test No.: _L051-1_**

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Initial Conditions: 100% Power, EOL, 40 ppm CB

Turnover: PRA Status: ORANGE - CCP 1-1 MOW. Protected Equipment: Train B, Buses H & G, Prot. Sets II,III,IV;. Homeland Security: YELLOW. CCP 1-1 was cleared 10 hours ago to repair a pump seal. It is expected to be returned to service in 8 hours; Boron concentration is 40 ppm from a sample taken 4 hours ago. Have been placing the deborating demineralizer in service for 15 minutes approximately every two hours. It was last removed from service 30 minutes ago. ΔI is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power.

Event No.	Malf. No.	Event Type*	Event Description and Time Line
1		R	Ramp to 650 MW (After Turnover and Tailboard)
2	Mal cvc8	C	Seal Injection Filter Hi DP **(after ramp below 98%)**
3	Xmt tur2	I	Turbine 1st Stage Pressure Instrument Fails As Is at 100% (TS 3.3.1.T) **(discovery during ramp)**
	Mal sei1		Seismic Event **(end of ramp, or on evaluator request)**
4	Mal syd1	C	Loss of Offsite Power due to seismic resulting in Load Rejection (TS 3.8.1.A) **(resultant of seismic event)**
5	Mal rod6	I	Uncontrolled Rod Motion **(automatic rods when power decreases below 25% and manual rod below 35% when manual operation occurs)**
6	Mal ppl5	M	ATWS with Supply Breaker 13D/E Available **(when trip occurs from unwarranted rod motion)**
7	Mal eps	C	4kV Bus H feeder breaker trips on differential current **(when trip occurs)**
8	Pmp afw2	C	AFWP 1-3 fails to auto start, requiring manual start **(when trip occurs)**
9	Mal rcs3	M	LOCA **(5 minutes after reactor trip)**
10	Pmp sis1 Pmp cvc2	C	SIP 1-2 and CCP 1-2 trip, and SIP 1-1 failure to auto start, resulting in Loss of High and Intermediate Head Injection until SIP 1-1 is started **(on Safety Injection)**

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

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _1___ **Page _1_ of _7_**

Event Description: __Ramp unit per EPOS order_____

Time	Position	Applicant's Actions or Behavior
	SRO	Validate phone call from EPOS
	SRO	Tailboard ramp to 650 MW net output in 30 minutes (≥ 20 MW/min)
	SRO	Provide SRO oversight for reactivity changes
	SRO	Enter AP-25 "Rapid Load Reduction" and direct control room response
	RO	Determine required boration and start borating sometime during ramp • Place VCT make up control in BORATE position • Enter the desired gallons of boric acid using the BATCH function and the data entry keys. • Place M/U controller 1/MU in START position
	BOP	Sets up and commences ramp per AP-25 • Place DEH MW and IMP feedbacks in service. • Set TARGET to desired load. • Set desired RAMP RATE. • Push GO.
	RO	• VERIFY Control Rods Inserting in AUTO • VERIFY PZR Backup Heaters – ON
	RO/BOP	• VERIFY at Least One CCP In Service • VERIFY DFWCS Controlling S/G Levels in AUTO:

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _2___ **Page _2_ of _7_**

Event Description: __Seal Injection Filter High DP_____

Time	Position	Applicant's Actions or Behavior
	SRO	Respond to PK04-22 "RCP Seal Injection Filter DP Hi"
	RO	May attempt to increase seal injection
	SRO/RO	Diagnose seal injection filter problem
	SRO/BOP	Direct Aux Watch to swap seal injection filter
	RO	Reestablish seal injection flow within limits if needed using HCV-142 to adjust seal injection flow

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _3___ **Page _3_ of _7_**

Event Description: __PT-505 Turbine 1st Stage Pressure Instrumentation Failed As Is_____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Identify T_{AVG} and/or PZR level higher not controlling in normal band
	RO/BOP	Diagnose PT-505 failed as is
	SRO	Direct RO to place rods in manual (may direct PZR level control placed in manual) and control within normal band
	RO	Place rod control (and PZR level control if directed) to manual and control T_{AVG} (and PZR level if directed) within band
	SRO	Enter AP-5 "Malfunction of Eagle Protection or Control Channel" for guidance
	BOP	Contact I&C to investigate
	ALL	Tailboard effects of restoration (may reference STP I4P – 505)
	SRO	May direct Steam Dumps placed in Steam Pressure Mode if following STP guidance
	SRO	Direct restoration by opening the root valves
	SRO	Direct RO to restore T_{AVG} -T_{REF} and PZR level to band
	RO	Restore T_{AVG} - T_{REF} and PZR level
	SRO	Direct RO to place rods (and PZR level and Steam Dumps if needed) to auto
	RO	Place rod control (PZR level control if in manual) to auto
	SRO	Reference TS 3.3.1 T for PT-505

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _4_ Page _4_ of _7_

Event Description: __Seismic, Load Rejection _____

Time	Position	Applicant's Actions or Behavior
	ALL	Acknowledge seismic event and determine size on seismic computer
	ALL	Diagnose Load Rejection
	SRO	Enter AP-2 "Full Load Rejection" and direct crew response • VERIFY Control Rods Inserting In – AUTO • CHECK Steam Dump Actuation • CHECK LTB – ACTUATED • VERIFY DFWCS in AUTO • VERIFY PZR Pressure and Level Controlling in Automatic:
	RO	
	BOP	
	BOP	
	RO/BOP	
	RO	
	RO/BOP	Monitor plant parameters to verify plant stabilizing
	RO	Stabilize reactor between 20% and 30% using control rods

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _5 & 6_ **Page _5_ of _7_**

Event Description: __ Rod Movement, ATWS _____

Time	Position	Applicant's Actions or Behavior
	RO	Identify unwarranted rod motion
	SRO	Direct reactor trip
	RO	Attempt to trip reactor and announce reactor will not trip
	SRO	Direct manual trip by deenergizing buses 13D and 13E by opening feeder breakers
	RO/BOP	*****Open 13D/E***
	RO/BOP	*****Trip turbine***
	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
	SRO	Direct opening Reactor Trip Breakers locally
	SRO	Direct re-closing 13D and 13E feeder breakers

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _7 & 8_ **Page _6_ of _7_**

Event Description: __ Loss of 4kV Bus H, AFWP start _____

Time	Position	Applicant's Actions or Behavior
	BOP	Identify loss of 4kV Bus H
	RO/BOP	*****Start AFWP 1-3***
	SRO	Direct transition from E-0 to E-0.1 "Reactor Trip Response"
	SRO	Refer to ECA-0.3 "Restore 4kV Buses" as time permits
	SRO	Reference TS 3.8.1 (can be addressed after scenario)

Op-Test No.: _L051-1__ Scenario No.: __01__ Event No.: _9 & 10_ **Page _7_ of _7_**

Event Description: __LOCA, ECCS Pumps trip_____

Time	Position	Applicant's Actions or Behavior
	RO	Diagnose LOCA from Hi Rad and Containment pressure increasing
	SRO	Direct manual SI if time permits
	RO/BOP	Initiate SI if time permits
	SRO	Exits E-0.1 and enters E-0 again (may enter at step 4, CHECK SI)
	ALL	Perform actions of E-0
	BOP	Implement Appendix E, ESF Auto Actions, Secondary And Auxiliaries Status • VERIFY Phase A, Cont. Vent Isol., SI actuated properly • VERIFY MFW Isol, Containment Spray, MSL Isol response correct • CHECK ECCS flow and VERIFY pump operation
		• VERIFY two trains CCW
	RO/BOP	*****Manually start SIP 1-1***
	SRO	Tailboard transition from E-0 at step 13 to E-1 "Loss of Reactor or Secondary Coolant"
	ALL	Perform verifications and actions of E-1
		• Secure Containment Spray pumps
		• Secure RHR pumps
	SRO	May direct transition to FR-C.1 "Inadequate Core Cooling" or FR-C.2 "Degraded Core Cooling" depending on plant conditions
	SRO	Tailboard and direct transition to E-1.2 "Post LOCA Cooldown and Depressurization"
		TERMINATE SCENARIO WHEN TRANSITION TO E-1.2 OR FR-C.1 OR FR-C.2 OCCURS FIRST OCCURS

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES

A. EPOS phones to request a reduction to 650 MW, to be completed in 30 minutes, and to stay at that level for 24 hours. The crew should determine and start a boration, and commence the ramp per AP-25.

