RO ADMIN
A.1.a

SEQUOYAH NUCLEAR PLANT

1211 NRC
RO ADMIN A.1.a

RO

JOB PERFORMANCE MEASURE

Task: CONTAINMENT FORMALDEHYDE STAY TIME CALCULATION

Task #: 0210030104

Task Standard: Calculate containment formaldehyde stay time and determine respiratory protection requirements in accordance with 0-TI-OPS-000-001.0.

Time Critical Task: **YES:** _____ **NO:** X

K/A Reference/Ratings: 2.1.26 (3.4 / 3.6)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 12 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation
2. Calculator

References:

	Reference	Title	Rev No.
1.	0-TI-OPS-000-001.0	Containment Formaldehyde Stay Time Calculation	7
2.			

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Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 is in Mode 1 at 100% power.
2. A Level Switch inside lower containment needs repair.
3. 0-PI-OPS-000.011.0, Containment Access Control during Modes 1 – 4, has been initiated in preparation for a lower containment entry to investigate the alarm condition.
4. The containment entry evolution requires at least 120 minutes.
5. A Chemistry sample taken today at 0900 hours yielded a lower containment formaldehyde concentration of 1.32 ppm.
6. Section 4.0, Prerequisite Actions, of 0-TI-OPS-000-001.0 is complete.

INITIATING CUES:

1. Calculate the allowable containment stay time for the given formaldehyde concentration using 0-TI-OPS-000-001.0 Section 5.1.
2. Identify all required action(s) if any to complete the level switch repair in accordance with 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation.
3. If any actions are required, write them on the JPM briefing sheet.
4. Assume all required IV's have been completed.

Start Time _____

STEP 1 :	Obtain a copy of 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation.	___ SAT ___ UNSAT
Standard:	Copy of 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation is obtained.	
Cue	Provide a copy of 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation.	
Comment		

NOTES

1) Section 5.1 may be marked N/A if Unit 1 lower containment entry will not be performed
2) Section 5.1 may be marked N/A if only the Annulus or Airlock will be entered OR if breathing apparatus will be worn.
3) 0-TI-CEM-090-016.1 or 0-TI-CEM-090-016.2 can be used by Chemistry to determine formaldehyde concentration in containment. Previous sample results may be used if Chemistry or Industrial Safety determines they are valid.

STEP 2 :	**5.1 Unit 1 Lower Containment Entry** [1] **RECORD** U-1 lower containment formaldehyde sample results and sample date/time (from Chemistry). _____ ppm Date/Time: _____	___ SAT ___ UNSAT
Standard:	The examinee records the lower containment formaldehyde sample results.	
Comment		

STEP 3 :	**5.1 Unit 1 Lower Containment Entry** [2] **IF** entry to Unit 1 lower containment is required with formaldehyde concentration greater than 1.5 ppm, **THEN** **PERFORM** the following:	___ SAT ___ UNSAT
Standard:	The Examinee addresses the step as N/A based on the initial conditions.	
Comment		

STEP 4 :	**5.1 Unit 1 Lower Containment Entry** [3] **CALCULATE** Unit 1 Lower containment stay time **USING** the following equation: 0.3 ppm X 480 minutes = _____ minutes sample recorded Step **5.1[1]**	___ SAT ___ UNSAT
Standard:	Examinee calculates a containment stay time of 109.1 (± 1) minutes	**CRITICAL**
Comment		
Examiner Note:	0.3 ppm X 480 minutes = _____ minutes sample recorded Step 5.1[1] 0.3 ppm X 480 minutes 144 = 109.1 minutes 1.32 1.32	

STEP 5 :	**5.1 Unit 1 Lower Containment Entry** [4] **INDEPENDENTLY VERIFY** stay time results obtained in Step **5.1[3]**.	___ SAT ___ UNSAT
Standard:	Examinee addresses the step as completed based on the initial conditions.	
Comment		

STEP 6 :	**5.1 Unit 1 Lower Containment Entry** [7] **IF** any required task CANNOT be performed within allowed stay time, **THEN** **PERFORM** the following: [7.1] **CONTACT** Industrial Safety for additional guidance. [7.2] **EVALUATE** need for Lower Containment Purge in accordance with 0-SO-30-3. [7.3] **DO NOT CONTINUE** task UNTIL one of the following conditions are met: • Job Safety Analysis has been performed. **OR** • Stay time is acceptable.	___ SAT ___ UNSAT
Standard:	Examinee determines the job will take longer than the allowed stay time and writes the following on the JPM briefing sheet. Contact Industrial Safety. Evaluate need for Lower Containment Purge. Do not continue until a Job Safety Analysis has been performed.	**CRITICAL**
Comment		

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 is in Mode 1 at 100% power.
2. A Level Switch inside lower containment needs repair.
3. 0-PI-OPS-000.011.0, Containment Access Control during Modes 1 – 4, has been initiated in preparation for a lower containment entry to investigate the alarm condition.
4. The containment entry evolution requires at least 120 minutes.
5. A Chemistry sample taken today at 0900 hours yielded a lower containment formaldehyde concentration of 1.32 ppm.
6. Section 4.0, Prerequisite Actions, of 0-TI-OPS-000-001.0 is complete.

INITIATING CUES:

1. Calculate the allowable containment stay time for the given formaldehyde concentration using 0-TI-OPS-000-001.0 Section 5.1.
2. Identify all required action(s) if any to complete the level switch repair in accordance with 0-TI-OPS-000-001.0, Containment Formaldehyde Stay Time Calculation.
3. If any actions are required, write them on the JPM briefing sheet.
4. Assume all required IV's have been completed.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

RO ADMIN
A.1.b

SEQUOYAH NUCLEAR PLANT

1211 NRC
RO ADMIN A.1.b

SRO

JOB PERFORMANCE MEASURE

Task: Monitor Critical Safety Status Trees for Degraded Core Cooling

Task #: 3110450601

Task Standard: The Examinee monitors Status Trees and identifies a Red Path for Pressurized Thermal Shock (P.1) and Orange Paths for Core Cooling and Containment.

Time Critical Task: **YES:** _____ **NO:** **X**

K/A Reference/Ratings: 2.1.7 (4.4)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** **X**

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** **X**

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: **6 minutes** **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:
1-FR-0 UNIT 1 STATUS TREES
References:

	Reference	Title	Rev No.
1.	1-FR-0 UNIT 1	STATUS TREES	1
2.			

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JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:
The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. The crew is responding to an event in Unit 1 that started 20 minutes ago.
2. The following data has been obtained.

Source Range	$5x10^{-5}$		RCS Subcooling	- 50 deg
Source Range SUR	negative		RCP	Not running
CET (XR-94-101)	Quad 1		CET (XR-94-102)	Quad 1
B03	735		A06	685
B05	685		C06	685
D03	725		E06	625
D07	650		G04	725
E02	635		C04	650
F01	XXX		C08	625
F05	685		G02	650
H01	650		G08	XXX
CET (XR-94-101)	Quad 2		CET (XR-94-102)	Quad 2
B09	685		A10	725
B11	685		C12	650
D11	625		E14	635
B13	650		G12	650
D13	XXX		C08	625
F09	650		E10	650
F13	625		G08	XXX
F15	650		G14	XXX
CET (XR-94-112)	Quad 3		CET (XR-94-102)	Quad 3
H11	650		J08	650
H15	635		J10	675
K09	625		J14	650
K13	650		L08	625
K15	675		L12	650
M11	XXX		L14	XXX
M13	650		N10	635
D09	675		N12	625
CET (XR-94-112)	Quad 4		CET (XR-94-102)	Quad 4
H01	650		J02	625
H03	650		J06	650
H07	625		J08	625
K01	650		L02	650
K05	650		L04	625
M03	675		L08	625
M07	XXX		N02	650
D07	650		N04	650
RVLIS Lower range	40%		RVLIS Lower range	40%
LI-68-368			LI-68-371	

S/G Pressure		S/G NR Levels	
#1	520	#1	15%
#2	550	#2	12%
#3	550	#3	12%
#4	560	#4	17%
RCS Pressure	0 psig	RCS Cold Leg Temperature	220 deg F
		AFW Flow	
Containment Pressure	8 psig	#1	200 gpm
Pressurizer Level	0%	#2	170 gpm
		#3	150 gpm
		#4	150 gpm

INITIATING CUES:

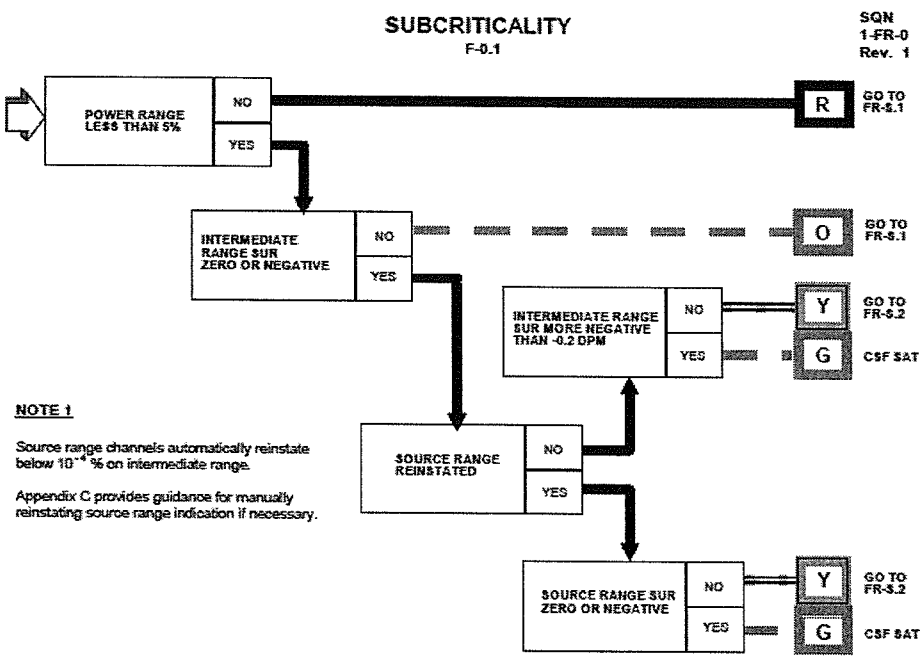
1. You are the Unit 1 CRO.
2. The SRO has directed you to monitor the status trees using 1-FR-0 UNIT 1 STATUS TREES.
3. Determine if there are any red and/or orange path safety functions.
4. If you have determined there are red and/or orange path safety functions, write them on the JPM Briefing Sheet.

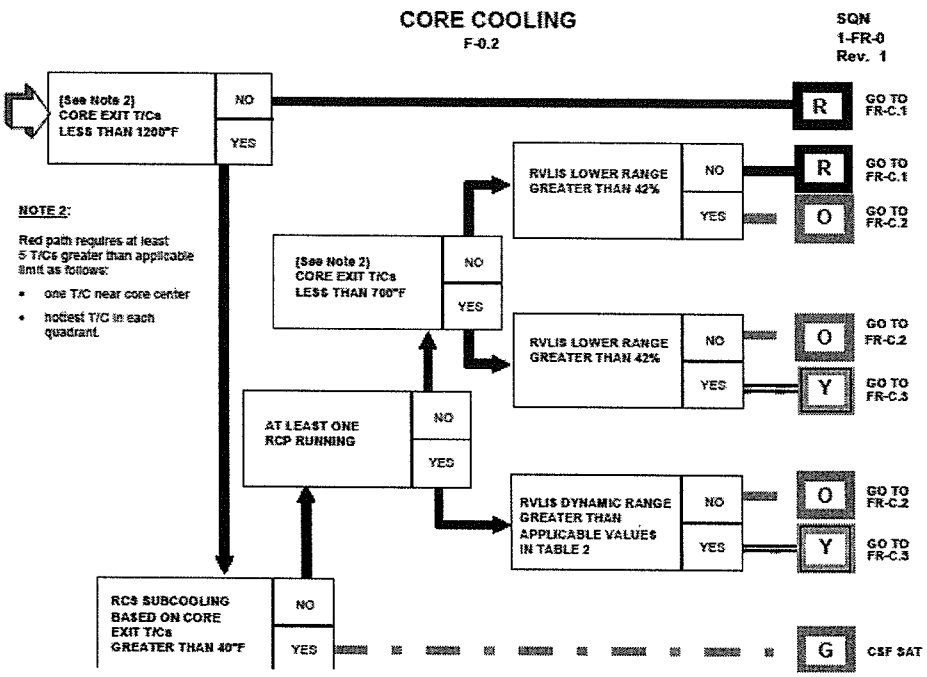
Acknowledge to the examiner when you are ready to begin.

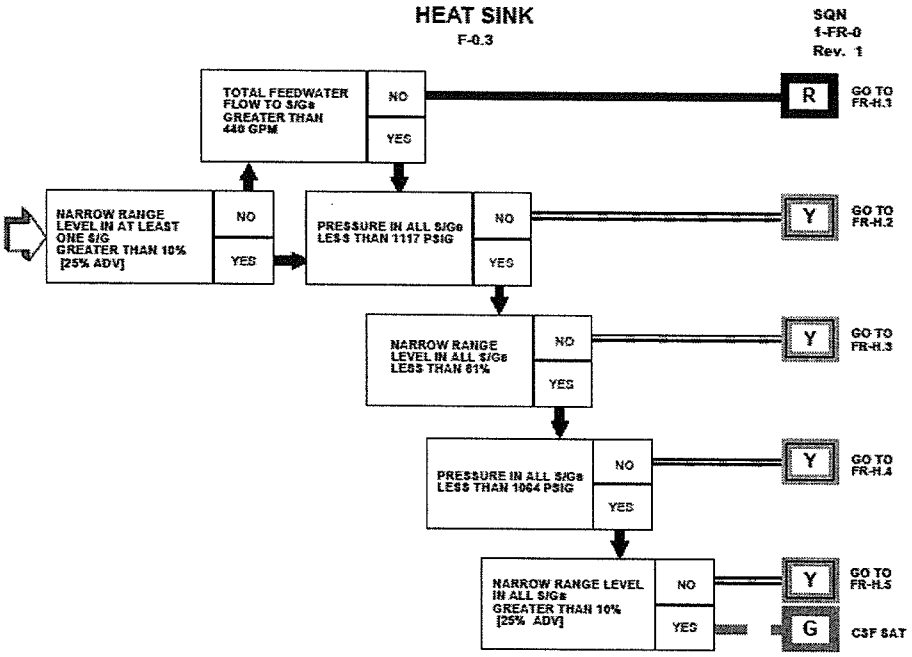
HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

Start Time _____

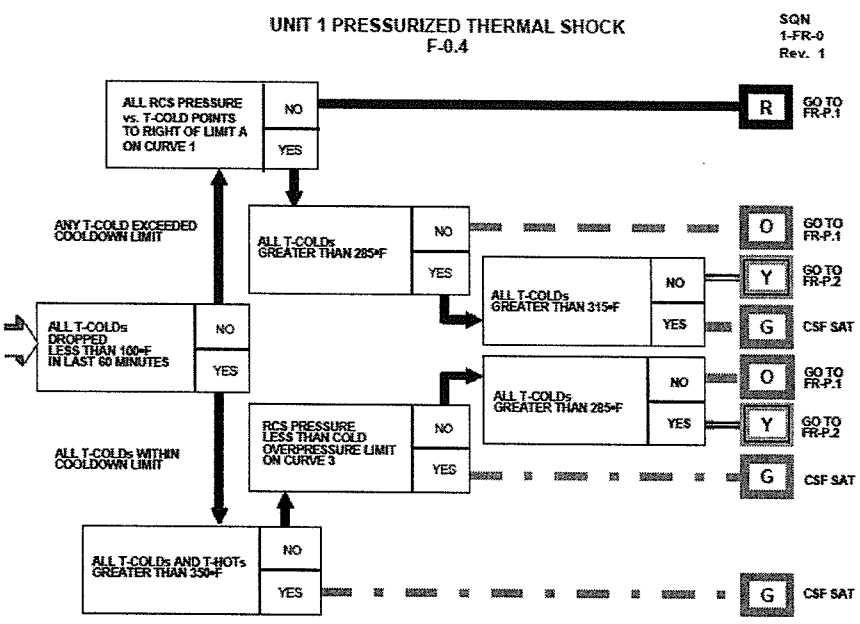
STEP 1 :	Obtain a copy of 1-FR-0 UNIT 1 STATUS TREES.	___ SAT ___ UNSAT
Standard:	Copy of 1-FR-0 UNIT 1 STATUS TREES is obtained.	
Cue	Provide a copy of 1-FR-0 UNIT 1 STATUS TREES.	
Comment		

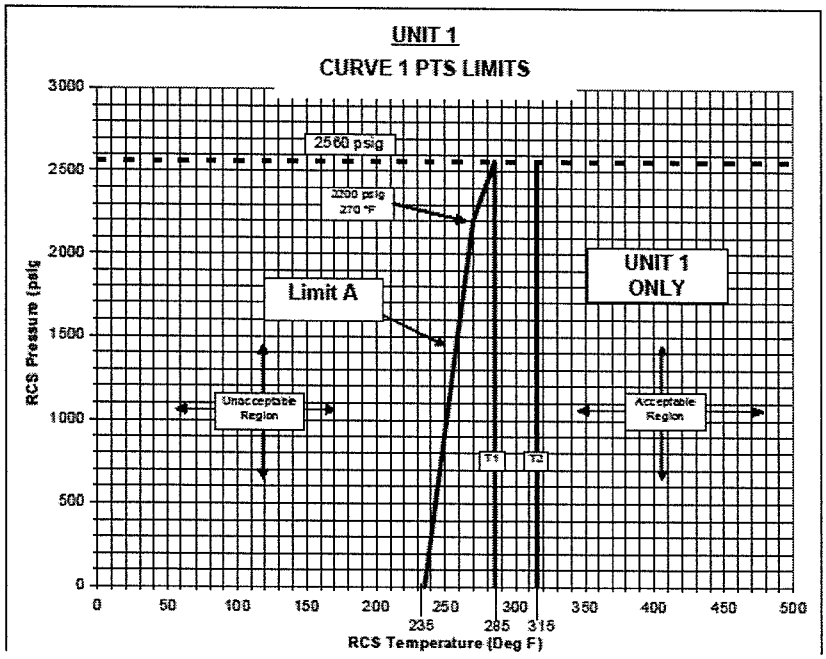
STEP 2 :	Monitor Subcriticality 	____ SAT ____ UNSAT
Standard:	Examinee determines a green path exists for Subcriticality	
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	

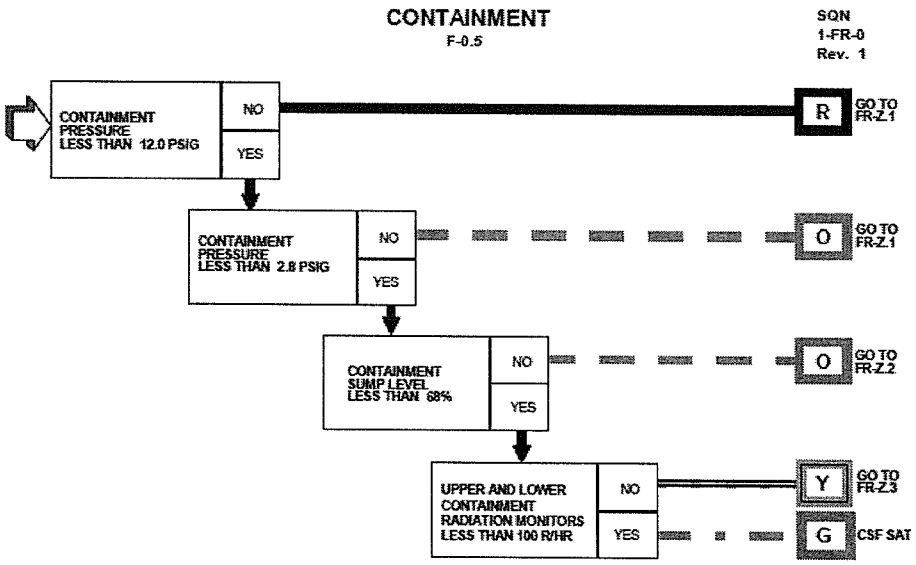
STEP 3 :	Monitor Core Cooling  	____ SAT ____ UNSAT
Standard:	Examinee determines an orange path exists for Core Cooling	CRITICAL
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	

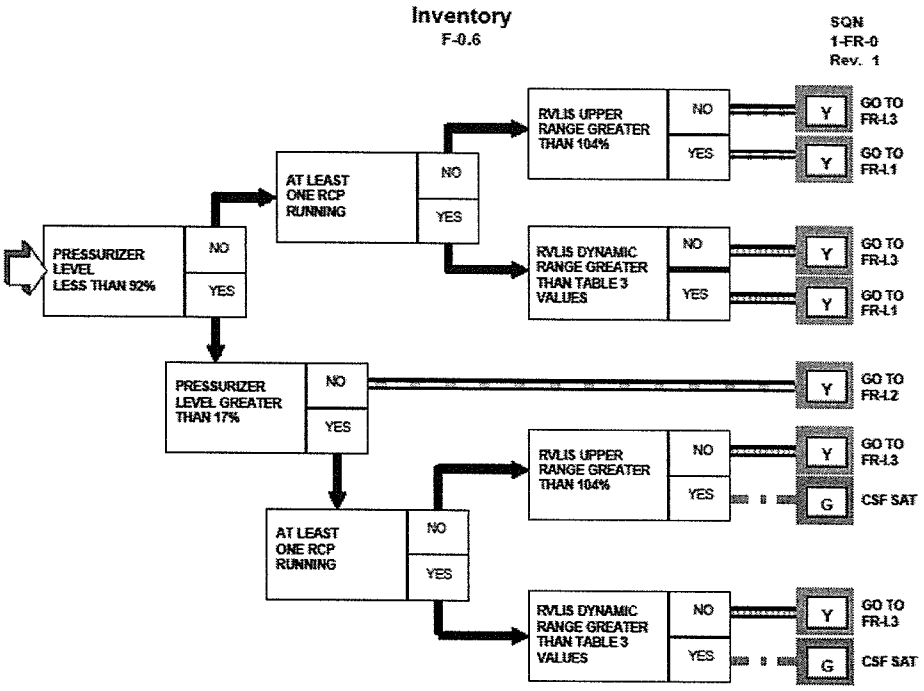
STEP 4 :	Monitor Heat Sink  	___ SAT ___ UNSAT
Standard:	Examinee determines a yellow path exists for Heat Sink	
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	

STEP 5 :	Monitor Pressurized Thermal Shock	____ SAT ____ UNSAT
Standard:	Examinee determines a red path exists for Pressurized Thermal Shock	**CRITICAL**
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	





STEP 6 :	Monitor Containment 	____ SAT ____ UNSAT
Standard:	Examinee determines an orange path exists for Containment	**CRITICAL**
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	

STEP 7 :	Monitor Inventory 	____ SAT ____ UNSAT
Standard:	Examinee determines a yellow path exists for Inventory	
Comment		
Examiner Note:	The start data is provided to the examinee on the handout sheet.	

Terminating Cue:	**The JPM is terminated when the Examinee returns the JPM briefing sheet to the Examiner.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. The crew is responding to an event in Unit 1 that started 20 minutes ago.
2. The following data has been obtained.

Source Range	$5x10^{-5}$		RCS Subcooling	- 50 deg
Source Range SUR	negative		RCP	Not running
CET (XR-94-101)	Quad 1		CET (XR-94-102)	Quad 1
B03	735		A06	685
B05	685		C06	685
D03	725		E06	625
D07	650		G04	725
E02	635		C04	650
F01	XXX		C08	625
F05	685		G02	650
H01	650		G08	XXX
CET (XR-94-101)	Quad 2		CET (XR-94-102)	Quad 2
B09	685		A10	725
B11	685		C12	650
D11	625		E14	635
B13	650		G12	650
D13	XXX		C08	625
F09	650		E10	650
F13	625		G08	XXX
F15	650		G14	XXX
CET (XR-94-112)	Quad 3		CET (XR-94-102)	Quad 3
H11	650		J08	650
H15	635		J10	675
K09	625		J14	650
K13	650		L08	625
K15	675		L12	650
M11	XXX		L14	XXX
M13	650		N10	635
D09	675		N12	625
CET (XR-94-112)	Quad 4		CET (XR-94-102)	Quad 4
H01	650		J02	625
H03	650		J06	650
H07	625		J08	625
K01	650		L02	650
K05	650		L04	625
M03	675		L08	625
M07	XXX		N02	650
D07	650		N04	650
RVLIS Lower range	40%		RVLIS Lower range	40%
LI-68-368			LI-68-371	

S/G Pressure		S/G NR Levels	
#1	520	#1	15%
#2	550	#2	12%
#3	550	#3	12%
#4	560	#4	17%
RCS Pressure	0 psig	RCS Cold Leg Temperature	220 deg F
		AFW Flow	
Containment Pressure	8 psig	#1	200 gpm
Pressurizer Level	0%	#2	170 gpm
		#3	150 gpm
		#4	150 gpm

INITIATING CUES:

1. You are the Unit 1 CRO.
2. The SRO has directed you to monitor the status trees using 1-FR-0 UNIT 1 STATUS TREES.
3. Determine if there are any red and/or orange path safety functions.
4. If you have determined there are red and/or orange path safety functions, write them on the JPM Briefing Sheet.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

RO ADMIN
A.2

SEQUOYAH NUCLEAR PLANT

1211 NRC
SRO ADMIN A.2

SRO

JOB PERFORMANCE MEASURE

Task: Perform a Reactivity Balance Calculation using 0-SO-62-7, Appendix E

Task #: 0040070101

Task Standard: Examinee performs 0-SO-62-7 Appendix E, Reactivity Balance Calculation and determines a dilution is required to reduce RCS boron concentration by 100 ppm. (100 to 104 is allowed)

Time Critical Task: **YES:** _____ **NO:** X

K/A Reference/Ratings: 2.2.12 (3.7)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 30 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. 0-SO-62-7 Boron Concentration Control Appendix E

References:

	Reference	Title	Rev No.
1.	0-SO-62-7	Boron Concentration Control Appendix	65

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Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 is in MODE 1, Cycle 19 with initial conditions as follows:
2. Time in Core Life is 200 MWD/MTU.
3. Power is at 25%.
4. Boron Concentration 1400 ppm.
5. CB D 185 steps.
6. Current Xenon concentration is -2430 pcm

FINAL CONDITIONS:

1. Power 100%.
2. CB D 228 steps.
3. Final projected Xenon concentration will be -2250 pcm.
4. Power change rate is 3%/hour.

INITIATING CUES:

1. Perform steps 1 and 2 of 0-SO-62-7, BORON CONCENTRATION CONTROL Appendix E, Reactivity Balance calculation.
2. Determine the change in boron concentration, round to the nearest whole number ppm.

Start Time _____

STEP 1 :	Obtain a copy of 0-SO-62-7 Boron Concentration Control, Appendix E Reactivity Balance Calculation.	___ SAT ___ UNSAT
Standard:	Copy of 0-SO-62-7 Boron Concentration Control, Appendix E Reactivity Balance Calculation is obtained.	
Cue	Provide a copy of 0-SO-62-7 Boron Concentration Control, Appendix E Reactivity Balance Calculation.	
Comment		

REACTIVITY BALANCE CALCULATION

NOTE 1 One calculation is required for each major change. Calculation is an approximation of required Boron change. Eyeball interpolation of graphs is expected.

NOTE 2 Dilution or Boration value for power change from P_1 % to P_2% power in time period T with rods moving from step position R_1 to R_2. (Subscript convention: 1 = current point, 2 = target point)

STEP 2 :

[1] ENTER the following data:

DATA REQUIRED	DATA	Where To Get
Current RCS Boron	_____ ppm	Chem Lab or Estimate using Appendix O
Core Burnup	_____ MWD/MTU	ICS U0961
Current Reactor power	_____ %	NIS or ICS
Final Reactor power	_____ %	As required for plant conditions
Total Reactor Power change	_____ Δ%	Δ Current and final Reactor power
Rate of Reactor power change	_____ %/hr	As required for plant conditions
Number of hours to change power	_____ hr(s)	As required for plant conditions
Current Rod Position	_____ steps	ICS or MCR Board
Final Rod Position	_____ steps	Estimate number of rod steps required to control Δf and rod withdrawal requirements for power change.

___ SAT
___ UNSAT

Standard:	Examinee records the data from 0-SO-62-7 Boron Concentration Control, Appendix E Reactivity Balance Calculation.	
Comment		
Examiner Note:	The start data is provided to the examinee on the JPM briefing sheet.	

CAUTION **Follow sign conventions explicitly. (See Example Power Ascension and Power Reduction.)**

Figure 1 U1C19 Power Defect BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.

STEP 3 :	[2] CALCULATE change in boron concentration by performing the following: Parameter / Where To Get / Calculation / Value [a] $\Delta\rho_{POWER\ DEFECT}$ / Attached Power Defect Curves: Unit 1: *Figure 1, 2, or 3* Unit 2: *Figure 8, 9, or 10.* / _____ pcm PD_1 (current) - _____ pcm PD_2 = / _____ pcm $\Delta\rho_{POWER\ DEFECT}$ (negative for power raise)	____ SAT ____ UNSAT
Standard:	Examinee determines reactivity change for power defect is -1100 pcm (-1125 to -1100 allowed)	**CRITICAL**
Comment		
Examiner Note:	Refer to 0-SO-62-7 Boron Concentration Control, Appendix E Figure 1.	
Examiner Note:	Initial and final power levels were given in the initial conditions.	

STEP 4 :	[2] CALCULATE change in boron concentration by performing the following: **Parameter** / **Where To Get** / **Calculation** / **Value** [b] $\Delta\rho_{XENON}$ / $Xenon_1$: From ICS* or REACTF (either current conditions or projection to initial condition). $Xenon_2$: From ICS* or REACTF (projection over time period T). *(ICS Xenon values must add negative sign). / NOTE: Xenon reactivity must be negative. _____pcm XE_2 - _____pcm XE_1 = (current) $\Delta\rho_{XENON}$ _____pcm (negative for rise in Xenon conc)	____ SAT ____ UNSAT
Standard:	Examinee determines reactivity change for xenon is +180 pcm.	CRITICAL
Comment		
Examiner Note:	Refer to 0-SO-62-7 Boron Concentration Control, Appendix E Figure 4.	
Examiner Note:	Initial and final xenon levels were given in the initial conditions.	

Figure 4 U1C19 Inserted Rod Worth BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.

STEP 5 :	[2] CALCULATE change in boron concentration by performing the following: **Parameter** / **Where To Get** / **Calculation** / **Value** [c] $\Delta\rho_{RODS}$ / Attached Rod Worth Curves: Unit 1: *Figure 4, 5, or 6* Unit 2: *Figure 11, 12, or 13.* / _____pcm $Rods_2$ - _____pcm $Rods_1$ = (current) $\Delta\rho_{RODS}$ _____pcm (negative for rod insertion)	____ SAT ____ UNSAT
Standard:	Examinee determines reactivity change for control rods is +300 pcm.	CRITICAL
Comment		
Examiner Note:	Refer to 0-SO-62-7 Boron Concentration Control, Appendix E Figure 4.	
Examiner Note:	Initial and final rod positions were given in the initial conditions.	

STEP 6 :	[2] CALCULATE change in boron concentration by performing the following: Parameter | Where To Get | Calculation | Value [d] $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$ (CHANGE IN REACTIVY DUE TO POWER DEFECT, XENON, AND RODS) _____pcm ___[a]___pcm Δρ POWER DEFECT + ___[b]___pcm Δρ XENON + ___[c]___pcm Δρ RODS =	___ SAT ___ UNSAT
Standard:	Examinee determines the total reactivity change is -620 pcm (-620 to -645 is allowed).	**CRITICAL**
Comment		

STEP 7 :	[2] CALCULATE change in boron concentration by performing the following: Parameter | Where To Get | Calculation | Value [e] $\Delta\rho_{\text{BORON}}$ (CHANGE IN BORON REACTIVITY) _____pcm (___[d]___pcm $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$) X (−1) = $\Delta\rho_{\text{BORON}}$	___ SAT ___ UNSAT
Standard:	Examinee determines the total boron reactivity change is 620 pcm (620 to 645 is allowed).	**CRITICAL**
Comment		

Figure 7 U1C19 Differential Boron Worth

NOTE Use "eye-ball" interpolation between closest parameter lines.

STEP 8 :	[2] CALCULATE change in boron concentration by performing the following: Parameter | Where To Get | Calculation | Value [f] Δppm_{BORON} (CHANGE IN BORON CONCENTRATION) (negative for dilution, positive for boration) ([e] pcm $\Delta\rho$ BORON) ÷ (_____ pcm/ppm Boron Worth) = _____ ppm from Fig. 7 (U-1) or Fig. 14 (U-2)	____ SAT ____ UNSAT
Standard:	Examinee determines the total boron concentration change is-100 ppm. (-100 to -104 is allowed)	**CRITICAL**
Comment		
Examiner Note:	Refer to 0-SO-62-7 Boron Concentration Control, Appendix E Figure 7 to determine the differential boron worth of -6.18 to 6.17 pcm/ppm.	
Examiner Note:	Initial boron concentration was given in the initial conditions.	

Terminating Cue:	**The JPM is complete when the examinee returns the JPM briefing sheet to the Examiner.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 is in MODE 1, Cycle 19 with initial conditions as follows:
2. Time in Core Life is 200 MWD/MTU.
3. Power is at 25%.
4. Boron Concentration 1400 ppm.
5. CB D 185 steps.
6. Current Xenon concentration is -2430 pcm

FINAL CONDITIONS:

1. Power 100%.
2. CB D 228 steps.
3. Final projected Xenon concentration will be -2250 pcm.
4. Power change rate is 3%/hour.

INITIATING CUES:

1. Perform steps 1 and 2 of 0-SO-62-7, BORON CONCENTRATION CONTROL Appendix E, Reactivity Balance calculation.
2. Determine the change in boron concentration, round to the nearest whole number ppm.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

APPENDIX E
Page 1 of 18

REACTIVITY BALANCE CALCULATION

NOTE 1 One calculation is required for each major change. Calculation is an approximation of required Boron change. Eyeball interpolation of graphs is expected.

NOTE 2 Dilution or Boration value for power change from P_1 % to P_2 % power in time period T with rods moving from step position R_1 to R_2. (Subscript convention: 1 = current point, 2 = target point)

[1] ENTER the following data:

DATA REQUIRED	DATA	Where To Get
Current RCS Boron	_____ ppm	Chem Lab or Estimate using Appendix O
Core Burnup	_____ MWD/MTU	ICS U0981
Current Reactor power	_____ %	NIS or ICS
Final Reactor power	_____ %	As required for plant conditions
Total Reactor Power change	_____ Δ%	Δ Current and final Reactor power
Rate of Reactor power change	_____ %/hr	As required for plant conditions
Number of hours to change power	_____ hr(s)	As required for plant conditions
Current Rod Position	_____ steps	ICS or MCR Board
Final Rod Position	_____ steps	Estimate number of rod steps required to control ΔI and rod withdrawal requirements for power change.