B. A clogged RCP seal injection filter requires the operators to diagnose the problem and to monitor the RCP bearings for increased temperatures. They will respond per AR PK04-22, resolving the problem by swapping filters.

C. PT-505 has failed as is, and as the ramp progresses, T_{REF} should hang up, causing an unusually high T_{AVG} and little rod motion. Manual rods will have to be used to bring T_{AVG} to within the normal range. I&C will discover a root valve out of position, and opening the root valve restores PT-505 to use. Rod control is available for automatic control when needed. Response should be guided by AP-5.

D. A seismic event results in a loss of offsite power. This in turn results in a load rejection. The crew must stabilize the plant at 30% per AP-2.

E. When the RO attempts to stabilize power at 30% using rods, a continuous rod motion will require a reactor trip. An ATWS occurs, requiring the opening of bus feeder 13D 13E to trip the reactor.

F. A loss of 4kV bus H occurs after the trip. The crew must respond to the trip w/o the associated equipment, and pursue restoration of the bus.

G. The only available AFW pump, 1-3 will fail to auto start, requiring a manual start of the pump.

H. A small break LOCA occurs approximately five minutes after the trip, as well as an overcurrent trip of SIP 1-2 and CCP 1-2. SIP 1-1 fails to auto start. This results in a loss of high and intermediate head injection, until SIP 1-1 is manually started.

I. The crew will transition from E-0 to E-1, and to E-1.2 to initiate an RCS cooldown.

J. The scenario is terminated after transition to E-1.2 occurs, or if a transition to FR-C.1 or FR-C.2 occurs.

ATTACHMENT 1 - SIMULATOR SET-UP

TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
Setup Simulator per Checklist	Init 515	100% power, EOL, C_B = 40 • Integrators: BA - 0 and PW – 0 • Tags: CT - CCP 1-1, FCV-110A Closed with Pink Off Normal Magnet
Setup	Drill 81	Reset normal engineering values
Setup	Drill 6401, or manually enter: • ser 0146 act,0,0,0,d,0 • loa cvc65 act,f,0,0,d,0	Clears CCP 1-1, overides DC undervoltage PK

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 0 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 40 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 6400	After SFM 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	pmp sis1 1,0,0,0,d,0 pmp cvc2 4,0,0,0,c,fnispr(1).lt.5, pmp sis2 4,0,0,0,d,0	SIP 1-1 fails to auto start CCP 1-2 trips on OC when started SIP 1-2 trips on OC when started
	0 min	Pmp afw2 1,0,0,0,d,0	Blocked Auto Start AFWP 1-3
X	3 min	**CALL AS EPOS**	**Require Ramp to 650 Mw Net. Start ramp within 5 minutes, be at load in 30 minutes**
	< 98%	mal cvc8 act 100,240,0,c,fnispr(1).lt.98,	Clogged seal injection filter.
X	**When requested**	**Clear mal cvc8 and report seal injection filter swap completed**	
	During ramp	xmt tur2 1,0,0,0,d,0 #pxmtst1(1)	Turb 1st Stage Press PT-505 Fail As Is
X	**When requested**	**Report PT-505 root valve closed, and ready to reopen. Clear malf to simulate opening**	
	< 65% power	mal seil act,0.25,5,0,c,fnispr.lt.65,0	0.25g earthquake
	On reactor trip	mal rcs3a act 5,300, 300,c,fnispr(1).lt.5,0	5" (8000 gpm) small break LOCA
	On Seismic	mal syd1 act 1,0,15,c,jmlseil,0	Loss of start-up power
		mal rod6a act 10,0,0,c,fnispr(1).lt.25 mal rod6b act 0,0,0,c,fnispr(1).lt.35	Uncontrolled rod motion in manual and auto
	On reactor trip	mal eps4e act 2,0,30,c,fnispr(1).lt.5,0	4kV bus H differential on reactor trip
	On reactor trip	mal afw1 act 0,0,60,c,fnispr(1).lt.5,0	TDAFP trips on overspeed on seismic
X	**When requested**	mal pp15a clr mal pp15b clr	Locally opens Train A & B RTBs
X	**When requested**	**Initially report operator unsuccessful resetting TDAFP**	
	RCS pressure < 900#	tc prcmstar.lt.900,mal rcs3a act,2,1,0,d,0	Reduce LOCA size to delay accumulator injection
X	**If desired after entering EOP-E-1**	mal syd2 clr loa syd2 t,0,d loa syd1 t,0,d	<u>Restores 230kV power.</u> Report to crew that S/U power is available
X	**When Requested**	Drill 4	Rack in SI Accum breakers
X	**When Requested**	loa afw 11 act,1,0,0,d,0	Opens AFW pump cross-tie valve

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:	ORANGE - CCP 1-1 MOW
PROTECTED EQUIPMENT:	Train B, Buses H & G, Prot. Sets 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:

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

.

TURNOVER ITEMS:

* CCP 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:

* CCP 1-1 pump seal repairs.

ANNUNCIATORS IN ALARM

* None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: EOL
   b. Power History: 100%
   c. Boron concentration is 40 ppm from a sample taken 4 hours ago.
   d. Have been placing the deborating demineralizer in service for 15 minutes approximately every two hours. It was last removed from service 30 minutes ago.
   e. 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: __DCPP____ **Scenario No.: _02_** **Op-Test No.: _L051-1_**

Examiners:_____ **Operators**:_____

_____ _____

_____ _____

Initial Conditions: 100% Power, BOL, 1000 ppm CB

Turnover: PRA Status: GREEN. Protected Equipment: Train A& B, Buses F, H & G, Prot. Sets I, II, III, IV. Homeland Security: YELLOW. Boron concentration is 1000 ppm from a sample taken 4 hours ago. Borating the RCS ~ 2 gal every 2 hours. The last boration was completed 30 minutes ago. ΔI is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power. PT-403 is out of service, affecting Subcooling Margin and RVLIS indications for the affected train.