APPENDIX E
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CAUTION **Follow sign conventions explicitly. (See Example Power Ascension and Power Reduction.)**

[2] CALCULATE change in boron concentration by performing the following:

Parameter	Where To Get	Calculation	Value
[a] $\Delta\rho_{\text{POWER DEFECT}}$	Attached Power Defect Curves: Unit 1: *Figure 1, 2, or 3* Unit 2: *Figure 8, 9, or 10.*	_____pcm PD_1 - _____pcm PD_2 = (current)	_____pcm $\Delta\rho_{\text{POWER DEFECT}}$ (negative for power raise)
[b] $\Delta\rho_{\text{XENON}}$	$Xenon_1$: From ICS* **or** REACTF (either current conditions **or** projection to initial condition). $Xenon_2$: From ICS* **or** REACTF (projection over time period T). *(ICS Xenon values must add negative sign).	**NOTE:** Xenon reactivity must be negative _____pcm XE_2 - _____pcm XE_1 = (current)	_____pcm $\Delta\rho_{\text{XENON}}$ (negative for rise in Xenon conc)
[c] $\Delta\rho_{\text{RODS}}$	Attached Rod Worth Curves: Unit 1: *Figure 4, 5, or 6* Unit 2: *Figure 11, 12, or 13.*	_____pcm $Rods_2$ - _____pcm $Rods_1$ = (current)	_____pcm $\Delta\rho_{\text{RODS}}$ (negative for rod insertion)
[d] $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$ (CHANGE IN REACTIVY DUE TO POWER DEFECT, XENON, AND RODS) **[a]** pcm $\Delta\rho$ POWER DEFECT + **[b]** pcm $\Delta\rho$ XENON + **[c]** pcm $\Delta\rho$ RODS =			_____pcm
[e] $\Delta\rho_{\text{BORON}}$ (CHANGE IN BORON REACTIVITY) (**[d]** pcm $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$) **X** (−1) =			_____pcm $\Delta\rho$ BORON
[f] $\Delta ppm_{\text{BORON}}$ (CHANGE IN BORON CONCENTRATION) (**[e]** pcm $\Delta\rho$ BORON) ÷ (_____pcm/ppm Boron Worth) = _____ ppm from Fig. 7 (U-1) or Fig. 14 (U-2)			(negative for dilution, positive for boration)

[3] ENSURE independently verified by SRO in accordance with Appendix J.
(N/A if performed by an SRO to verify data provided by Rx. Eng) _____

APPENDIX E
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Example Power Ascension

NOTE Typical values displayed in this example are not Unit and Cycle specific, however, the following example indicates proper sign convention.

Current RCS boron	1000 ppm
Core burnup	3000 MWD/MTU
Current reactor power	70%
Final reactor power	100%
Total reactor power change	30%
Rate of reactor power change	5%/hr
Number of hours to change power	6 hours
Current rod position	180 steps
Final Rod Position	220 steps

Reactivity Balance:

[a] $\Delta\rho_{\text{Power Defect}}$ = 1210 pcm PD1 – 1720 pcm PD2 = –510 pcm

[b] $\Delta\rho_{\text{Xenon}}$ = –2262 pcm XE2 –(–2436) pcm XE1 = +174 pcm

[c] $\Delta\rho_{\text{Rods}}$ = –10 pcm Rods2 – (–275) pcm Rods1 = +265 pcm

[d] $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$ = –510 pcm + 174 pcm + 265 pcm = –71 pcm

[e] $\Delta\rho_{\text{BORON}}$ = –71 pcm x (–1) = + 71 pcm

Change in Boron PPM:

[f] (+71) pcm Boron ÷ (–6.35) pcm/ppm Boron worth = –11 ppm (dilution)

APPENDIX E
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Example Power Reduction

NOTE Typical values displayed in this example are not Unit and Cycle specific, however, the following example indicates proper sign convention.

Current RCS boron	500 ppm
Core burnup	18000 MWD/MTU
Current reactor power	100%
Final reactor power	80%
Total reactor power change	-20%
Rate of reactor power change	-5%/hr
Number of hours to change power	4 hours
Current rod position	220 steps
Final Rod Position	200 steps

Reactivity Balance:

[a] $\Delta\rho_{\text{Power Defect}}$ = 2630 pcm PD1 – 2100 pcm PD2 = +530 pcm

[b] $\Delta\rho_{\text{Xenon}}$ = –3030 pcm XE2 –(–2884) pcm XE1 = –146 pcm

[c] $\Delta\rho_{\text{Rods}}$ = –220 pcm Rods2 – (–20) pcm Rods1 = –200 pcm

[d] $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$ = +530 pcm + (–146 pcm) + (–200 pcm) = +184 pcm

[e] $\Delta\rho_{\text{BORON}}$ = +184 pcm x (–1) = –184 pcm

Change in Boron PPM:

[f] (–184) pcm Boron ÷ (–7.47) pcm/ppm Boron worth = +25 ppm (boration)

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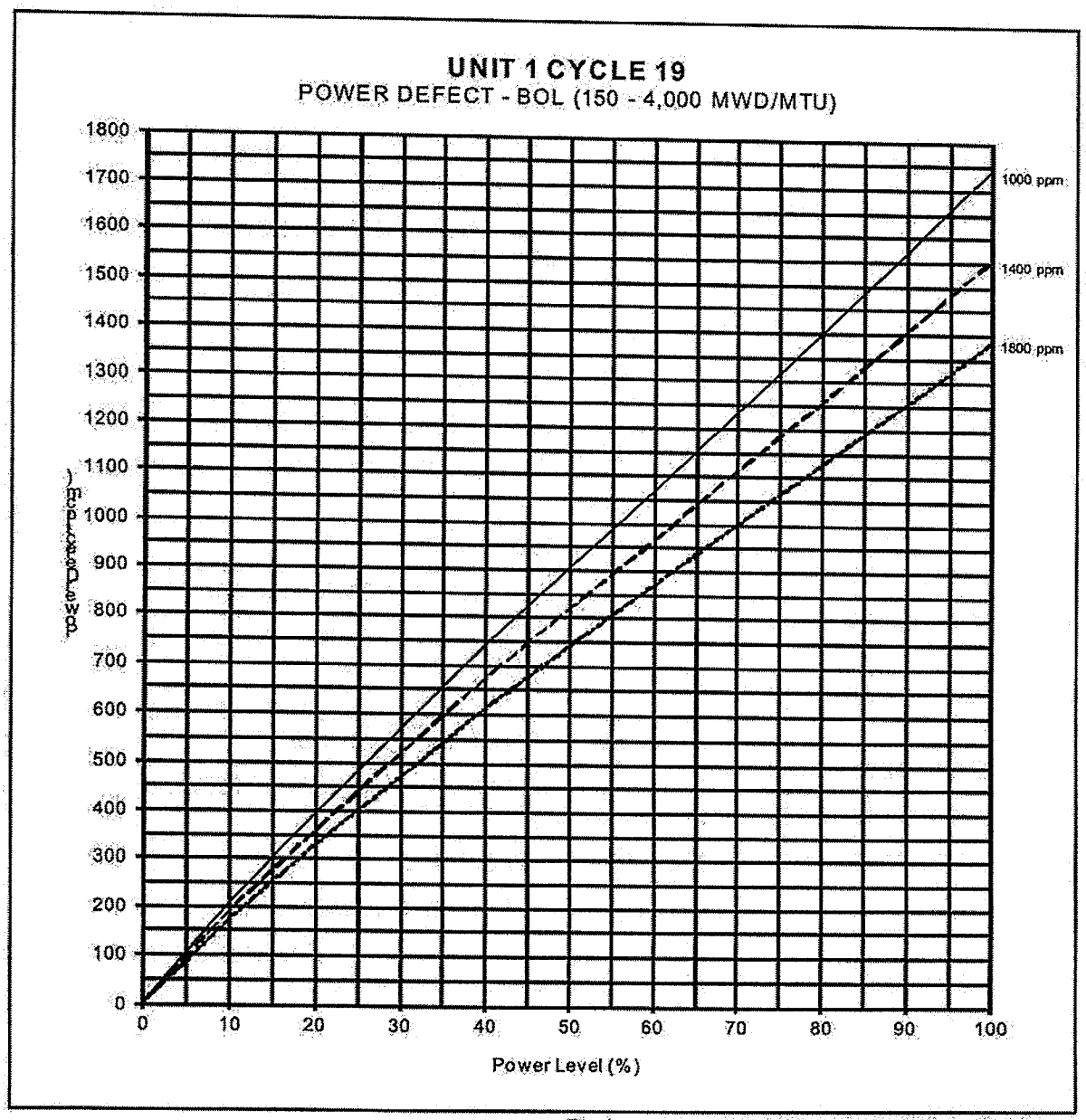
Figure 1 U1C19 Power Defect BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27

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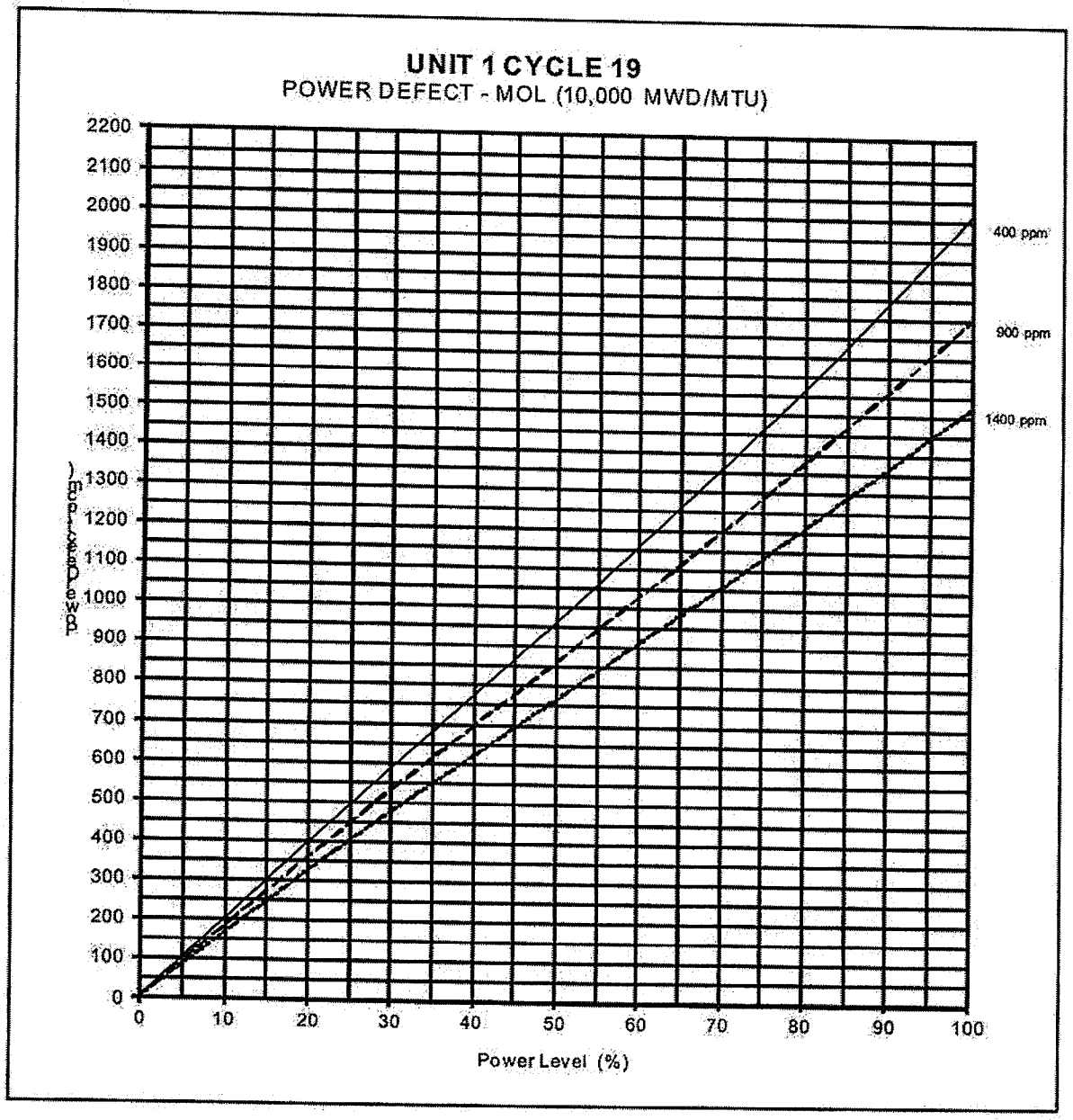
Figure 2 U1C19 Power Defect MOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27.

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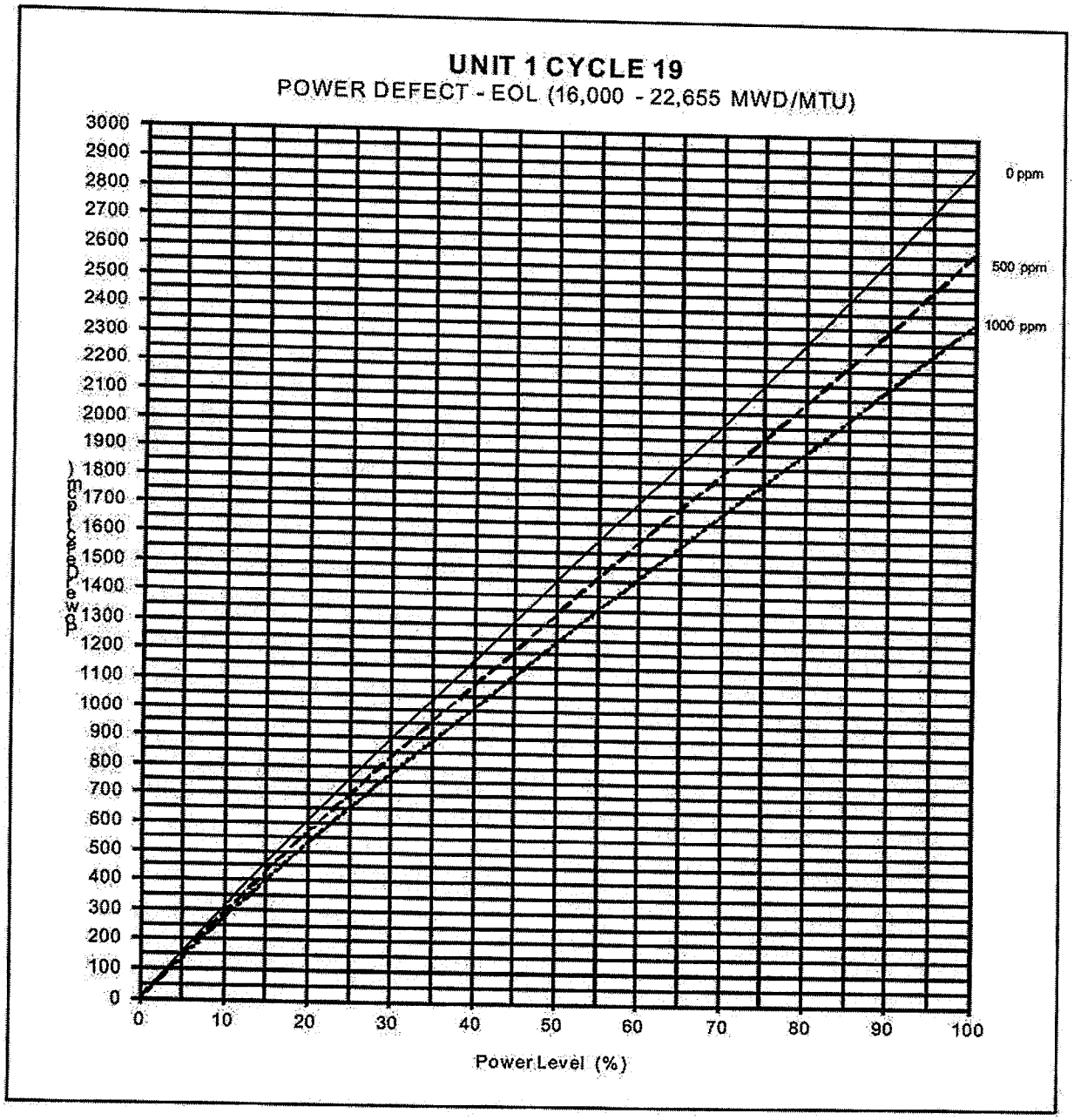
Figure 3 U1C19 Power Defect EOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27

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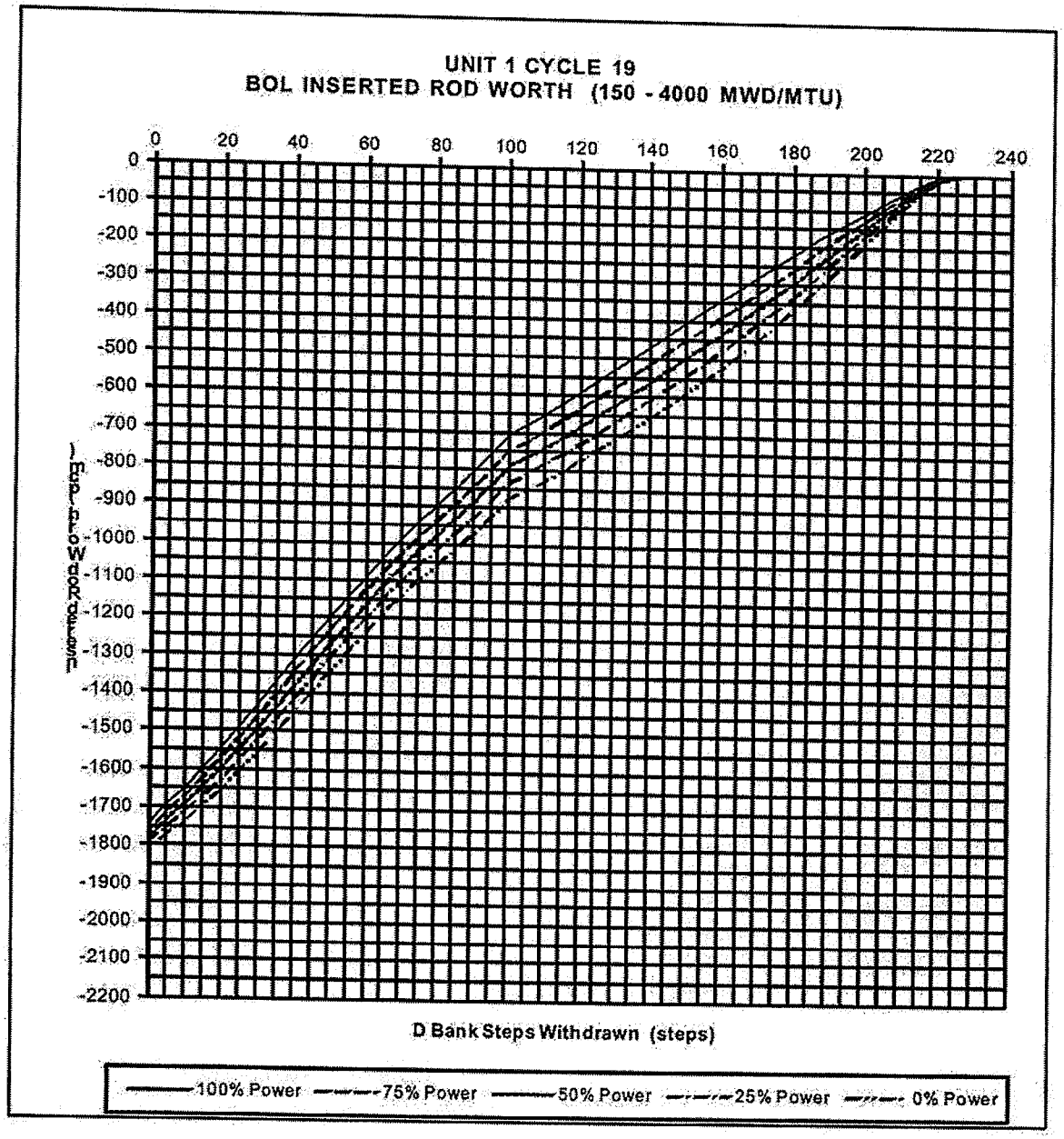
Figure 4 U1C19 Inserted Rod Worth BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference : NDR Table 6-34.

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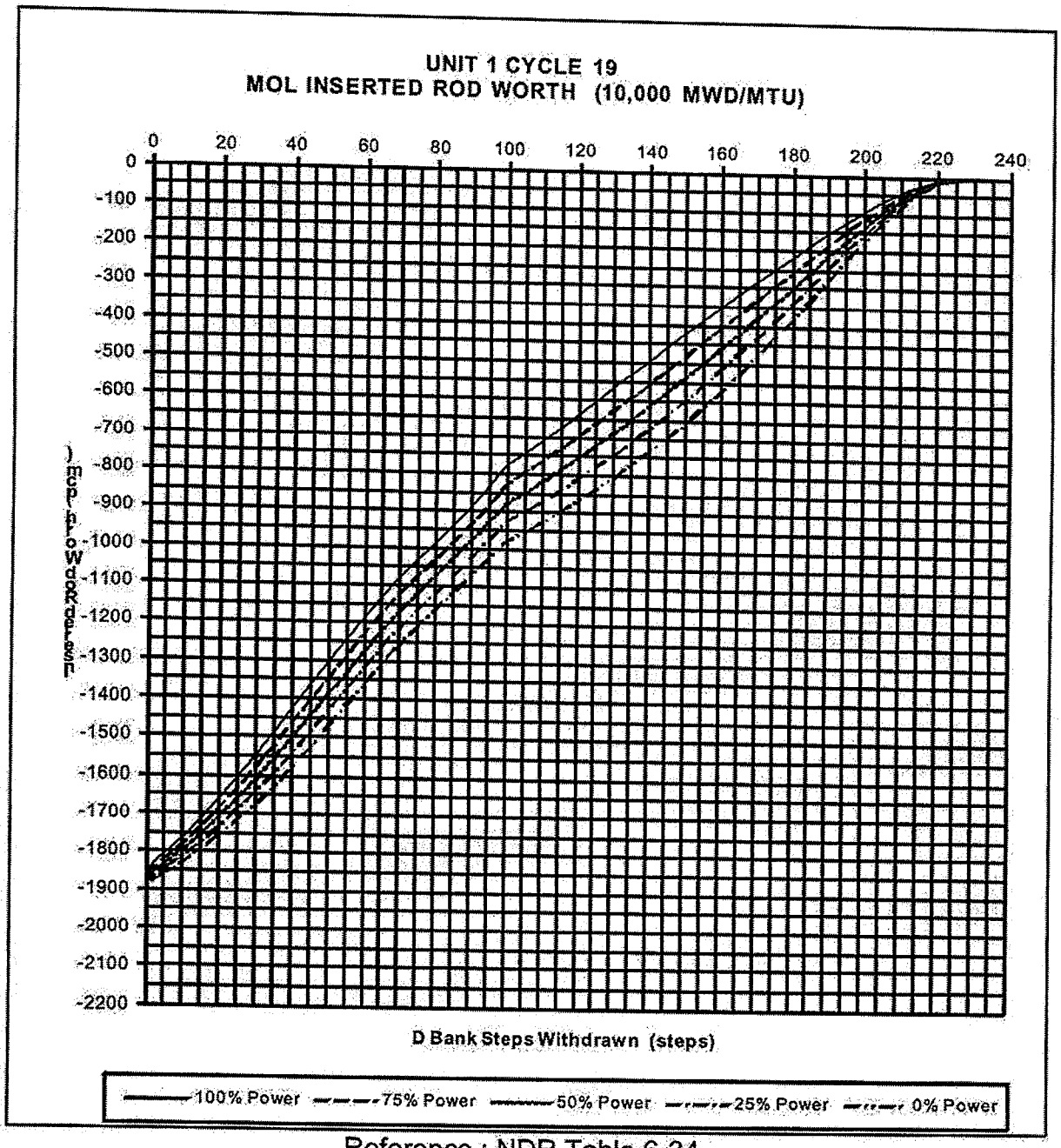
Figure 5 U1C19 Inserted Rod Worth MOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference : NDR Table 6-34.

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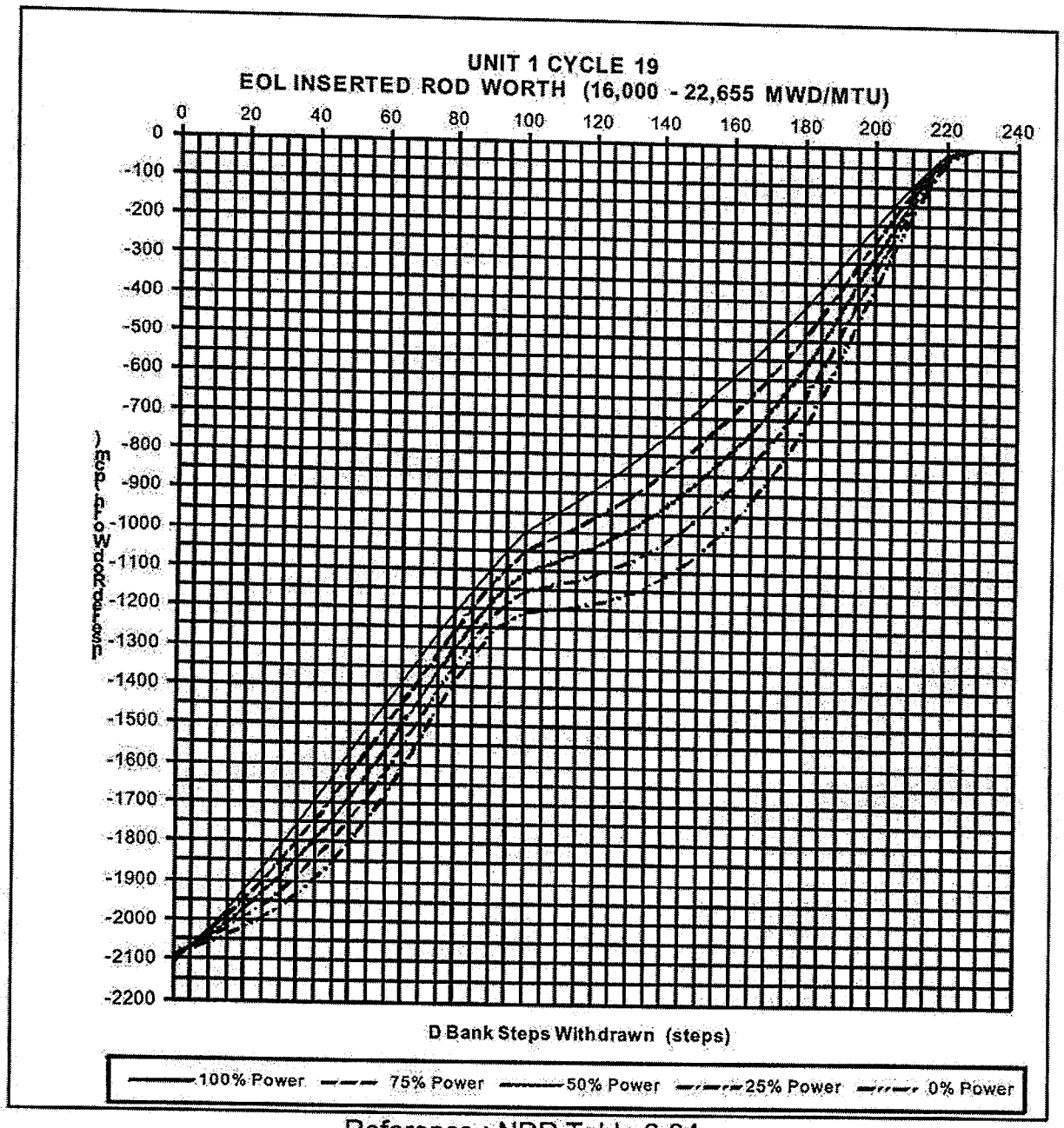
Figure 6 U1C19 Inserted Rod Worth EOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference : NDR Table 6-34.

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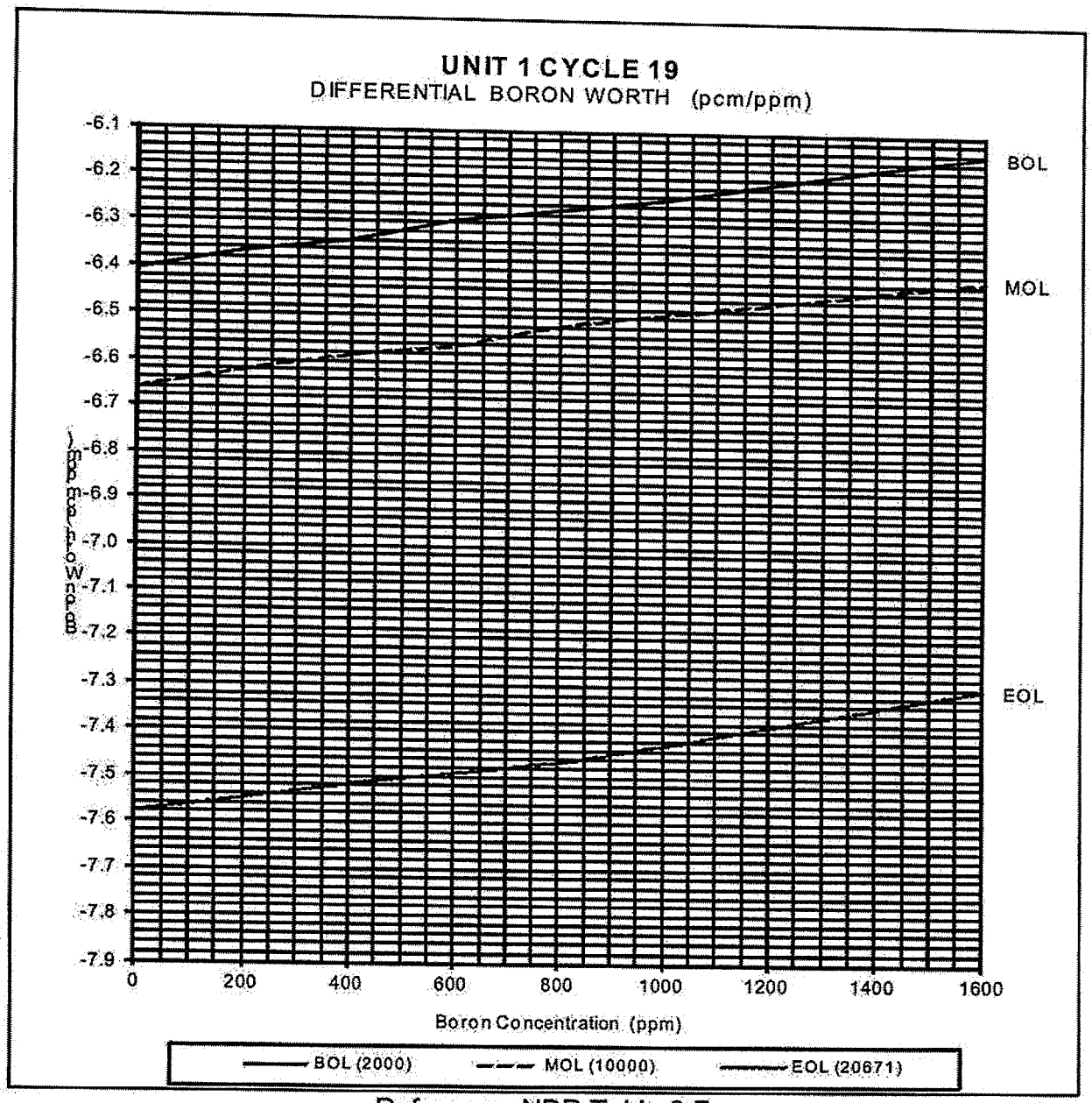
Figure 7 U1C19 Differential Boron Worth

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-7

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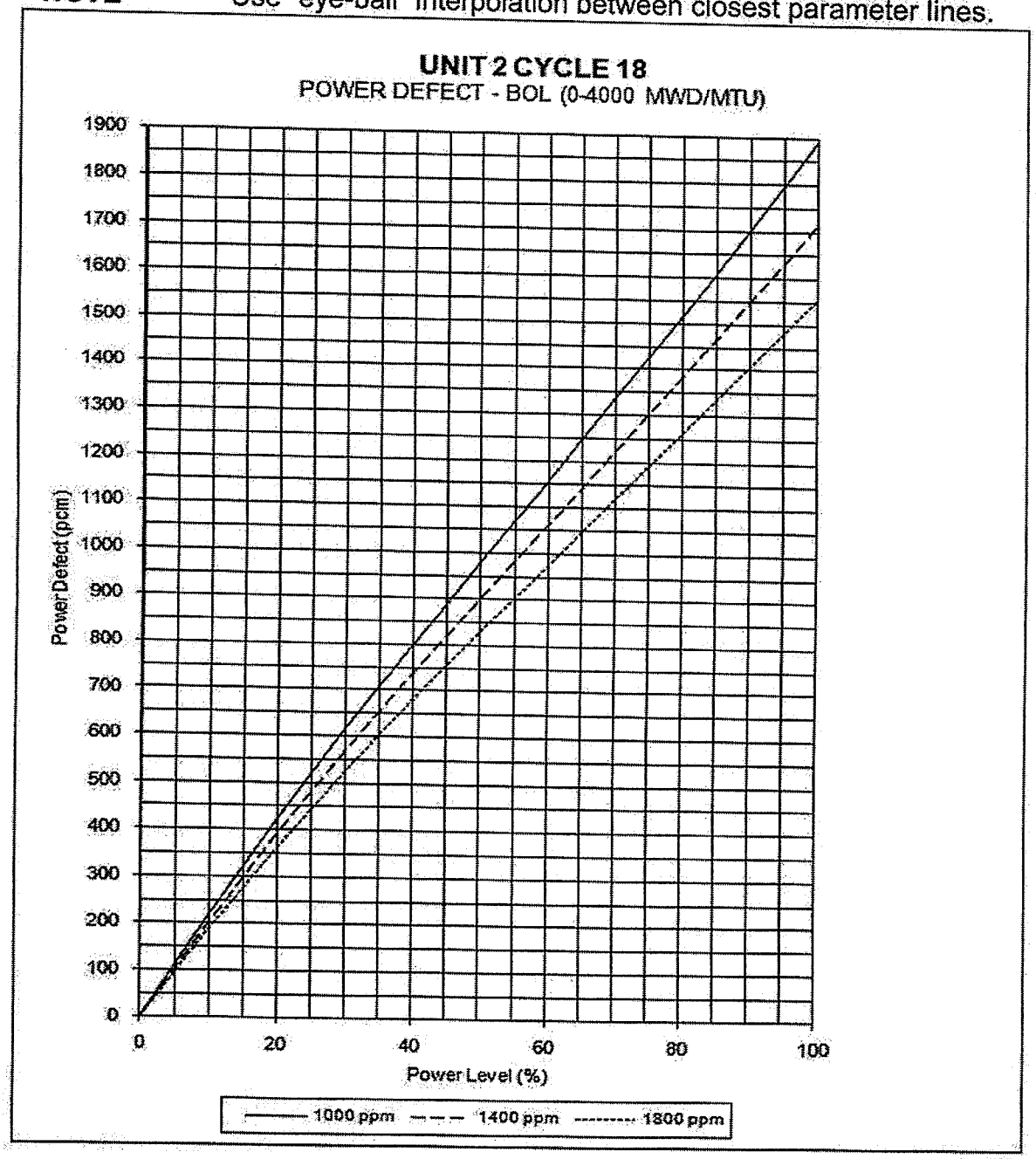
Figure 8 U2C18 Power Defect BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27, Total Power Defect