Event No.	Malf. No.	Event Type*	Event Description
1	pmp asw1	C	Loss of Aux Salt Water pump 1-1 **(3 minutes after turnover)**
2	Vlv cvc16	C	Failure of CVCS-8152, Letdown Containment Iso. Vlv. **(6 minutes after standby ASW pump start)**
3	xmt rcs16	I	Loop 1 T_{COLD} failure **(3 minutes after excess letdown established)**
4	Mal cws2a	C	Condenser tube leak **(10 minutes after rods placed to manual)**
5		R	Ramp
6	Loa cnd1	C	Condenser vacuum leak **(3 minutes after ramp below 92%)**
7		M	Reactor Trip
8	Pmp ccw2	C	Component Cooling Water pump 1-2 trip **(on reactor trip)**
9	Pmp afw2	C	Loss of Aux Feed Water **(on reactor trip)**
10		M	Establish Condensate or AFW Flow

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

Op-Test No.: _L051-1__ Scenario No.: __02__ Event No.: _1___ Page _1_ of _6_

Event Description: ___Loss of Aux Salt Water Pump 1-1_____

Time	Position	Applicant's Actions or Behavior
	BOP	Acknowledge alarm PK01-03 and diagnose ASW pump trip
	SRO	Respond per Alarm Response Procedure PK01-03 for Loss of ASW
	SRO	Transition to Abnormal Procedure OP AP-10, Loss of ASW
	BOP	Start standby ASW pump 1-2
	SRO	Direct maintenance to investigate
	SRO	Review Tech Spec 3.7.8 and identify a 72 hr action
	SRO	May review ECG 17.2, ASW Continuous Chlorination System

Op-Test No.: _L051-1__ Scenario No.: __02__ Event No.: _2_ Page _2_ of _6_

Event Description: __ Letdown Containment Isolation Valve 8152 Fails Closed (caused by momentary ground)___

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Acknowledge alarm PK20-22 "125 VDC Bus Ground"
	SRO	Direct Nuclear Operator to Investigate 125V DC Sys Grd Bus 12 Batt
	RO/BOP	Acknowledge alarm PK04-21 "Letdown Press/Flo/Temp"
	BOP	Diagnose letdown isolated and 8152 failed closed
	RO	Reduces charging flow to minimum for RCP seal injection only
	SRO	Respond Per AR PK04-21
	SRO	Direct Chemistry to secure Argon injection
	BOP	Close letdown orifice isolation valves 8149A,B,C
	RO	Monitor PRT pressure, level, and temperature for possible relief valve lifting from CVCS system
	SRO	Direct Excess letdown placed in service per OP B1A:IV "CVCS – Excess Letdown – Place In Service and Remove From Service"
	SRO	Tailboard reactivity implications of placing Excess Letdown in service
	BOP	Place Excess Letdown in service
		• Open the CCW from Excess Letdown Heat Exchanger Isolation Valve
		• Open the Excess Letdown Isolation Valves CVCS-1-8166 and 8167
		• Open Excess Letdown Pressure Control Valve HCV-123
	RO	Monitors PZR level controlling with reference

Op-Test No.: _L051-1__ Scenario No.: __02__ Event No.: _3___ Page _3_ of _6_

Event Description: __Loop 1 T_{COLD} Failure High_____

Time	Position	Applicant's Actions or Behavior
	SRO	Acknowledge alarms PK06-03 "PPS RTD Failure" and PK06-04 "PPS Trouble"
	RO	Diagnose inward rod motion as unwarranted
	RO	Place rod control in manual
	RO/BOP	Diagnose RCS Loop 1 T_{AVG} temperature indication failure (may determine failure as T_{COLD} failure)
	SRO	Enter AP-5 "Malfunction of Eagle 21 Protection and Control Channel"
		• VERIFY Primary and Secondary Control Systems Controlling Properly in AUTO
		• DETERMINE Extent of Eagle 21 Instrument Failure:
		• Open ALL the doors for the racks in the affected protection set.
		• Identify which "CHANNEL SET FAILURE" red LEDs are LIT
		• Determine which Instrument Channels are in the affected rack using Attachment 4.1 " Reactor Trip and ESF Bistable Channels to be Placed in Correct Position per Technical Specifications."
		• VERIFY Affected Instrument(s) Channel Outputs are NOT selected for Control or Backup, as required
		• VERIFY Failed Channels NOT Selected as Recorder Inputs
	RO	Defeat Loop 1 ΔT and T_{AVG} input
	RO	Adjust T_{AVG} to T_{REF} using manual rod control
	RO	Place rod control back to auto
	SRO	Review Tech Specs 3.3.1.E

Op-Test No.: _L051-1__ Scenario No.: __02__ Event No.: _4 & 5_ Page _4_ of _6_

Event Description: ___ Condenser Tube Leak & Ramp_____

Time	Position	Applicant's Actions or Behavior
	BOP	Acknowledge alarm PK12-05 "COND PPS DISCH HDR CATION COND'TY HI"
	SRO	Implements AP-20 "Condenser Tube Leak"
	BOP	CHECK Condensate Cation Conductivity • Determines conductivity to be approximately 60 uS/cm
	BOP	DETERMINE the Condenser Quadrant in Which the Leak is Located: • Determines leak to be in NE Quad
	BOP	PREVENT Condensate Demin Bypassing: • Check FCV-230 CLOSED • OPEN the supply breaker for FCV-230
	SRO	Determine ramp to 50% at 25 MW/min required per attachment 4.1
	SRO	Implement AP-25 "Rapid Load Reduction" for ramp
	RO/BOP	• Place DEH MW and IMP feedbacks in service. • Set TARGET to around 600 MW • Set RAMP RATE to 25 MW/min • Push GO
	RO	VERIFY Control Rods Inserting in AUTO
	RO	VERIFY PZR Backup Heaters – ON
	RO/BOP	VERIFY at Least One CCP In Service
	RO/BOP	VERIFY DFWCS Controlling S/G Levels in AUTO
	RO	BORATE RCS
	RO	CHECK PZR Pressure and Level - TRENDING TO PROGRAMMED BAND

Op-Test No.: _L051-1__ Scenario No.: __02__ Event No.: _6, 7, 8_ Page _5_ of _6_

Event Description: ___Vacuum Leak, Reactor Trip, CCW Pump 1-2 _____

Time	Position	Applicant's Actions or Behavior
	SRO	Acknowledge alarms PK12-04 "Polishers Effluent DO2 Hi" and PK10-11 "Condenser Press/Level"
	BOP	Diagnose vacuum decreasing
	SRO	Transition to AP-7 "Degraded Condenser"
	SRO	• Condenser Pressure LESS THAN maximum per Attachment 6.2
	ALL	• STABILIZE Condenser Pressure by reducing load at an increased rate
	SRO	Determine need for and direct reactor trip
	RO	Initiate unit / reactor trip
	ALL	Perform immediate actions E-0 "Reactor Trip or Safety Injection" • VERIFY Reactor tripped • VERIFY Turbine tripped • VERIFY Vital 4kV buses energized • VERIFY SI Not required
	RO/BOP	Diagnose CCW pump 1-2 trip and failure of auto start of standby pump
	RO/BOP	Manually start standby CCW pump