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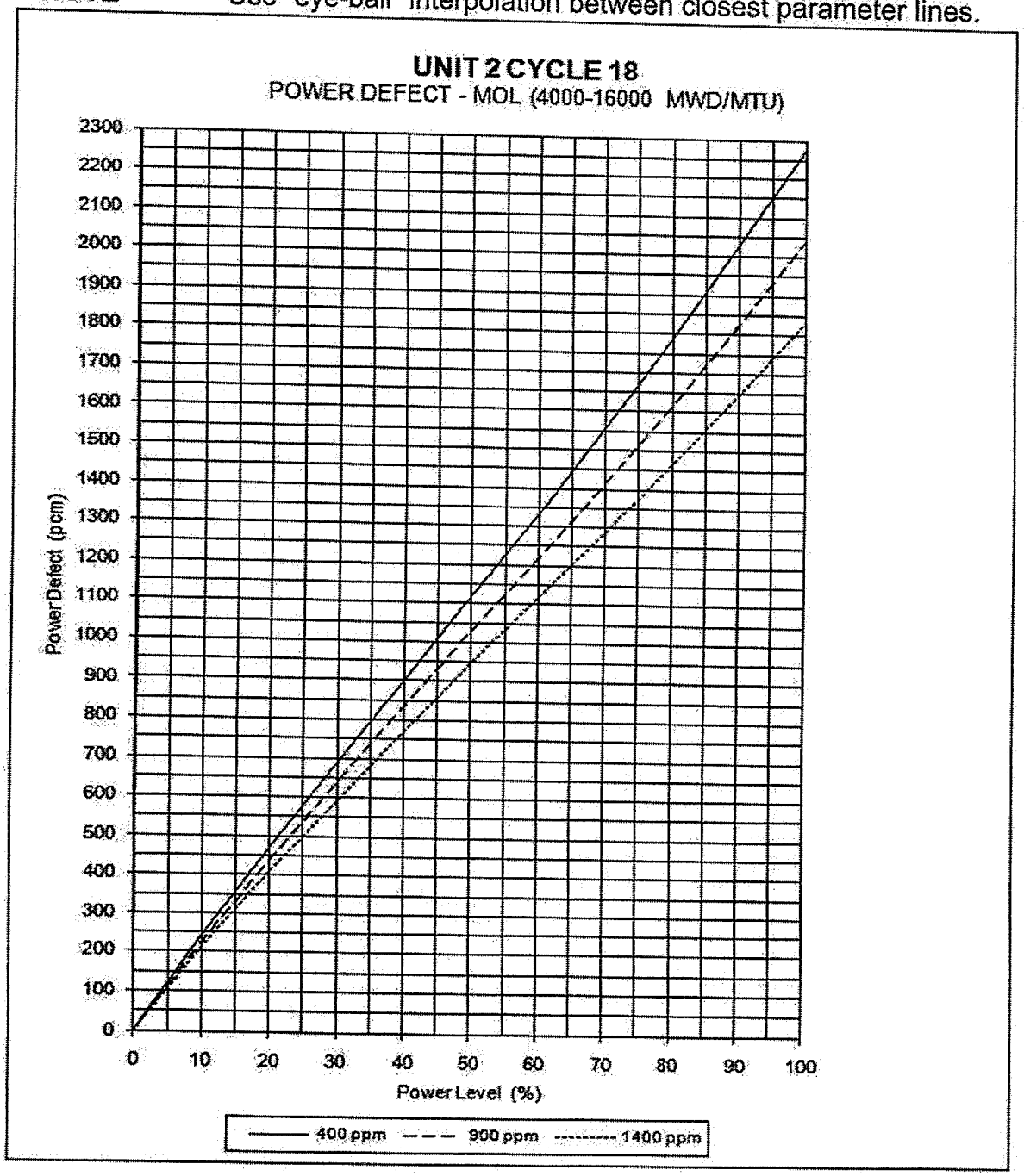
Figure 9 U2C18 Power Defect MOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27, Total Power Defect

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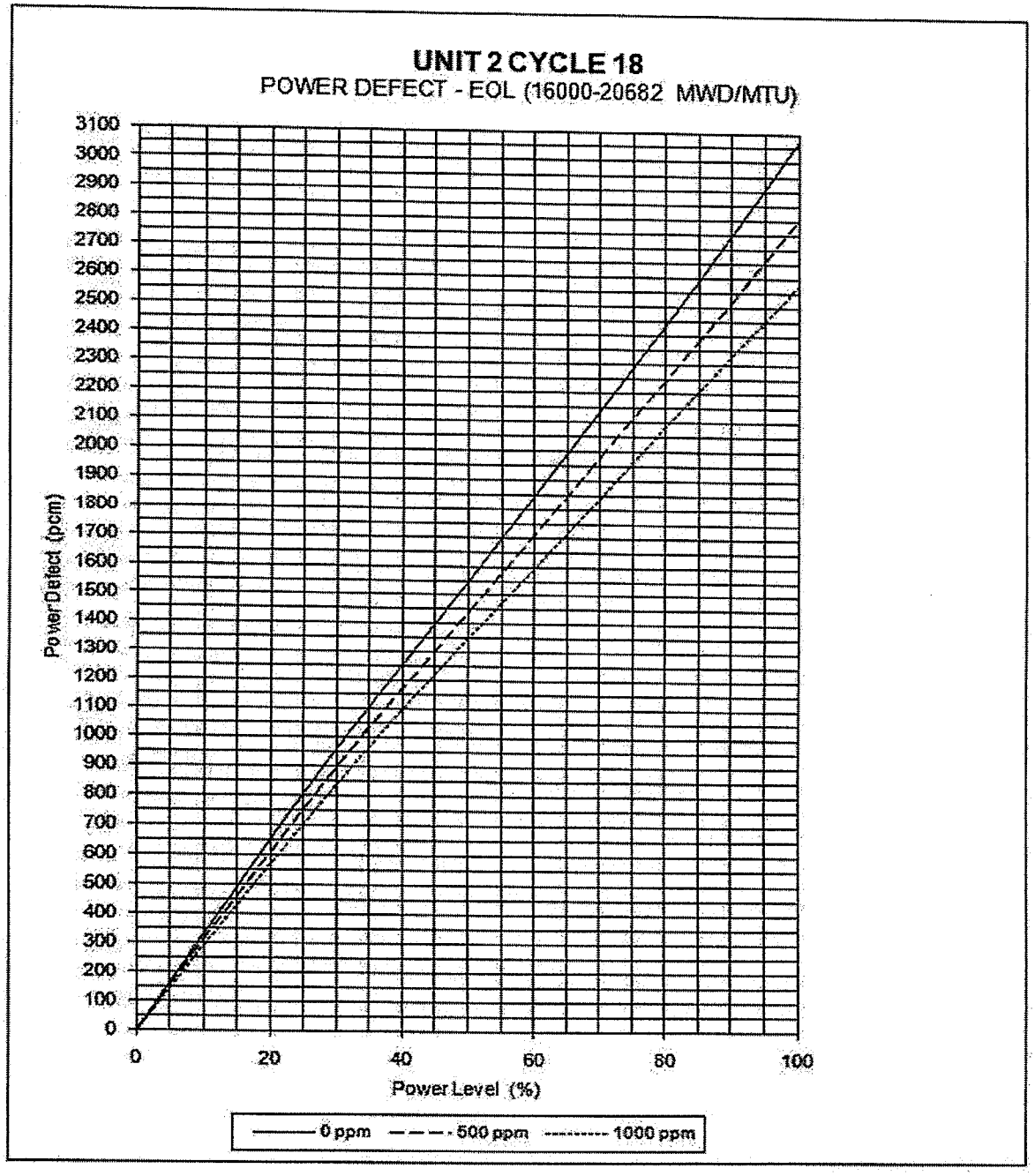
Figure 10 U2C18 Power Defect EOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-23 to 6-27, Total Power Defect

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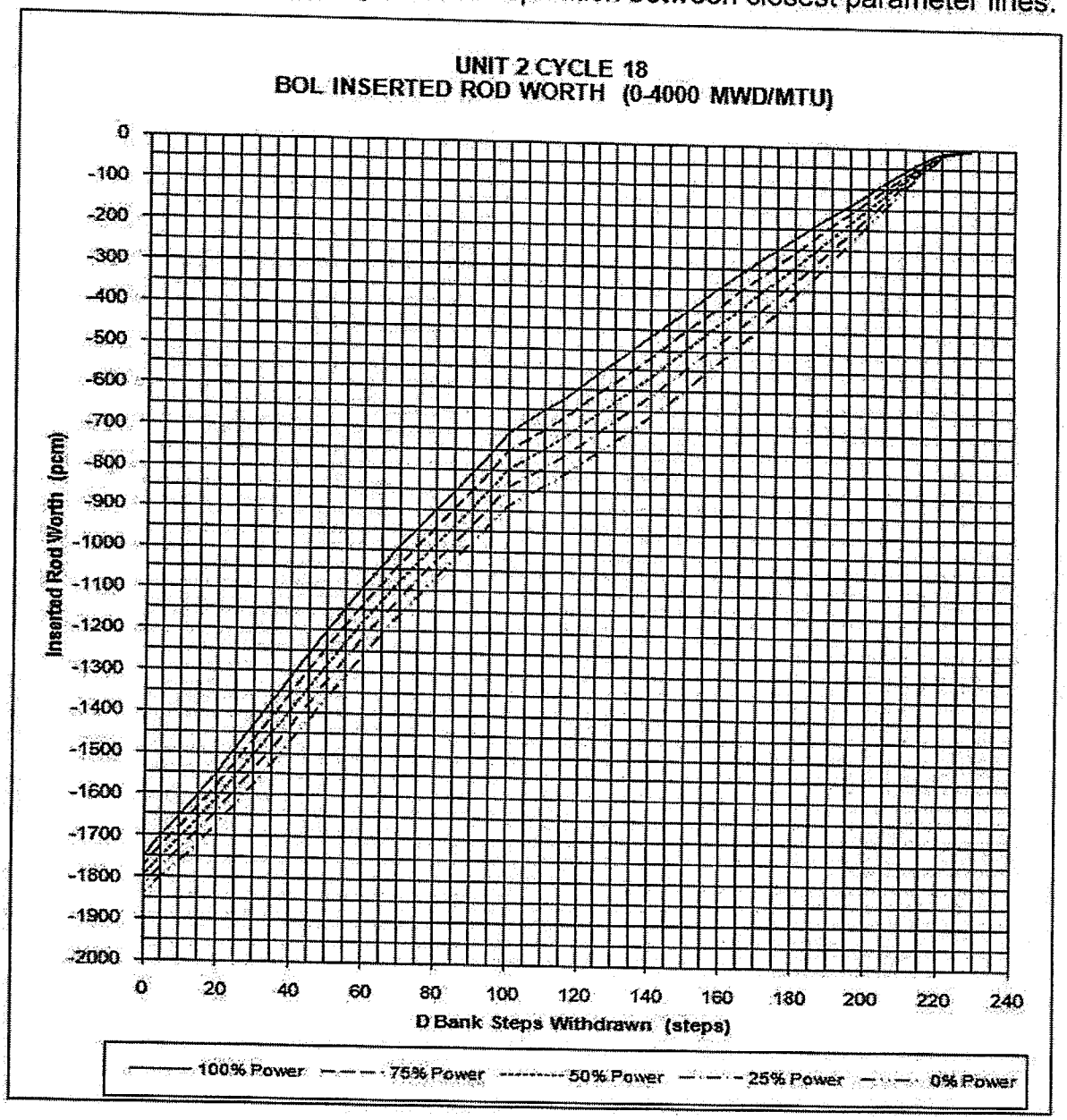
Figure 11 U2C18 Inserted Rod Worth BOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-34, *HFP Integral Rod Worth as a function of Steps withdrawn and burnup for Banks CD, CC, CB in overlap.*

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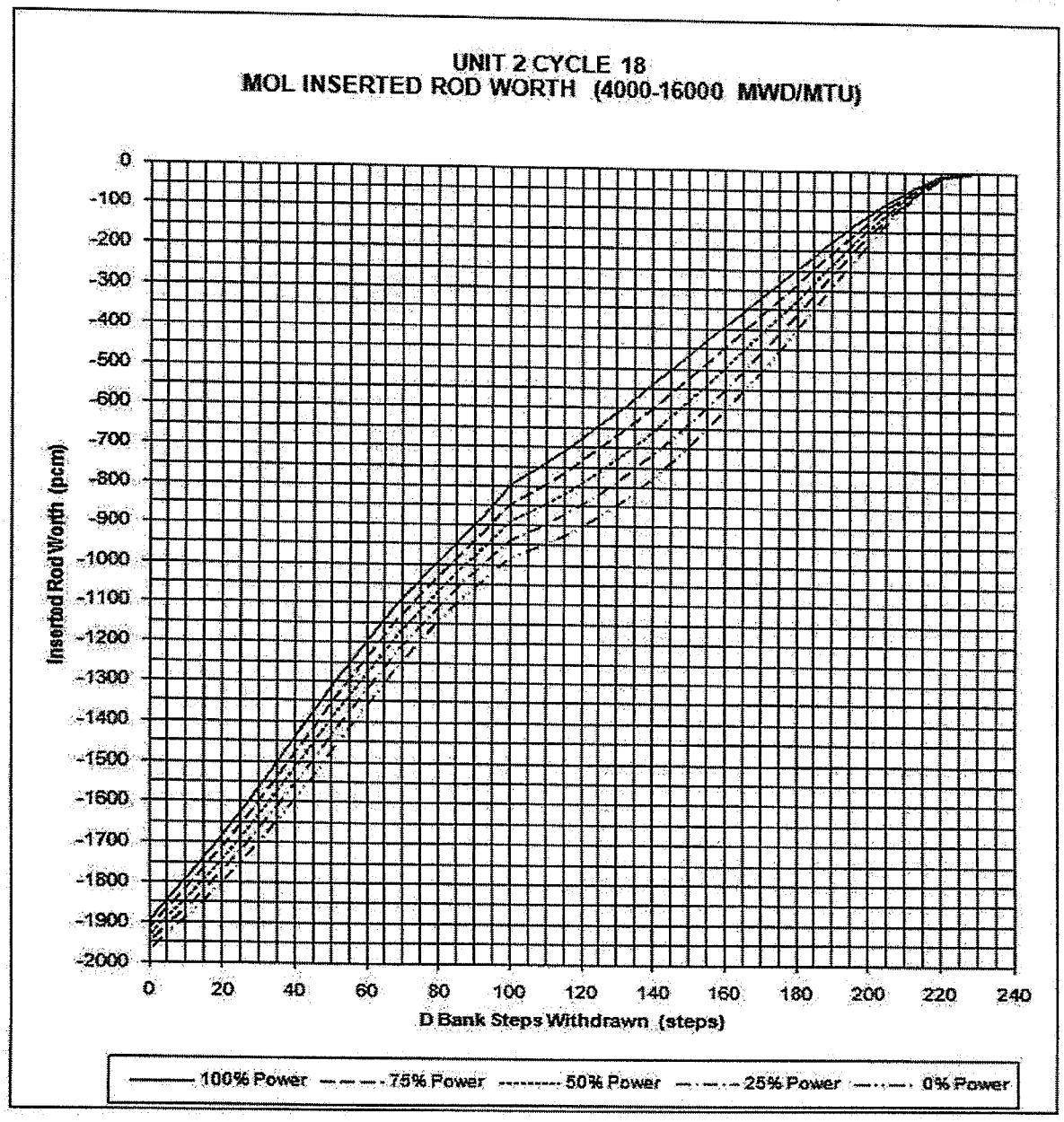
Figure 12 U2C18 Inserted Rod Worth MOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-34, HFP Integral Rod Worth as a function of Steps withdrawn and burnup for Banks CD, CC, CB in overlap.

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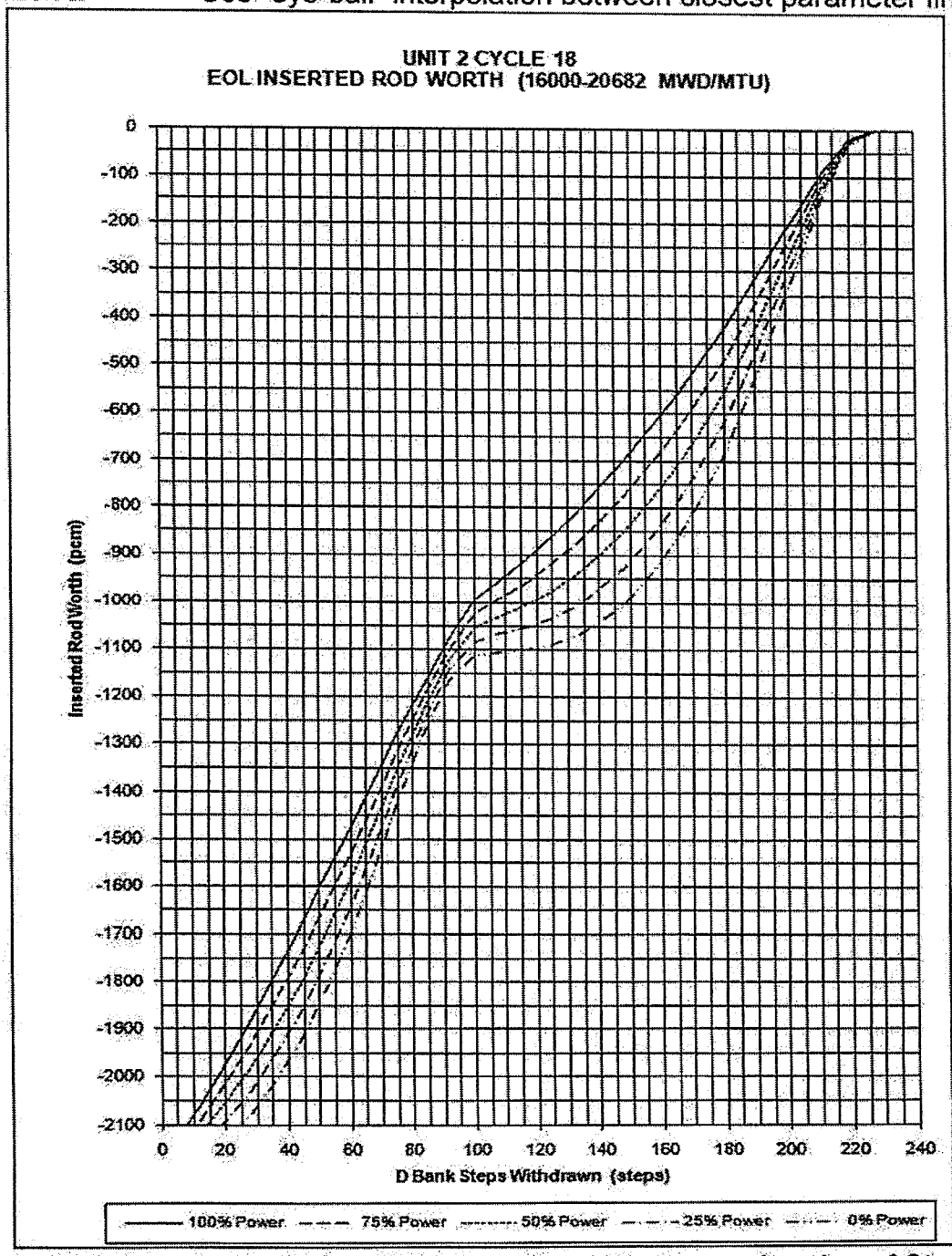
Figure 13 U2C18 Inserted Rod Worth EOL

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-34, . HFP Integral Rod Worth as a function of Steps withdrawn and burnup for Banks CD, CC, CB in overlap.

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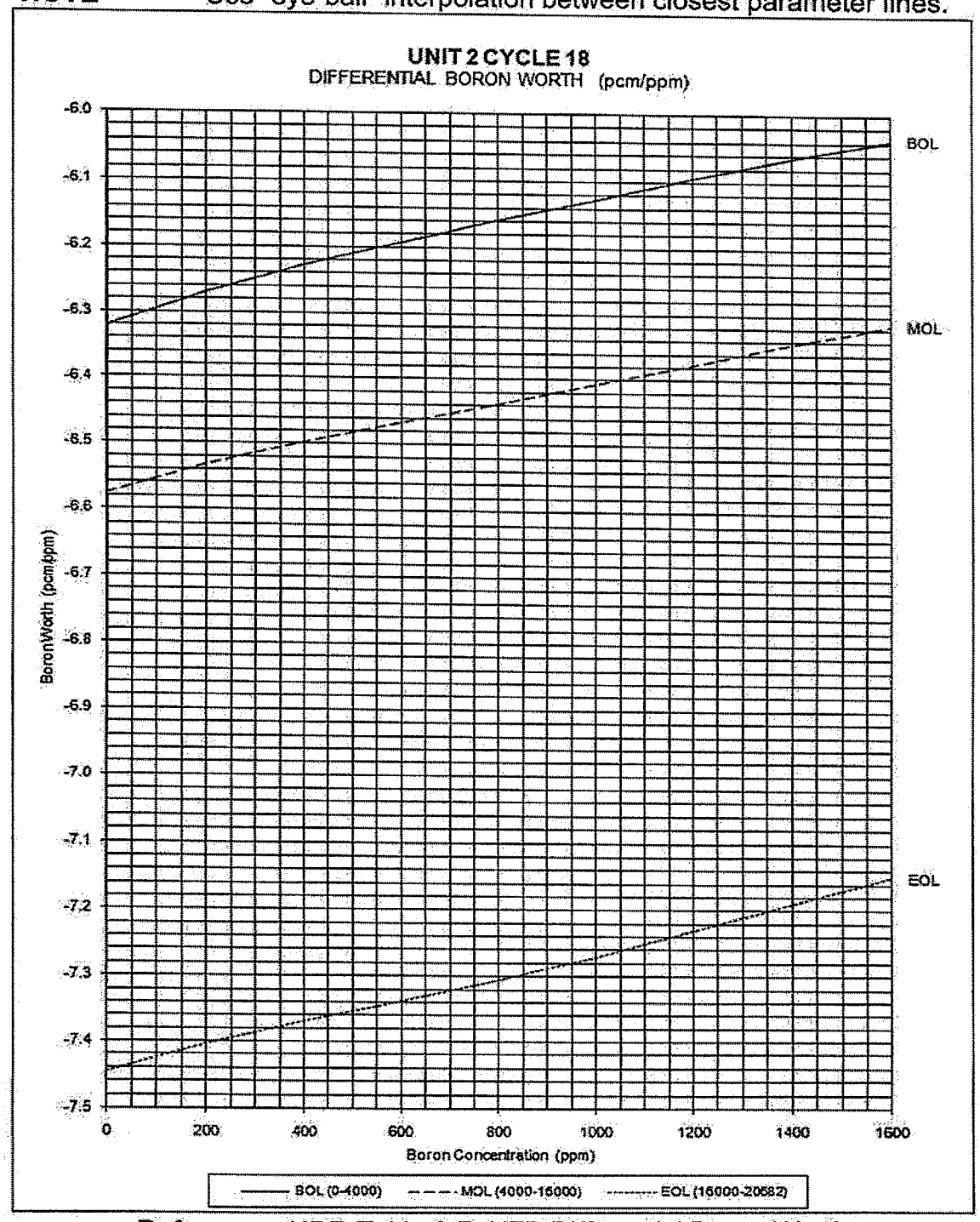
Figure 14 U2C18 Differential Boron Worth

NOTE Use "eye-ball" interpolation between closest parameter lines.



Reference: NDR Table 6-7, HFP Differential Boron Worth

1211 NRC RO A.2 KEY

APPENDIX E
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CAUTION **Follow sign conventions explicitly. (See Example Power Ascension and Power Reduction.)**

[2] CALCULATE change in boron concentration by performing the following:

Parameter	Where To Get	Calculation	Value
[a] $\Delta\rho_{\text{POWER DEFECT}}$	Attached Power Defect Curves: Unit 1: *Figure 1, 2, or 3* Unit 2: *Figure 8, 9, or 10.*	(425 to 450) 450 pcm PD_1 (current) - 1550 pcm PD_2 =	(-1100 to -1125) -1100 pcm $\Delta\rho_{\text{POWER DEFECT}}$ (negative for power raise)
[b] $\Delta\rho_{\text{XENON}}$	$Xenon_1$: From ICS* **or** REACTF (either current conditions **or** projection to initial condition). $Xenon_2$: From ICS* **or** REACTF (projection over time period T). *(ICS Xenon values must add negative sign).	**NOTE:** Xenon reactivity must be negative -2250 pcm XE_2 - -2430 pcm XE_1 (current) =	180 pcm $\Delta\rho_{\text{XENON}}$ (negative for rise in Xenon conc)
[c] $\Delta\rho_{\text{RODS}}$	Attached Rod Worth Curves: Unit 1: *Figure 4, 5, or 6* Unit 2: *Figure 11, 12, or 13.*	0 pcm $Rods_2$ - -300 pcm $Rods_1$ (current) =	300 pcm $\Delta\rho_{\text{RODS}}$ (negative for rod insertion)
[d] $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$ (CHANGE IN REACTIVY DUE TO POWER DEFECT, XENON, AND RODS) [a] pcm Δρ POWER DEFECT + [b] pcm Δρ XENON + [c] pcm Δρ RODS =			-620 pcm (-620 to -645)
[e] $\Delta\rho_{\text{BORON}}$ (CHANGE IN BORON REACTIVITY) ([d] pcm $\Delta\rho_{\text{POWER DEFECT + XENON + RODS}}$) X (-1) =			620 pcm $\Delta\rho$ BORON 620 to 645
[f] Δppm $_{\text{BORON}}$ (CHANGE IN BORON CONCENTRATION) ([e] pcm Δρ BORON) ÷ (-6.118 pcm/ppm Boron Worth from Fig. 7 (U-1) or Fig. 14 (U-2)) =		(-6.17 to -6.18)	(-100 to -104) -100 ppm (negative for dilution, positive for boration)

[3] ENSURE independently verified by SRO in accordance with Appendix J.
(N/A if performed by an SRO to verify data provided by Rx. Eng) _____

1211 NRC RO A.2 KEY

RO ADMIN
A.4

SEQUOYAH NUCLEAR PLANT

1211 NRC
RO ADMIN A.4

SRO

JOB PERFORMANCE MEASURE

Task: Complete a State Notification Form

Task #: 0001460501

Task Standard: The examinee completes an Appendix A from procedure EPIP-5, General Emergency with no errors on items annotated with a *.

Time Critical Task: **YES:** X **NO:** _____

K/A Reference/Ratings: 2.4.39 (3.9)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 10 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. EPIP-2 NOTIFICATION OF UNUSUAL EVENT Appendix A
2. EPIP-3 ALERT Appendix A
3. EPIP-4 SITE AREA EMERGENCY Appendix A
4. EPIP 5, GENERAL EMERGENCY Appendix A

References:

	Reference	Title	Rev No.
2.	EPIP-5	GENERAL EMERGENCY	42

==========

Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 has experienced a Reactor trip and Safety Injection Today at 1500.
2. The Shift Manager declared a General Emergency at 1510.
3. The reason for the General Emergency is as follows
    a. LOSS of the Fuel Clad Barrier EAL Designator 1.1.2.L.
    b. LOSS of the RCS Barrier EAL Designator 1.2.3.L.
    c. Potential LOSS of the Containment EAL Designator 1.3.1.P
4. Airborne and Liquid Radiological Releases Offsite are NOT known.
5. The Shift Manager has issued a Protective Action Recommendation #2 to the State of Tennessee.
6. The 46 meter data from the Met Tower is the wind is from 270 degrees at 10 mph.
7. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. Using the information provided select and complete the correct TVA Initial Classification form.
2. Raise your hand when you have completed the notification form.
3. The is (are) an element (s) of this task that is (are) time critical.

Start Time _____

STEP 1 :	Obtain a copy of the State Notification Form Handout.	___ SAT ___ UNSAT
Standard:	Copy of State Notification Form Handout is obtained.	
Cue	Provide a copy of the State Notification Form Handout.	
Comment		

STEP 2 :	Select EPIP 5, GENERAL EMERGENCY Appendix A from the handout.	___ SAT ___ UNSAT
Standard:	Examinee selects EPIP 5, GENERAL EMERGENCY Appendix A.	**CRITICAL**
Comment		

STEP 3 :	Complete EPIP 5, GENERAL EMERGENCY Appendix A.	___ SAT ___ UNSAT
Standard:	The examinee completes the EPIP 5, GENERAL EMERGENCY Appendix A with no errors on items annotated with a *.	**CRITICAL**
Comment		
Examiner Note:	Compare examinee answers to the answer key.	

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 has experienced a Reactor trip and Safety Injection Today at 1500.
2. The Shift Manager declared a General Emergency at 1510.
3. The reason for the General Emergency is as follows
    a. LOSS of the Fuel Clad Barrier EAL Designator 1.1.2.L.
    b. LOSS of the RCS Barrier EAL Designator 1.2.3.L.
    c. Potential LOSS of the Containment EAL Designator 1.3.1.P
4. Airborne and Liquid Radiological Releases Offsite are NOT known.
5. The Shift Manager has issued a Protective Action Recommendation #2 to the State of Tennessee.
6. The 46 meter data from the Met Tower is the wind is from 270 degrees at 10 mph.
7. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. Using the information provided select and complete the correct TVA Initial Classification form.
2. Raise your hand when you have completed the notification form.
3. The is (are) an element (s) of this task that is (are) time critical.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

Appendix A
(Page 1 of 1)
NOUE INITIAL NOTIFICATION FORM

1. ☐ This is a Drill ☐ This is an Actual Event - Repeat - This is an Actual Event

2. _____, the SED at **Sequoyah** has declared a **NOTIFICATION OF UNUSUAL EVENT.**

3. **EAL Designator:** _____(USE ONLY ONE EAL DESIGNATOR)

4. **Brief Description of the Event:**

_____
_____
_____
_____

5. **Radiological Conditions:** (Check one under both Airborne and Liquid column.)

Airborne Releases Offsite	**Liquid** Releases Offsite
☐ Minor releases within federally approved limits*	☐ Minor releases within federally approved limits*
☐ Releases above federally approved limits*	☐ Releases above federally approved limits*
☐ Release information not known	☐ Release information not known
(*Tech Specs/ODCM)	(*Tech Specs/ODCM)

6. **Event Declared:** Time: _____ Date: _____
Eastern Time

7. **Provide Protective Action Recommendation:** ☐ None

Completed By: _____ Approved By: _____

Appendix A
(Page 1 of 1)

ALERT INITIAL NOTIFICATION FORM

1. ☐ **This is a Drill** ☐ **This is an Actual Event - Repeat - This is an Actual Event**

2. _____, the SED at Sequoyah has declared an ALERT.

3. EAL Designator: _____(Use only one EAL designator)

4. Brief Description of the Event:

_____

_____

_____

_____

5. Radiological Conditions: (Check one under both Airborne and Liquid column.)

Airborne Releases Offsite	**Liquid Releases Offsite**
☐ Minor releases within federally approved limits*	☐ Minor releases within federally approved limits*
☐ Releases above federally approved limits*	☐ Releases above federally approved limits*
☐ Release information NOT known (*Tech Specs/ODCM)	☐ Release information NOT known (*Tech Specs/ODCM)

6. Event Declared: **Time:** _____ **Date:** _____

7. Provide Protective Action Recommendation: ☐ **None**

Completed By: _____ Approved By: _____

Appendix A
(Page 1 of 1)

SITE AREA EMERGENCY INITIAL NOTIFICATION FORM

1. ☐ **This is a Drill** ☐ **This is an Actual Event - Repeat - This is an Actual Event**

2. _____, the SED at Sequoyah has declared a Site Area Emergency.

3. **EAL Designator:** _____ (Use two EAL designators when using the Fission Product Barrier Matrix)

4. **Brief Description of the Event:**

_____

_____

_____

_____

5. **Radiological Conditions:** (Check one under both Airborne and Liquid column.)

Airborne Releases Offsite

☐ Minor releases within federally approved limits*

☐ Releases above federally approved limits*

☐ Release information not known
(*Tech Specs/ODCM)

Liquid Releases Offsite

☐ Minor releases within federally approved limits*

☐ Releases above federally approved limits

☐ Release information not known
(*Tech Specs/ODCM)

6. **Event Declared:** Time _____ Eastern Time Date _____

7. **Provide Protective Action Recommendation:** ☐ None

Completed By: _____ Approved By: _____

Appendix A
(Page 1 of 1)
GENERAL EMERGENCY INITIAL NOTIFICATION FORM

1. ☐ This is a Drill ☐ This is an Actual Event - Repeat - This is an Actual Event

2. _____, the SED at **Sequoyah**, has declared a **GENERAL EMERGENCY.**

3. **EAL Designator:** _____ (Use three EAL designators when using the Fission Product Barrier Matrix)

4. **Brief Description of the Event:** _____

5. **Radiological Conditions:** (Check one under both Airborne and Liquid column.)