Op-Test No.: _L051-1_ Scenario No.: 02 Event No.: _9 & 10_ Page _6_ of _6_

Event Description: ___Loss of Aux Feed Water and Establish Condensate Flow___

Time	Position	Applicant's Actions or Behavior
	SRO	Transition from E-0 to E-0.1 "Reactor Trip Response"
	BOP	Diagnose MDAFW pump 1-3 trip and failure of TDAFW pump
	BOP	Take manual control of AFW Level Control Valves and attempt to establish AFW flow to meet 435 gpm flow requirement
	BOP	Diagnose AFW pump 1-2 trip leaving unit with no AFW available
	SRO	Determines RED path on heat sink and transitions to FR-H.1 "Response to Loss of Secondary Heat Sink"
	SRO	Direct crew in implementation of FR-H.1 "Response to Inadequate Heat Sink"
	SRO	Dispatch operator to start TDAFW pump
	RO/BOP	Trip RCPs
	RO/BOP	Adjust Steam Dumps to 8.38 turns
	RO/BOP	Try to establish feedflow from Condensate System
	RO/BOP	• *****Depressurize RCS to block SI***
	RO/BOP	• Open PORV to depressurize RCS below SI block setpoints
	RO/BOP	• Block PZR Low Pressure SI and Lo Steamline Pressure SI
	RO/BOP	• Control RCS Pressure between 1500 and 1865 PSIG using PORV
	RO/BOP	• Verify Main Feed Isolation Valves open
	RO/BOP	• *****Depressurize two intact SGs to 490 psig***
	RO/BOP	• Close MSIV and Bypass valves
	RO/BOP	• Depressurize using 10% steam dumps
	RO/BOP	• Increase charging as needed to maintain PZR level control
	RO/BOP	Verify AFW flow to all SGs on return of TDAFW pump to service
	SRO	May continue to depressurize until Condensate flow is established
		Terminate when AFW or Condensate flow is established

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES (modified FRH1D)

A. A Loss of ASW pump 1-1 requires the operator to manually start ASW pump 1-2 and enter TS 3.7.8.

B. 8152 fails closed due to an intermittent ground on the associated DC bus, which isolates letdown. Excess letdown will need to be placed in service, and require manual makeup control.

C. Loop 1 T_C RTD fails high. The crew should diagnose the failure, stabilize the plant, restore plant parameters, and address Tech Specs 3.3.1 in accordance with AP-5.

D. A condenser tube leak occurs, reaching limits of OP AP-20 requiring a fast ramp per AP-25.

E. Near the end of the ramp, a vacuum leak will force a unit trip.

F. MDAFW Pump 1-3 trips on overcurrent following the reactor trip; and the Level Control Valves for MDAFW Pump 1-2 fail closed in auto, requiring opening the LCVs manually to establish AFW flow.

G. After the LCVs are opened by the operator, MDAFW Pump 1-2 trips on overcurrent requiring the entry into FR-H.1 and establishing feed flow from the Condensate System.

H. CCW pump 1-2 trips on the reactor trip, and CCW pump 1-3 will fail to auto start, requiring a manual start.

I. The crew will respond to an FR-H.1 and depressurize the RCS and SGs to establish feed flow from the condensate system. During the SG depressurization, the TDAFWP will be restored, allowing procedure transition.

J. Scenario is terminated when AFW flow from the TDAFW pump is established.

ATTACHMENT 1 - SIMULATOR SET-UP

CONSOLE ENTRY	DESCRIPTION
INIT 501	Initialize the simulator at 100% power, BOL
DRILL 81	Normalize Engineering Values
DRILL 41	Fails PT 403 and SCMM on VB-2

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary. **(OOS-SCMM/PI-403/PAM4)**
- ☐ 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, and CCP boron status current.
- ☐ 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:
  - QP TAVG, ALM/MODE-1, QP CHARGING, BIG U1169
  - RBU is updated.
  - PEN running.
  - R2B blowdown flows at 90 gpm.
  - Reactor trip status correct [1](Pg 2 of Group display Mode-1).
  - Operational mode correct for current conditions.[2]
  - 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

INITIATES:

	TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
X	0 min	DRILL 6300	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below).
	0 min	pmp ccw2 1,0,0,0,d,0 pmp ccw3 4,0,0,120,c,fnispr(1).lt.5,0	CCW 13 fail to auto start on trip of CCW 12
	3 min	Pmp asw1 4,0,0,180,d,0 Pmp asw2 1,0,0,d,0	ASW 11 trip, ASW 12 fail to auto start
	+ 6 min	ser 1192 act,1,0,120,c,xv1i243c,5 vlv cvc16 2,0,60,120,c,xv1i243c,0	125V DC SYS GRD BUS 12 BATT 8152 Fails Closed (conditional on ASW12 start)
	+ 3 min	xmt rcs16 3,679,120,180,c,xv2i224o,0	Loop1 TCold Fail High (conditional on 8166 open)
X	When Requested	When asked about which LEDs are lit for Tcold failure	**Red LEDs on Protection Set 1, Rack 2 only** **(channel set failure LED on Tcold)**
	+ 5 min	Mal cws2a act 5,120,300,c,xc1i085f,0	Condenser tube leak (cond rods to manual)
X	When Requested	Dcs cnd3 act,0,0,0,d,0	Open breaker for FCV-230
	18 min	loa CND1 act,0.01,180,0,c,fnispr(1).lt.92,0	Loss of condenser vacuum **(ensure boration started first)**
	On start signal	pmp afw2 4,0,0,0,c,jafp13,0	AFP pump 1-3 trips on start signal
	On reactor trip	ovr xv3i284c act,1,0,0,c,jpplp4,0	Cuts in AFW pump 1-2 interlock on reactor trip so that LCVs must be opened to get >435 gpm
	On reactor trip	cnh afw1 6,0,0,0,c,jpplp4,xv3i149m cnh afw2 6,0,0,0,c,jpplp4,xv3i150m	Closes LCVs on trip, clears when controller in manual
	When AFW flow > 435	tc wafwl110.gt.19 tc wafwl111.gt.19 pmp afw1 4,0,0,9,c,wafwpd2.gt.61	AFP pump 1-2 O/C trip when AFW flow > 435
	On Rx trip	mal afw1 act 0,0,60,c,fnispr(2).lt.5,0	Trips TDAFP on reactor trip
X	**When Requested**	Report that attempts to reset TDAFP are so far unsuccessful and will continue to try to get it started. **DO NOT RESTORE UNTIL SG DEPRESSURIZATION HAS STARTED AND ON EXAMINER QUE.**	
X		To restore TDAFWP	**CLEAR** malfunction loa afw1 – reset loa afw2 – ramp to open

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**100**	**%**
GROSS GENERATION:	**1198**	**MWe**
NET GENERATION	**1154**	**MWe**
DAYS AT POWER:	**36**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	GREEN
PROTECTED EQUIPMENT:	Train A & B, Busses 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:

* PT-403

ACTIVE SHUTDOWN TECH SPECS / ECGS:

* PT-403 repairs. T.S 3.3.3.A - 30 days. Due in 29 days, 12 hours.

.

TURNOVER ITEMS:

* PT-403 failed low 12 hours ago. Expected to be returned to service in 6 hours.

OPERABILITY ITEMS:

*None

PRIORITY ITEMS FOR NEXT SHIFT:

*PT-403 repair

ANNUNCIATORS IN ALARM

- PK05-07, Subcooling Margin Lo/Lo-Lo
- PK05-09, RVLIS Lo Lvl RVLIS/SCMM Trouble

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: BOL
   b. Power history: - 36 days at 100%.
   c. Boron concentration is 1000 ppm from a sample taken 4 hours ago.
   d. Borating the RCS approximately 2 gallons every 2 hrs.
   e. The last boration was completed 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: __DCPP____ **Scenario No.: _03_** **Op-Test No.: _L051-1_**

Examiners: _____ **Operators:** _____
_____ _____
_____ _____

Initial Conditions: 2% Power, MOL, 1192 ppm CB, 79 Steps D, 549 T_{AVG} , Turbine latched, buses transferred to S/U transformer.