Airborne Releases Offsite	**Liquid** Releases Offsite
☐ Minor releases within federally approved limits*	☐ Minor releases within federally approved limits*
☐ Releases above federally approved limits*	☐ Releases above federally approved limits*
☐ Release information NOT known (*Tech Specs/ODCM)	☐ Release information NOT known (*Tech Specs/ODCM)

6. Event Declared: Time: _____ Eastern Date: _____

7. **The Meteorological Conditions are:** (Use 46 meter data from the Met Tower. IF data is NOT available from the MET tower, contact the National Weather Service by dialing 9-1-423-586-8400. The National Weather Service will provide wind direction and wind speed.)
Wind Direction is FROM: _____ degrees (15 min average) Wind Speed: _____ m.p.h (15 min average)

8. **Provide Protective Action Recommendation USING Appendix H: (Check either 1 or 2 or 3)**

☐ **Recommendation 1** • EVACUATE LISTED SECTORS (2 mile Radius & 10 miles downwind) • Shelter remainder of 10 mile EPZ. • Consider issuance of POTASSIUM IODINE in accordance with the State Plan.	RECOMMENDATION 1	**WIND FROM DEGREES** (Mark wind direction from Step 7)	RECOMMENDATION 2	☐ **Recommendation 2** • EVACUATE LISTED SECTORS (2 mile radius & 5 miles downwind) • SHELTER remainder of 10 mile EPZ. • Consider issuance of POTASSIUM IODIDE in accordance with the State Plan.
A-1, B-1, C-1, D-1, C-2, -6, -7, -8, D-2, -3, -5, -6		From 12°-49°		A-1, B-1, C-1, D-1, C-2, D-2
A-1, B-1, C-1, D-1, D-2, -3, -4, -5, -6		From 50°-70°		A-1, B-1, C-1, D-1, D-2
A-1, B-1, C-1, D-1, A-3, -4, D-2, -3, -4, -5		From 71°-112°		A-1, B-1, C-1, D-1, A-3, D-2
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, D-4		From 113°-146°		A-1, B-1, C-1, D-1, A-2, A-3
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, B-2		From 147°-173°		A-1, B-1, C-1, D-1, A-2, A-3, B-2
A-1, B-1, C-1, D-1, A-2, -5, -6, B-2, -3, -4		From 174°-214°		A-1, B-1, C-1, D-1, A-2, B-2
A-1, B-1, C-1, D-1, B-2, -3, -4, -5, -6, -7, -8		From 215°-258°		A-1, B-1, C-1, D-1, B-2, B-5
A-1, B-1, C-1, D-1, B-2, -3, -5, -6, -7, -8, C-2, -3, -4, -5, -6		From 259°-331°		A-1, B-1, C-1, D-1, B-2, B-5, C-2
A-1, B-1, C-1, D-1, B-5, C-2, -3, -4, 05, -6, -7, -8		From 332°-11°		A-1, B-1, C-1, D-1, B-5, C-2

☐ **Recommendation 3**
- SHELTER all sectors
- CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

Completed By: _____ **Approved By:** _____

1211 NRC RO A.4

Appendix A
(Page 1 of 1)
GENERAL EMERGENCY INITIAL NOTIFICATION FORM

1. ☐ This is a Drill ☐ This is an Actual Event - Repeat - This is an Actual Event

2. _____, the SED at **Sequoyah,** has declared a **GENERAL EMERGENCY.**

3. **EAL Designator:** *1.1.2.L & 1.2.3.L & 1.3.1.P * (Use three EAL designators when using the Fission Product Barrier Matrix)

4. **Brief Description of the Event:** _____

5. **Radiological Conditions:** (Check one under both Airborne and Liquid column.)

Airborne Releases Offsite	**Liquid** Releases Offsite
☐ Minor releases within federally approved limits*	☐ Minor releases within federally approved limits*
☐ Releases above federally approved limits*	☐ Releases above federally approved limits*
☐ Release information NOT known	☐ Release information NOT known
(*Tech Specs/ODCM) *	(*Tech Specs/ODCM)

6. Event Declared: Time: 1510 Eastern Date: TODAY *

7. **The Meteorological Conditions are:** (Use 46 meter data from the Met Tower. IF data is NOT available from the MET tower, contact the National Weather Service by dialing 9-1-423-586-8400. The National Weather Service will provide wind direction and wind speed.)
Wind Direction is FROM: 270 degrees * (15 min average) * Wind Speed: _____ m.p.h * (15 min average) *

8. **Provide Protective Action Recommendation USING Appendix H:** **(Check either 1 or 2 or 3)** *

☐ **Recommendation 1** • EVACUATE LISTED SECTORS (2 mile Radius & 10 miles downwind) • Shelter remainder of 10 mile EPZ. • Consider issuance of POTASSIUM IODINE in accordance with the State Plan.	RECOMMENDATION 1	**WIND FROM DEGREES** (Mark wind direction from Step 7)	RECOMMENDATION 2	☒ **Recommendation 2** • EVACUATE LISTED SECTORS (2 mile radius & 5 miles downwind) • SHELTER remainder of 10 mile EPZ. • Consider issuance of POTASSIUM IODIDE in accordance with the State Plan.
A-1, B-1, C-1, D-1, C-2, -6, -7, -8, D-2, -3, -5, -6		From 12°-49°		A-1, B-1, C-1, D-1, C-2, D-2
A-1, B-1, C-1, D-1, D-2, -3, -4, -5, -6		From 50°-70°		A-1, B-1, C-1, D-1, D-2
A-1, B-1, C-1, D-1, A-3, -4, D-2, -3, -4, -5		From 71°-112°		A-1, B-1, C-1, D-1, A-3, D-2
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, D-4		From 113°-146°		A-1, B-1, C-1, D-1, A-2, A-3
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, B-2		From 147°-173°		A-1, B-1, C-1, D-1, A-2, A-3, B-2
A-1, B-1, C-1, D-1, A-2, -5, -6, B-2, -3, -4		From 174°-214°		A-1, B-1, C-1, D-1, A-2, B-2
A-1, B-1, C-1, D-1, B-2, -3, -4, -5, -6, -7, -8		From 215°-258°		A-1, B-1, C-1, D-1, B-2, B-5
A-1, B-1, C-1, D-1, B-2, -3, -5, -6, -7, -8, C-2, -3, -4, -5, -6		From 259°-331°	X	A-1, B-1, C-1, D-1, B-2, B-5, C-2 *
A-1, B-1, C-1, D-1, B-5, C-2, -3, -4, 05, -6, -7, -8		From 332°-11°		A-1, B-1, C-1, D-1, B-5, C-2

☐ **Recommendation 3** *
- SHELTER all sectors
- CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

Completed By: _____ **Approved By:** _____

1211 NRC RO A.4

SRO ADMIN
A.1.a

SEQUOYAH NUCLEAR PLANT

1211 NRC
SRO ADMIN A.1.a

SRO

JOB PERFORMANCE MEASURE

Task: Determine the Operability of a BAT before use.

Task #: 1190100302

Task Standard: Determine the operability of BAST C prior to placing tank in service.

Time Critical Task: **YES:** _____ **NO:** **X**

K/A Reference/Ratings: 2.1.25 (3.9/4.2)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** **X**

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** **X**

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: **10 min** **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. TRM
2. TRM Figure 3.1.2.6
3. 1-SI-OPS-000-003.W, Weekly Shift Log page 24
4. JPM Chemistry Handout

References:

	Reference	Title	Rev No.
1.	TRM	Technical Requirements Manual	46
2.	1-SI-OPS-000-003.W	Weekly Shift Log	51

==========

Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 is at 100% power
2. Preparations are in progress to place a clearance on BAT A for Maintenance.
3. BAT C level is indicating 9,600 gallons on 0-LI-62-242.

INITIATING CUES:

1. You have been directed to determine operability status for BAT C level using 1-SI-OPS-000-003.W, prior to aligning BAT C to Unit 1.
2. Determine the minimum level for required for the operability of BAT C.
3. Determine if the clearance evolution may continue.
4. Notify the Examiner of results when determination of operability has been completed.

Start Time _____

STEP 1 :	Obtain a copy of 1-SI-OPS-000-003.W, Weekly Shift Log, JPM 421 Chemistry Handout and the TRM.	___ SAT ___ UNSAT
Standard:	Copy of 1-SI-OPS-000-003.W, Weekly Shift Log, JPM 421 Chemistry Handout and the TRM are obtained.	
Cue	Provide a copy of 1-SI-OPS-000-003.W, Weekly Shift Log page 24, JPM 421 Chemistry Handout and the TRM figure 3.1.2.6.	
Comment		

STEP 2 :	Examinee goes to 1-SI-OPS-000-003.W to review BAT C Level operability requirements.	___ SAT ___ UNSAT
Standard:	Examinee reviews 1-SI-OPS-000-003.W, Appendix A, SR requirements for BAT C level operability.	
Comment		

STEP 3 :	Examinee utilizes the TRM and reviews TR 3.1.2.6.a.1 requirement for BAT C level.	___ SAT ___ UNSAT
Standard:	Examinee utilizes the TRM and reviews TR 3.1.2.6.a.1 requirement for BAT C level.	
Comment		

STEP 4 :	Examinee goes to TRM Figure 3.1.2.6.	___ SAT ___ UNSAT
Standard:	Examinee goes to TRM FIGURE 3.1.2.6	
Examiner Note	The figure required to be used is found on page 3/ 4 1-10.	
Comment		

STEP 5 :	Examinee selects the appropriate line on FIGURE 3.1.2.6, Boric Acid Concentration, as determined from the data on the Operations Information page, Attachment 1, to determine region of acceptable operation.	___ SAT ___ UNSAT
Standard:	Using Attachment 1, Operations Information, the Examinee determines the correct Boric Acid Tank Concentration is 6450 ppm.	**CRITICAL**
Comment		

STEP 6 :	Examinee selects the appropriate line on FIGURE 3.1.2.6 based on U-1 RWST Boric Acid Concentration as determined from data on the Operations Information page, Attachment 1, to determine the region of acceptable operation.	___ SAT ___ UNSAT
Standard:	Using the chemistry page the Examinee determines the correct RWST Concentration is 2550 ppm.	**CRITICAL**
Comment		

STEP 7 :	Examinee determines minimum BAT C level in gallons by locating the intersection of the line for the RWST and BAT Boron concentrations and verifying the actual level in the tank is less than the minimum level indicated on TRM page 3/ 4 1-10 Boric Acid Tank Levels.	___ SAT ___ UNSAT
Standard:	Examinee determines the minimum BAT level in gallons required for operability is 9850 gallons (+50/-100 gal.) by picking the point the boric acid concentration lines for the RWST and the BAT intersect, and verifying the actual number of gallons is in the Region of Unacceptable Operation.	**CRITICAL**
Comment		
Examiner Note:	If Examinee addresses the statement at the bottom of graph concerning the indicated values including the unusable volume and the instrument error, they should explain the contained water volume limits include allowance for water not available and is discussed in the TRM bases.	

STEP 8 :	Examinee identifies the that the level in the C BAT, 9,600 gallons does not meet the operability requirements for level in accordance with TR 3.1.2.6.a	___ SAT ___ UNSAT
Standard:	Examiner is notified that level in BAT C is not adequate to meet the operability requirements in accordance with the TRM.	**CRITICAL**
Comment		

Terminating Cue:	**The JPM is complete when the Examinee returns the cue sheet to the Evaluator.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 is at 100% power
2. Preparations are in progress to place a clearance on BAT A for Maintenance.
3. BAT C level is indicating 9,600 gallons on 0-LI-62-242.

INITIATING CUES:

1. You have been directed to determine operability status for BAT C level using 1-SI-OPS-000-003.W, prior to aligning BAT C to Unit 1.
2. Determine the minimum level for required for the operability of BAT C.
3. Determine if the clearance evolution may continue.
4. Notify the Examiner of results when determination of operability has been completed.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

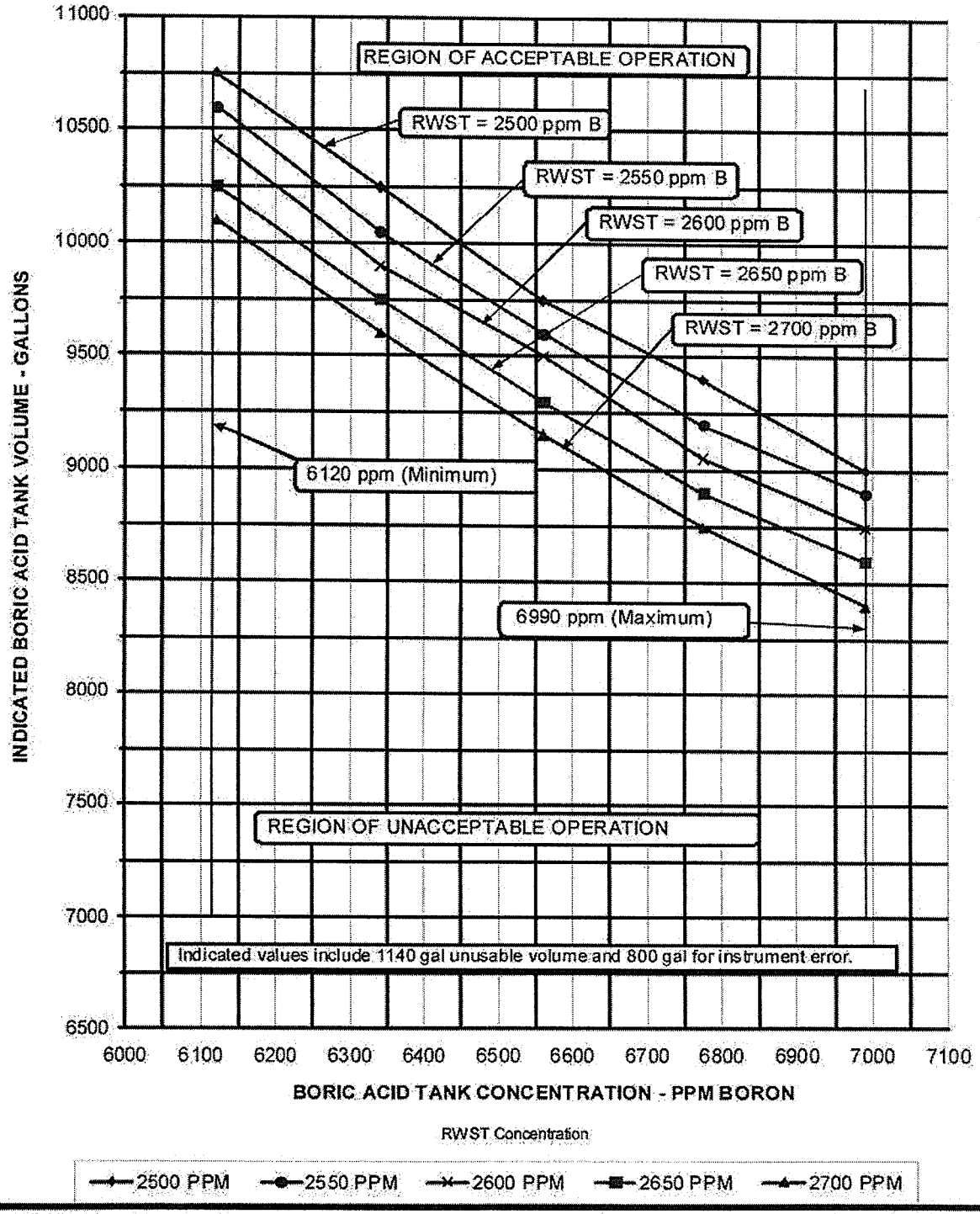
Operations Information

Sample Point	Units	Boron	Date / Time	Goal	Limit
U1 RCS	ppm	660	Today/XXXX	Variable	Variable
U2 RCS	ppm	968	Today/XXXX	Variable	Variable
U1 RWST	ppm	2550	Today/XXXX	2550 - 2650	2500 - 2700
U2 RWST	ppm	2589	Today/XXXX	2550 - 2650	2500 - 2700
BAT A	ppm	6764	Today/XXXX	Variable	Variable
BAT B	ppm	6872	Today/XXXX	Variable	Variable
BAT C	ppm	6450	Today/XXXX	Variable	Variable
U1 CLA #1	ppm	2532	Two Weeks Ago/XXXX	2470-2630	2400-2700
U1 CLA #2	ppm	2542	Two Weeks Ago/XXXX	2470-2630	2400-2700
U1 CLA #3	ppm	2546	Two Weeks Ago/XXXX	2470-2630	2400-2700
U1 CLA #4	ppm	2515	Two Weeks Ago/XXXX	2470-2630	2400-2700
U2 CLA #1	ppm	2555	Last Week/XXXX	2470-2630	2400-2700
U2 CLA #2	ppm	2502	Last Week/XXXX	2470-2630	2400-2700
U2 CLA #3	ppm	2579	Last Week/XXXX	2470-2630	2400-2700
U2 CLA #4	ppm	2540	Last Week/XXXX	2470-2630	2400-2700
Spent Fuel Pool	ppm	2659	Last Week/XXXX	≥ 2050	≥ 2000
Lithium Results			**Date / Time**	**Goal**	**Midpoint**
U1 RCS Lithium	ppm	2.44	Today/XXXX	2.26-2.52	2.39
U2 RCS Lithium	ppm	3.51	Today/XXXX	3.28-3.54	3.41

Primary to Secondary Leakrate Information (Total CPM RM-90-99/119)					
Indicator	**Units**	**U1**	**Date / Time**	**U2**	**Date/Time**
SI 50 S/G Leakage?	Yes/No	No	Today/XXXX	No	Today / Now
SI 137.5 CVE Leakrate	gpd	<0.1	Last Week/XXXX	<0.1	Today / Now
5 gpd leak equivalent	cpm	115	Today / Now	85	Today / Now
30 gpd leak equivalent	cpm	490	Today / Now	308	Today / Now
75 gpd leak equivalent	cpm	1165	Today / Now	710	Today / Now
100 gpd leak equivalent	cpm	1540	Today / Now	933	Today / Now
150 gpd leak equivalent	cpm	2290	Today / Now	1380	Today / Now
Bkgd on 99 /119	cpm	40	Last Week/XXXX	40	Today / Now
Correlation Factor 99/119	cpm/gpd	5.31	Last Week/XXXX	0.854	Today / Now
Steady State conditions are necessary for an accurate determination of leak rate using the CVE Rad Monitor					

TRM FIGURE 3.1.2.6 (Units 1 & 2)