Turnover: PRA Status: GREEN. Protected Equipment: Train A & B, Buses F, G, H, Sets I, II, III, IV. Homeland Security: YELLOW. Boron concentration is 1192 ppm from a sample taken 4 hours ago. Borating 40 ppm/2 hrs expected during ramp. No one is in Containment, no entries are expected. U-2 is operating at 100% power. Continue with OP L-3, step 6.18, placing Main Feed Control Valves and Bypasses Valves in Auto and securing AFW.

Event No.	Malf. No.	Event Type*	Event Description
1		N/R	Main Feed Control Valves and Bypass Valves to Auto and Secure AFW
2	pmp cvc3	C	PDP trip **(10 minutes after turnover)**
3	vlv afw7	I	TDAFWP Supply Valve FCV-95 fails open **(5 minutes after letdown is restored)**
4	xmt mss1	I	Steam Dump Controller fails requiring manual control **(5 minutes after isolating TDAFW Pump)**
5	glb eps35	C	480V Bus G feeder breaker HG 10 trip **(5 minutes after closing steam dump controller)**
6	mal mss3	M	SG 12 Steam line break outside Containment **(10 minutes after HG 10 trips)**
7	vlv mss	C	All four MSIVs fail to close in auto **(on SI)**
8	mal ppl3	I	Failure of Auto SI **(on SI)**

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

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _1___ Page _1_ of _8_

Event Description: ___Startup – Place Main Feed Control Valves in Auto and Secure AFW_____

Time	Position	Applicant's Actions or Behavior
	SRO	Direct startup per OP L-3 step 6.18, placing Main Feed Control and Bypass valves in auto and securing AFW
	BOP	Verify SG narrow range level above reference on LI-505 using AFW Level Control Valves as needed.
	RO	Adjust reactor power to stay within AFW limits
	BOP	Place Main Feedwater Control Bypass valves in Auto on VB-3
	RO/BOP	Place Main Feedwater Control valves in Auto on CC-3
	BOP	Place LCVs for AFW to manual and reduce AFW flow to one SG at a time.

Op-Test No.: _L051-1__ **Scenario No.: __03__** **Event No.: _2__** **Page _2_ of _8_**

Event Description: __Trip of Positive Displacement Pump (Charging Pump 1-3)_____

Time	Position	Applicant's Actions or Behavior
	RO	Acknowledge annunciator PK04-16 "Recip Chg PP13 Temp/OC Trip"
	BOP	Check PDP tripped on overcurrent
	SRO	Transition from AR PK04-16 to AP-17 "Loss of Charging"
	RO/BOP	START A Centrifugal Charging Pump (CCP) • Verify suction flowpath – AVAILABLE • Verify charging pump recirc valves 8105 and 8106 – OPEN • Close FCV-128 • Start a CCP • Open FCV-128 to establish charging flow
	RO	VERIFY PZR Level Control In AUTO
	RO	VERIFY RCP Seal Flow between 8 and 13 gpm using HCV-142
	RO	CHECK PZR Level Controlling greater than 17%
	SRO	Direct and tailboard (as necessary) reestablishing letdown per OP B-1A:XII, CVCS-LETDOWN SYSTEM ESTABLISH NORMAL LETDOWN FOLLOWING ISOLATION.
	RO/BOP	Restore Letdown • Place letdown back pressure control valve, PCV-135 in manual and open 60% • Open PCV-135 to 50% • Increase normal charging to ≈87 gpm and adjust RCP seal injection flow to ≈ between 8 GPM and 13 GPM per RCP using HCV-142 • Open Letdown Orfice Isolation valve 8149c • Adjust PCV-135 to control at 350 psig and return to auto • Adjust charging flow as necessary to control PZR level on reference and return to auto • Adjust TCV-130 to control temperature and return to auto
	SRO	Reference ECG 8.1

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _3___ Page _3_ of _8_

Event Description: ___Inadvertent Turbine Driven AFW Pump start_____

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Identify Tavg decrease or SG levels increasing
	BOP	Diagnose TDAFW pump start
	SRO	Direct isolation of TDAFW and reestablishing control of T_{AVG}
	BOP	Take manual control of level control valves and close LCV-106, 107, 108, 109.(may shut FCV-37/38, steam supply valves from SG 1-2 and SG 1-3)
	RO	Control T_{AVG} as necessary with manual rods using 3 step pull and wait
	BOP	Verify MDAFW pumps are controlling SG level control
	SRO	Address Tech Spec 3.7.5 for TDAFW pump

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _4___ Page _4_ of _8_

Event Description: _____Failure of Steam Dump Controller HCV-507 in Auto_____

Time	Position	Applicant's Actions or Behavior
	ALL	Identify RCS temperature decrease and / or steam flow increase
	BOP	Identify steam dumps open
	RO/BOP	Diagnose failure of steam dump system
	SRO	Direct steam dump controller to be taken to manual and close dumps
	BOP	Take steam dump controller HCV-507 to manual and close dumps
	SRO	Direct RO to control T_{AVG} as necessary using 3 step pull and wait
	RO	Control T_{AVG} using 3 step pull and wait
	SRO	May Implement AP-5 "Malfunction of Eagle 21 Protection or Control Channel" for guidance

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _5___ Page _5_ of _8_

Event Description: ___Loss of 480V Bus G feeder breaker HG 10_____

Time	Position	Applicant's Actions or Behavior
	RO	Acknowledge annunciator PK17-22 "480V Bus 1G"
	BOP	Diagnose loss of 480V feeder breaker HG10 to 480V bus 1G
	SRO	Respond per AR PK17-22 and transition to AP-27 "Loss of Vital 4kV and / or 480V Bus"
	BOP	CHECK white potential light for bus HG 10 OFF
	BOP	VERIFY blue differential light OFF, diagnose trip on Over Current
	SRO	Contact Maintenance Services to investigate
	SRO	Implement Appendix 3.2 for loss of 480V bus G
	BOP	Place RCS PORV PCV-455C hand switch to closed
	SRO	Refer to TS 3.4.11
	BOP	Verify of Primary Water pump, Boric Acid pump, and Containment Fan Cooling Units running
	SRO	Direct field operators to transfer instrument bus to backup and battery to backup charger as needed
	RO	Monitor and maintain T_{AVG}, PZR Level and Reactor Power

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _6, 7 & 8___ Page _6_ of _8_

Event Description: ____Steam line break on SG 12 Outside Containment upstream MSIV, Auto SI Failure, MSIV failure_____

Time	Position	Applicant's Actions or Behavior
	ALL	Diagnose steam line break by steam noise, decreasing T_{AVG}, and increasing reactor power
	RO/BOP	Manually trip reactor before auto trip if time permits
	ALL	Perform immediate actions of E-0 "Reactor Trip or Safety Injection • VERIFY Reactor tripped • VERIFY Turbine tripped • VERIFY Vital 4kV buses energized • VERIFY SI Required
	ALL	Diagnose SI did NOT actuate
	RO	*****Manually initiate Safety Injection***
	BOP	Diagnose Main Steam Isolation Valves did NOT close
	BOP	*****Manually close MSIVs***
	RO/BOP	IMPLEMENT Appendix E, ESF AUTO ACTIONS, SECONDARY AND AUXILIARIES STATUS
	RO/BOP	Throttle AFW to greater than 435 gpm and to minimize cooldown
		Event Continued Next Page

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _6, 7 & 8___ Page _7_ of _8_

Event Description: ____Steam line break on SG 12 Outside Containment upstream MSIV, Auto SI Failure, MSIV failure_____

Time	Position	Applicant's Actions or Behavior
	SRO	Transition to E-2 "Faulted Steam Generator Isolation" step 11 of E-0
	RO/BOP	Isolate faulted SG 1-2 • 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 – FCV-37 • REMOVE Subcooled Margin Monitor Input From Any Isolated S/G
	RO/BOP	CHECK If ECCS Flow Should Be Reduced • RCS Subcooling GREATER THAN 20°F • Secondary heat sink satisfied • RCS Pressure – STABLE OR INCREASING • PZR Level – GREATER THAN 12%
		Event Continued Next Page

Op-Test No.: _L051-1__ Scenario No.: __03__ Event No.: _6, 7 & 8___ Page _8_ of _8_

Event Description: ____Steam line break on SG 12 Outside Containment upstream MSIV, Auto SI Failure, MSIV failure (CONTINUED)____

Time	Position	Applicant's Actions or Behavior
	SRO	GO TO EOP E-1.1, SI TERMINATION
	RO/BOP	RESET SI
	RO/BOP	ALIGN Charging • Check any CCP running • Depress Vital 4KV Auto Transfer Relay Resets: Blue Light - OFF • Stop all but one CCP • Stop Recip Chg Pp
	RO/BOP	ISOLATE Charging Injection • Close 8803A & B • Close 8801A & B
	RO/BOP	ESTABLISH Charging Flow • Throttle HCV-142 to 20% Demand • Open 8107 and 8108, Norm Chg to Regen Hx Stop Vlvs • Verify 8146 OR 8147 – OPEN • Verify 8145 AND 8148 – CLOSED • Throttle open FCV-128 to establish Charging flow
		TERMINATE WHEN NORMAL CHARGING ESTABLISHED

MAJOR EVENT SUMMARY

A. Continue startup from 2% power with placing main feedwater control and bypass valves in Auto and securing AFW, starting at OP L-3, step 6.18.

B. Charging Pump 1-3 trips, requiring a start of CCP 1-1 or 1-2 and restoring letdown. ECG 8.1 applies.

C. The TDAFW supply valve FCV-95 fails open, causing a cooldown and requiring manual shutting of the isolation valve. T.S. 3.7.5 applies.

D. 480V Vital Bus G trips, causing a loss of miscellaneous equipment and verifying backup equipment is running per AP-27. TS 3.4.11 will apply.

E. A Main Steam Line Break occurs upstream the MSIV but outside containment. This requires entry into E-0 and isolation per E-2.

F. All four MSIVs fail to automatically close and require manual actuation.

G. A failure of Auto SI requires manual initiation.

H. The scenario is terminated when normal charging is established.

ATTACHMENT 1 - SIMULATOR SET-UP

	TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
X	Setup Simulator per Checklist	Expert Screen "Init j3bc007a"	2% power, MOL, C_B = 1192 • Integrators: BA – 40 and PW – 40
X	Setup		OP L-3, step 6.18 ready to be performed

CONTROL BOARD SETUP

- ☐ Copies of commonly used forms and procedures are available.
- ☐ Any tags are placed/removed as necessary.
- ☐ Primary integrator = 40 gal, Boron = 40 gal.
- ☐ Record PPC MAX (BOL = 99.8, **MOL = 100.0**, EOL = 100.2) on CC2 lamicoid
- ☐ The plant Abnormal Status Board is updated with boron concentration of 1004 for Charging pump concerns.
- ☐ 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 6500	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below)
	0 min	Vlv mss7 1,0,0,0,d,xv3i183c Vlv mss8 1,0,0,0,d,xv3i184c Vlv mss9 1,0,0,0,d,xv3i185c Vlv mss10 1,0,0,0,d,xv3i186c	MSIV Fail to Close in Auto
	0 min	Mal ppl3a act 1,0,0,d,0 Mal ppl3b act 1,0,0,d,0	Failure of Auto SI
	10 min	Pmp cvc3 4,0,0,600,d,0	PDP trip
	+5 min	Vlv afw7 2,1,60,300,c,xv2i214o	FCV-95 fail open for TDAFW conditional on 8149c opening
	+5	Xmt mss1 7,100,120,300,c,xv3i219c	HCV-507 fail in auto conditional on closing FCV-95 **NOTE: MAY HAVE TO MANUALLLY ACTUATE THIS IF LCVS ARE CLOSED INSTEAD**
	+5	Bkr eps35 4,0,0,300,c,xc3i040m	480V Feeder HG10 trip conditional on HCV-507 going to manual
	+10	Mal mss3b act 3.06e+06,60,600,c,xv4o227g	Steamline break outside containment upstream MSIVs on SG 2 conditional on HG10 opening

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**2**	
POWER LEVEL:	**2**	**%**
GROSS GENERATION:	**0**	**MWe**
NET GENERATION	**0**	**MWe**
DAYS AT POWER:	**0**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	GREEN
PROTECTED EQUIPMENT:	Train A & B, Buses F, H & G, 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:

* Continue Startup. OP L-3, all steps and prerequisites have been completed up to and in preparation for Step 6.18, placing a Main Feed Control Valves and Bypass Valves in Auto, and securing AFW.

OPERABILITY ITEMS:

* None

PRIORITY ITEMS FOR NEXT SHIFT:

* Continue Startup and achieve 35% power

ANNUNCIATORS IN ALARM

* None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: MOL
   b. Power History: 2%
   c. Boron concentration is 1192 ppm from a sample taken 4 hours ago.
   d. 79 steps on Bank D
   e. Use rods as necessary to control power and temperature during initial ramp.
   f. Reactor Engineering will have ramp plan before 20% is achieved.
   g. ΔI is N/A at this time
   h. Controlling T_{AVG} at 549°F and normal RCS Pressure control
   i. Turbine is latched
   j. Buses transferred to S/U transformer

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: __DCPP____ **Scenario No.: _BU_** **Op-Test No.: _L051-1_**

Examiners: _____ **Operators**: _____

_____ _____

_____ _____

Initial Conditions: 100% Power, BOL, 1000 ppm CB

Turnover: PRA Status: GREEN. Protected Equipment: Train A& B, Buses F, H & G, Prot. Sets I, II,III,IV. Homeland Security: YELLOW. Boron concentration is 1000 ppm from a sample taken 4 hours ago. Borating the RCS 2 gal/2hrs. The last boration was completed 30 minutes ago. ΔI is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power.

Event No.	Malf. No.	Event Type*	Event Description
1		N	Swap from PDP to CCP 1-2 **(after turnover)**
2	xmt cvc19	I	VCT Level Transmitter LT-112 Fails Low **(2 minutes after PDP is secured)**
3	mal eps4c	C	Differential on 4kV Bus F **(10 minutes after reactor makeup is secured)**
4	pmp cnd1	C	Condensate Pump 1-1 Trip **(10 minutes after bus trip)**
	mal sei1		Seismic event **(10 minutes after pump trip)**
5	asisrwst	C	RWST Leak **(1 minute after seismic)**
6		R	Ramp unit offline
7	mal rcs3c	M	LOCA **(when RWST < 48% or evaluator prompt)**
8	pmp sis2 pmp cvc2	C	SIP 1-2 fail to auto start, CCP 1-2 trips **(on SI)**
9		M	Loss of Cold Leg Recirc. Capability

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

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _1_ Page _1_ of _7_

Event Description: __Swap from PDP to CCP 1-2_____

Time	Position	Applicant's Actions or Behavior
	SRO	Tailboard swap from PDP to CCP 1-2 per OP B-1A: V, CVCS-Transfer Charging Pumps
	BOP	Notify Radiation Protection of pump swap
	RO	Take manual control of CCP output flow controller FCV-128 and reduce to 0 demand
	BOP	Start CCP 1-2
	RO	Take manual control of PDP using HC-459A and lower output while increasing FCV-128, CCP output flow
	BOP	Secure PDP when CCP 1-2 is controlling charging flow
	RO	Adjust FCV-128 to maintain PZR level
	RO	Place FCV-128 in auto
	RO	Maintain seal injection flow in band using HCV-142, Seal Injection Backpressure Controller
	SRO	Notify Work Control that PDP is secured and ready for clearance
	SRO	Reference Equipment Control Guideline 8.1

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _2___ Page _2_ of _7_

Event Description: ___VCT Level Transmitter LT-112 Fail Low_____

Time	Position	Applicant's Actions or Behavior
	RO	Report unexpected Auto Makeup (may identify PPC trend for increasing VCT level when auto makeup occurs)
	RO/BOP	Diagnose LT-112 failing low
	SRO	Enter OP AP-19, Malfunction of Reactor Makeup Control System
	SRO	Direct RO to place Reactor makeup system in manual and makeup as necessary
	RO	Places 1/MU to stop and monitors VCT level
	RO	Makeup as necessary to maintain VCT level in operating band
	SRO	May have LT-114 at Hot Shutdown Panel compared to LT-112 on Control Board
	SRO	Notifies TM to repair

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _3___ Page _3_ of _7_

Event Description: _____Differential on 4kV Bus F_____

Time	Position	Applicant's Actions or Behavior
	RO	Acknowledge annunciator PK18-16, 4kV Bus F Differential Lockout
	BOP	Verify Bus F deenergized (white potential light off) with diff lockout (Blue light on)
	SRO	Transition from PK18-16 to AP-27, Loss of 4kV / 480V Bus
	ALL	Check DRPI deenergized
	RO	Immediately place control rods to manual
	BOP	Verify BUS DE-ENERGIZED DUE TO OVER CURRENT OR DIFFERENTIAL from blue light on
	SRO	CONTACT MS TO INVESTIGATE
	BOP	Verify ASW pump running
	BOP	Verify 2 CCW pumps running – manually start CCW pump 1-3
	BOP	Verify charging pump running
	SRO	Implement Appendix 3.1 for loss of Bus F
	BOP	Direct field operator to place DRPI on backup power per OP A-3:I
	BOP	Place PCV-474 hand switch to close
	BOP	Direct field operator to transfer Battery 1-1 to Chg 121.
	BOP	Start CFCU 1-5 in Fast Speed
	RO	Place Rod Control to auto when DRPI restored
	SRO	Reference associated TS, including: TS 3.1.7, Rod Position Indication TS 3.4.11, PORVs TS 3.8.1, AC Sources - Operating

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _4___ Page _4_ of _7_

Event Description: ___Condensate Pump Trip_____

Time	Position	Applicant's Actions or Behavior
	RO	Acknowledge annunciator PK10-06, CNDS & CNDS BSTR PPS
	BOP	Diagnose loss of one of two running condensate pumps (Condensate Pump 1-1 trip)
	SRO	Implement to AP-15, Loss of Feedwater Flow, Section D
	BOP	Select manual and start Condensate Pump 1-3
	BOP	Verify MFP suction pressure > 260 psig
	SRO	Exit procedure

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _5 & 6___ Page _5_ of _7_

Event Description: __Seismic leading to RWST Leak and Ramp off-line_____

Time	Position	Applicant's Actions or Behavior
	ALL	Acknowledge annunicator PK15-24,"Seismic event"
	ALL	Report seismic event felt in control room
	SRO	Request SM to implement CP M-4 "Response to Earthquake"
	BOP	Reports earthquake magnitude of 0.27
	ALL	Monitor plant parameters for change based on pre-earthquake
	SRO	May classify event as an ALERT
	RO/BOP	Diagnose RWST level decrease
	SRO	May implement ECA-1.1 "Loss of Emergency Coolant Recirculation" Appendix M to makeup to the RWST
	SRO	Update crew on plant shutdown per AP-25 "Rapid Load Reduction"
	RO/BOP	• Place DEH MW and IMP feedbacks in service. • Set TARGET to approximately 600 MW • Set RAMP RATE to 25 MW/min • Push GO
	RO	VERIFY Control Rods Inserting in AUTO
	RO	VERIFY PZR Backup Heaters – ON
	RO/BOP	VERIFY at Least One CCP In Service
	RO/BOP	VERIFY DFWCS Controlling S/G Levels in AUTO
	RO	BORATE RCS
	RO	CHECK PZR Pressure and Level - TRENDING TO PROGRAMMED BAND
	SRO	Review TS 3.5.4 for RWST

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _7 & 8___ Page _6_ of _7_

Event Description: ___LOCA and CCP / SIP pump trips_____

Time	Position	Applicant's Actions or Behavior
	RO	Report rapid decrease in RCS pressure and PZR level in conjunction with several annunciators
	BOP	Identifies RCS leak is to containment
	RO	Determine leak rate is >50 gpm
	SRO	Direct a manual Safety Injection if auto SI has not occurred
	RO	Manually initiate SI if not initiated automatically
	ALL	Performs E-0 immediate actions
	ALL	Perform immediate actions E-0 "Reactor Trip or Safety Injection" • VERIFY Reactor tripped • VERIFY Turbine tripped • VERIFY Vital 4kV buses energized • VERIFY SI Actuation
	BOP	Implement Appendix E, ESF Auto Actions, Secondary And Auxiliaries Status
		• VERIFY Phase A, Cont. Vent Isol., SI actuated properly
		• VERIFY MFW Isol, Containment Spray, MSL Isol response correct
		• CHECK ECCS flow and VERIFY pump operation
		• VERIFY two trains CCW
	RO/BOP	Recognize SIP 1-2 did NOT auto start and start SIP1-2
	ALL	Determine RCP trip criteria of RCS Pressure < 1300 psig with CCP or SIP running met
	RO/BOP	*****Trip RCPs***
	SRO	Check Containment Pressure NOT normal and transitions to E-1 "Loss of Reactor or Secondary Coolant" at Step 13 of E-0
	RO/BOP	Acknowledge annunicator PK03-01 and reports RWST <33%
	SRO	Direct transition to E-1.3 due to low RWST level based on Foldout Page

Op-Test No.: _L051-1__ Scenario No.: __ BU __ Event No.: _9___ Page _7_ of _7_

Event Description: _____Loss of Cold Leg Recirculation Capability_____

Time	Position	Applicant's Actions or Behavior
	ALL	Perform initial actions of E-1.3 • Reset SI, Phase A and B • VERIFY RHR pumps • VERIFY two trains ASW/CCW • ALIGN RHR to SI Pump
	RO/BOP	Report low containment recirc sump level (< 92 feet elevation)
	SRO	Direct transition to ECA-1.1 at step 6.d. of E-1.3 based on sump levels
	SRO	Conduct tailboard or updates crew on procedure transition as appropriate
	SRO	Implement Appendix W "RCS Makeup from VCT" (may delegate)
	ALL	Perform ECA-1.1 • CHECK RWST level < 4% • *****STOP all pumps taking suction from RWST – Secure SIP 1-2 and Containment Spray Pumps*** • Implement Appendix W (should delegate) • *****DEPRESSURIZE All intact SGs to 680 psig at MAX rate***
		May meet conditions for Magenta Path on Core Cooling and transition to FR-C.2 "Degraded Core Cooling"
		TERMINATE ON START OF SG DEPRESSURIZATION, OR TRANSITION TO FR-C.2

MAJOR EVENT SUMMARY AND SCENARIO OBJECTIVES (modified ECA1112D)

A. Crew starts CCP 1-2 and secures the PDP for a clearance.

B. VCT Level channel LT-112 fails low. This is indicated on the control board, but not on the PPC. Makeup must be placed in manual control because of continuous makeup from the transmitter failure.

C. A differential trip occurs on 4kV Bus F requiring the crew to start redundant loads, place DRPI on B/U and swap the Battery Charger supplying Battery 1-1.

D. Condensate Pump 1-1 trips, requiring a manual start of Condensate Pump 1-3. If the pump is not started in a timely manner, low suction of the MFW Pumps occurs and Steam Generator levels decrease to the Lo-Lo level trip setpoint.

E. A 0.27g seismic event occurs, resulting in a rupture of the RWST. The large seismic event results in the requirement to commence a normal plant shutdown. The rate of RWST draining may result in a crew decision to perform a fast ramp.

F. A four (4) square inch (8000 gpm) SBLOCA occurs resulting in the need for a safety injection.

G. CCP 1-2 trips on auto start and SI Pp 1-2 does not automatically start. Due to the loss of 4kV Bus F, a loss of both high-head and intermediate-head injection pumps occur, which requires starting SI Pump 1-2 manually. Once started and RCP trip criteria is met, the RCPs should be shutdown.

H. Because of the RWST rupture, the procedural transition is from E-0 to E-1.3 (crew may transition to E-1), then to ECA-1.1 due to low recirc sump level. When the RWST level reaches 4%, the crew should shut down SI pump 1-2. In addition, all S/Gs should be depressurized at a maximum rate to 680 psig, then as necessary to fully inject the accumulators to attempt to maintain RVLIS level.

I. Entry into FR-C.2 is possible, and will be a potential termination point.

J. The scenario is terminated when SG depressurization commences.

ATTACHMENT 1 - SIMULATOR SET-UP

CONSOLE ENTRY	DESCRIPTION
INIT 501	Initialize the simulator at 100%, BOL
Drill 81	Reset engineering values

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 boron concentration of 1004 for Charging pump concerns.
- ☐ 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

INITIATES:

	TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
X	0 min	DRILL 6100	After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by DRILL FILE or MANUALLY (below)
	0 min	pmp cnd3 1,0,0,0,d,0	Condensate Pump 1-3 Fail to Auto Start
	0 min	pmp sis2 1,0,0,0,d,0	Fails SI pump 1-2 auto start
x	3 min	DRILL FILE 6101	**AFTER CCP Swap to simulate clearance**
	+2 min	xmt cvc19 3,0,120,120,c,xv2i266o,0	VCT LT-112 Fail Low conditional of PDP swap
	+10 min	mal eps4c,act 2,0,600, c,xc2i027o,0	4 kV Bus F differential conditional on 1/MU to stop
X	**When requested**	loa eps1 act,1,0,0,d,0	DRPI on backup
X	**When requested**	Drill 46	Swap battery 1-1 to charger 121
	+10 min	pmp cnd1 4,0,0,600,c,jmleps4,0	Condensate Pump 1-1 Trip **(Verify Goes Active After 4KV Bus Trip)**
	+10 min	mal sei1 act 0.27,15,600, c,xv3i225c,0	0.27g seismic conditional on Condensate Pump start
	+1 min	Ramp asisrwst=0.33e6,1800,60,c,xn15 d05.eq.1	Drains RWST to 4% on seismic over 30 minutes
X	If RWST level decrease not discovered in 5 minutes after seismic	Call as Security Guard	**Report large quantities of water in the Aux Building 100 ft. area**
X	If ramp has not started within 10 minutes of discovery	Call as Shift Manager	**IF ramp not started in 5 minutes, Report Operational Decision Making meeting was held on RWST and are directing unit offline within next 3 hours at > 10 MW/min.**
	≈ 15 min after seismic	mal rcs3c act 4,180,0,c,asisrwst.lt.2.0e6,0	4 square-inch (8000 gpm) SBLOCA when RWST level gets under ≈48% **DO NOT GO ACTIVE until reactivity manipulation**
	On Rx. trip	mal afw1 act 0,0,0,c,fnispr.lt.5,0	Fails TDAFW pump
	On Rx. trip	pmp cvc2 6,15,1,45,c,fnispr.lt.5,0	Trips CCP 1-2 on O/C at SI
	When requested	**Report RWST has a crack at the bottom of the tank and is spilling water**	
X	When Requested (long evolution may want to wait 15 minutes.)	loa,cvc63,1 loa,cvc64,1 (already modeled closed) loa,sfp6,1	Valve alignment to makeup to RWST 8466 Open (From Blender) 8467 Open 8258 Closed 8973 Open (From SFP)

X	When requested	dsc sis14 act,1,0,0,d,0 dsc rhr4 act,1,0,0,d,0	Close breaker to valve 8976 Close breaker to valve 8980
X	When requested	vlv rhr5 2,0,0,0,d,0 vlv mfw1 2,0,0,0,d,0 vlv mfw4 2,0,0,0,d,0	RHR 8980 manual close MFW-FCV-438 manual close MFW-FCV-441 manual close
X	**When requested**	**Drill 4**	**Racks in Accumulator breakers**
X	**If requested / after commencing S/G depressurization**	**CLEAR mal afw1 loa afw1 act,0,0,0,d,0 loa afw2 act,1,0,0,d,0**	**Restarts TDAFP. (Speeds up RCS depressurization)**
	If requested	**Drill 20, 21, 22, or 23 run in Manual**	**Opens DC knife switches to selected 4kV pumps**

DIABLO CANYON POWER PLANT
OPERATIONS SHIFT LOG
UNIT 1

OPERATING MODE:	**1**	
POWER LEVEL:	**100**	**%**
GROSS GENERATION:	**1198**	**MWe**
NET GENERATION	**1154**	**MWe**
DAYS AT POWER:	**36**	

Shift Manager Turnover

PRA RISK STATUS NEXT SHIFT:	GREEN
PROTECTED EQUIPMENT:	Train A & B, Buses F, G & H, Protection 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:

* The Positive Displacement Pump needs to be secured for clearance. Swap from PDP to CCP 1-2. It is expected to be out of service for 36 hours for an oil change. All compensatory measures for ECG 8.1 have been taken.

OPERABILITY ITEMS:

None

TROUBLESHOOTING TEAMS / LEADS:

None

PRIORITY ITEMS FOR NEXT SHIFT:

* Positive Displacement Pump

ANNUNCIATORS IN ALARM

None

SHIFT FOREMAN TURNOVER

COMMENTS:

1. Reactivity management:
   a. Time in core life: BOL
   b. Power History: 36 days at 100%
   c. Boron concentration is 1000 ppm from a sample taken 4 hours ago.
   d. Borating the RCS approximately 2 gallons every two hrs.
   e. The last boration was completed 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.