BORIC ACID TANK LIMITS BASED ON RWST BORON CONCENTRATION



APPENDIX A
Page 17 of 22

DESCRIPTION	SR REFERENCE	MODE	NOTE	T.S. LIMITS	INSTRUMENT	UNITS	DATA	REMARKS
Spent Fuel Pit Water Level el 734	4.9.11	With spent fuel in pool	1	Min of 23 ft above fuel	Local depth gage	(√)		
Boric Acid Tank "A" Level 1-M-6	TR 4.1.2.5.a.2	4,5,6	11	≥ 6400 gal.	1-LI-62-238	Gal.		
	TR 4.1.2.6.a.2	1,2,3	12	TRM figure 3.1.2.6		Gal.		
Boric Acid Tank "C" Level 1-M-6	TR 4.1.2.5.a.2	4,5,6	11	≥ 6400 gal.	0-LI-62-242	Gal.		
	TR 4.1.2.6.a.2	1,2,3	12	TRM figure 3.1.2.6		Gal.		
RWST Level 1-M-6	TR 4.1.2.6.b.2 4.5.5.a.1	1,2,3,4	13,14	≥370,000 ≤375,000	1-LI-63-46 or 1-LI-63-49	Gal.		
	TR 4.1.2.5.b.2	4,5,6	11	10% or ≥ 55,000 gal	1-LI-63-50 or 1-LI-63-51 or 1-LI-63-52 or 1-LI-63-53	% or Gal.		
						UO/RO REVIEW		

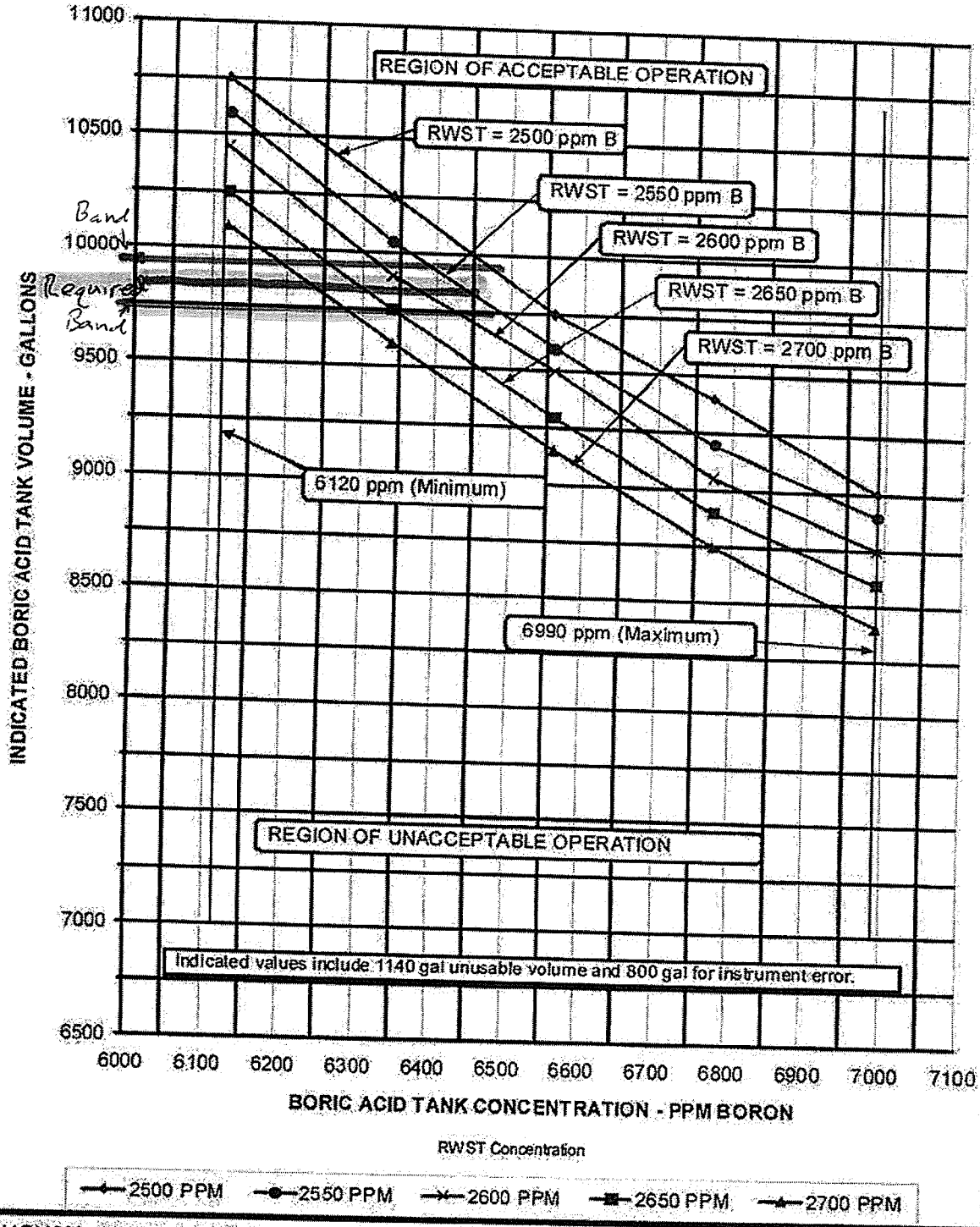
NOTES

1. Verify water level is above bottom mark on depth gage installed on west wall of spent fuel pit. If water level is in the bottom of the normal range, then contact MCR to make-up to high in the normal range per 0-SO-78-1.
11. In modes 4, 5 and 6 one boric acid storage tank or RWST is required to be operable. **IF** Control Room indication is lost, **REFER** to GOI-6 for alternate means of obtaining RWST level.
12. In modes 1, 2, and 3 one boric acid storage tank is to be operable if required by LCO 3.1.2.2.
13. In modes 1, 2, 3, and 4 RWST is required to be operable. **IF** Control Room indication is lost, **REFER** to GOI-6 for alternate means of obtaining RWST level.
14. **IF** deviation of ≥1000 gallons exists between channels, **THEN** submit Service Request (SR) to have transmitter repaired.

1211 NRC SRO A.1.a KEY

TRM FIGURE 3.1.2.6 (Units 1 & 2)

BORIC ACID TANK LIMITS BASED ON RWST BORON CONCENTRATION



1211 NRC SRO A.1.a KEY

SEQUOYAH NUCLEAR PLANT

1211 NRC
SRO ADMIN A.1.b

SRO

JOB PERFORMANCE MEASURE

Task: Perform an RCS Void Determination and Apply the Result to Determine RCS Pump Sweep Requirements.

Task #: 33440100302

Task Standard: The examinee will:
1. Determine that the volume required to pressurize the RCS from 50 to 340 psig is 1733 (1733.4 acceptable) gallons.
2. Evaluates Steps 19, 20 and 21 of GO-1, Section 5.5.1 and determines that sweeps and vents must be continued.

Time Critical Task: **YES:** _____ **NO:** X

K/A Reference/Ratings: 2.1.7 (4.7)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 20 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. 0-GO-1, UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY Section 5.5.1 and Appendix E Handout

References:

	Reference	Title	Rev No.
1.	0-GO-1	UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY	65
2.			

==========

Read to the examinee:

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Section 5.5.1 "RCP Sweeps and Vents," is in progress, completed through step 17.
2. The first 30 second run of #4 RCP is the only RCP sweep that has been completed.
3. 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," has been completed through step 10.

INITIATING CUES:

1. Complete 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," starting at step 11 to determine the volume (total makeup) that was required during the pressurization of the RCS from 50 psig to 340 psig.
2. Review 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Section 5.5.1, "RCP Sweeps and Vents," starting at step 18 to determine the required actions (if any) to be taken.

Start Time _____

STEP 1 :	Obtain a copy of GO-1," UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," and Section 5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities.	___ SAT ___ UNSAT
Standard:	Copy of GO-1," UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," and Section 5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities.	
Cue	Provide a copy of GO-1," UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," and Section 5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities.	
Comment		

STEP 2 :	**1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.** [11] **DETERMINE** volume required to pressurize the RCS from 50 psig to 340 psig as follows: [11.1] Determine makeup volume added based on change in Boric Acid Batch Counter **[FQ-62-139]** totalizer readings. _____ _____ - _____ = _____ Final reading (step 10) — Initial reading (Step 6) — gallons	___ SAT ___ UNSAT
Standard:	Examinee enters 795150 as the final reading, 794441 as the initial reading, and calculates the change in volume to be 709 gallons.	**CRITICAL**
Comment		

STEP 3 :	**1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.** [11.2] Determine makeup volume added based on change in Primary Water Batch Counter **[FQ-62-142]** readings. _____ _____ - _____ = _____ Final reading (step 10) Initial reading (Step 6) gallons	___ SAT ___ UNSAT
Standard:	Examinee enters 18882 as the final reading, 18453 as the initial reading, and calculates the change in volume to be 429 gallons.	**CRITICAL**
Comment		

STEP 4 :	**1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.** [11.3] Determine change in VCT level. _____ _____ - _____ = _____ Initial level (step 6) Final level (Step 10) % change	___ SAT ___ UNSAT
Standard:	Examinee enters 60.6% as the initial reading, 29.7 as the final reading, and calculates the change in level to be 30.9.	**CRITICAL**
Comment		

STEP 5 :	**1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.** [11.4] Convert VCT level change to gallons as follows: _____ _____ X 19.27 = _____ % change (step 11.3) gallons / % gallons	___ SAT ___ UNSAT
Standard:	Examinee multiplies 30.9 times 19.27 and calculates the change in volume to be 595 gallons. (595.4 is acceptable.)	**CRITICAL**
Comment		

NOTE

A higher final VCT level will result in the change in VCT level being subtracted from total totalizer change.

STEP 6 :	**1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.** [12] **DETERMINE** total volume required to pressurize RCS. _____ _____ + _____ +/- _____ = _____ change in Boric Acid totalizer (Step 11.1) / change in Pri. Water totalizer (Step 11.2) / change in VCT level (Step 11.4) / Total makeup required	___ SAT ___ UNSAT
Standard:	Examinee adds 709 gallons, 429 gallons and 595 gallons and determines the total makeup required to be 1733 gallons. (1733.4 is acceptable)	**CRITICAL**
Comment		
Examiner Note:	The following actions are taken from GO-1," UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Section 5.5.1, "RCP Sweeps and Vents."	

STEP 7 :	**5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)** [19] **IF** total makeup required in App. E is less than or equal to 465 gal	____ SAT ____ UNSAT
Standard:	Examinee evaluates step 19 of GO-1, Section 5.5.1 and determines step is N/A.	
Comment		

STEP 8 :	**5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)** [20] **IF** total makeup required in App. E is between 465 gal and 1723 gal	____ SAT ____ UNSAT
Standard:	Examinee evaluates step 20 of GO-1, Section 5.5.1 and determines step is N/A.	
Comment		

STEP 9 :	**5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)** [21] **IF** total makeup required (App. E) is greater than 1723 gal **OR** additional RCP sweeps and vents are desired, **THEN** **PERFORM** the following: [21.1] **IF** sweeps and vents have **NOT** been completed for all four individual RCS loops, **THEN** **GO TO** Step **5.5.1[6]**. □	____ SAT ____ UNSAT
Standard:	Examinee evaluates step 21 of GO-1, Section 5.5.1 and determines that sweeps and vents must be continued.	**CRITICAL**
Comment		

Terminating Cue:	**The JPM is terminated when the Examinee returns the JPM briefing sheet to the Examiner.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Section 5.5.1 "RCP Sweeps and Vents," is in progress, completed through step 17.

2. The first 30 second run of #4 RCP is the only RCP sweep that has been completed.

3. 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," has been completed through step 10.

INITIATING CUES:

1. Complete 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Appendix E, RCS Void Volume Determination," starting at step 11 to determine the volume (total makeup) that was required during the pressurization of the RCS from 50 psig to 340 psig.

2. Review 0-GO-1, "UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY," Section 5.5.1, "RCP Sweeps and Vents," starting at step 18 to determine the required actions (if any) to be taken.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

Unit 1 Date TODAY

5.5 RCS Sweeps and Vents Following Maintenance Activities

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities

CAUTION

Starting RCP with a large ΔT between RCS and S/Gs (secondary side warmer than primary side) could lead to a rapid RCS pressure change. Maximum delta T shall be limited to 25°F.

NOTE

During U1C16 RFO, 12,385 gallons of borated water was required for sweeps and vents.

[1] **PERFORM** 0-SI-OPS-000-004.0 on an hourly basis to verify temperatures greater than 70°F (TRM 4.7.2). ☑

NOTE

Use of an isolation valve on vent hose is specified to avoid spilling borated water on reactor vessel head when hose is disconnected later.

[2] **ENSURE** temporary manual valve installed at hose connection for **[68-597]** Reactor Vessel vent valve. ✓

[3] **NOTIFY** Chemistry and Radiation Protection RCS sweeps and Vents activities will be performed. ☑

[4] **ENSURE** **[FCV-68-340D]** and **[FCV-68-340B]**, Normal Spray valves OPEN. ✓

NOTE

RCP sweeps and vents could cause a crud burst which could impact filter D/P.

[5] **NOTIFY** AUO to periodically monitor seal water injection filter and reactor coolant filter D/P during and following sweeps and vents. ☑

Unit 1 Date TODAY

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)

NOTES

1. Starting RCP #4 FIRST is preferred in order to sweep air AWAY from the RHR suction on the Loop 4 hot leg.
2. Each RCP will need individual copy of this subsection for each sweep performed on a loop. Preparations in 1(2)-SO-68-2 for RCP start may be in progress on all RCPs to be started prior to completion of this subsection.

[6] **SELECT** RCP to be **STARTED.**

PUMP	√
RCP No. 4	☑
RCP No. 1	☐
RCP No. 2	☐
RCP No. 3	☐

[7] **VERIFY** instruments necessary for RCP operation are available.

CAUTION

Performing sweeps and vents with PCV-62-81 in AUTO could result in erratic RCS pressure changes and possible overpressure condition. (INPO OE 25091)

[8] **ENSURE [HIC-62-81A]** Letdown Pressure Control in MANUAL.

[9] **WHEN** RCS pressure is greater than 100 psig, **THEN**

[9.1] **ENSURE [FCV-62-63]**, seal return isolation valve OPEN using **[HS-62-63A]**.

[9.2] **ENSURE [FCV-62-61]**, seal return isolation valve OPEN using **[HS-62-61A]**.

[9.3] **INDEPENDENTLY VERIFY [FCV-62-63]**, seal return isolation valve is OPEN.

IV

Unit 1 Date Today

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)

[9] **INDEPENDENTLY VERIFY [FCV-62-61]**, seal return isolation valve is OPEN. IV

CAUTION

RCS pressure should be maintained at approximately 340 psig. This will provide the greatest margin from the setpoint of the RHR system relief valves and ensure adequate RCP seal D/P.

NOTE

Flows in the following step may be mismatched to stabilize pressure when RCP is started.

[10] **ADJUST [HIC-62-81A]** and/or **[HIC-62-93A]** to stabilize RCS pressure at ~340 psig.

NOTE

Prior to unit cooldown each Loose Parts Monitoring Channel for shutdown unit is placed in "Inhibit" to eliminate unnecessary nuisance alarms. Therefore, manual monitoring is required during RCP starts (ref. GOI-6 Sect. W).

[11] **MONITOR** Loose Part Monitoring System (Aux Inst Rm 0-R-139) for abnormal noise during each RCP start. ✓

CAUTIONS

Operators should be alert for pressure changes when RCP is started. Expected response is a drop in pressure due to slight temperature drop as flow is circulated through S/Gs and air is compressed.

RCS pressure should be controlled within the following limits:

- **RCP seal D/P greater than 220 psid.**
- **RCS pressure less than 405 psig (RHR press high alarm, M-6C window E-7). This prevents lifting RHR reliefs and provides margin from LTOPS setpoint.**

If any uncontrollable RCS pressure changes occur, RCP should be immediately stopped to allow restoring RCS pressure.

[12] **START** selected RCP per 1(2)-SO-68-2.

Unit 1 Date Today

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)

[13] **WHEN** selected RCP has been operated for 30 seconds **AND** has been STOPPED,
THEN
CONTINUE with step **5.5.1[14]** . ✓

[14] **ADJUST [HIC-62-81A]** and/or **[HIC-62-93A]** to initiate RCS pressure reduction to ~50 psig. ✓

[15] **WHEN** RCS pressure is less than 100 psig,
THEN
CLOSE [FCV-62-63], seal return isolation valve. ✓

NOTE
RCS pressure reduction is acceptable when venting head and pressurizer.

[16] **PERFORM** Appendix F to vent reactor head. ☑

[17] **PERFORM** the following to vent the pressurizer:

[17.1] **OPEN** one pressurizer PORV. ✓

[17.2] **WHEN** level rise observed in PRT,
THEN
CLOSE pressurizer PORV. ✓

NOTE
If Appendix E cannot be completed due to equipment unavailability, then Steps 5.5.1[18] through 5.5.1[20] should be marked N/A. Additional sweeps and vents will be performed in Step 5.5.1[21].

[18] **WHEN** reactor head and pressurizer have been vented,
THEN
PERFORM Appendix E, RCS Void Volume Determination. _____

Unit_____ Date _____

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)

[19] **IF** total makeup required in App. E is less than or equal to 465 gal

AND no further sweeps and vents are desired,
THEN
PERFORM the following:

[19.1] **RECORD** the following in narrative log: _____

- no further sweeps and vents are required
- credit **CANNOT** be taken for a filled RCS and 2 S/Gs per Tech Spec LCO 3.4.1.4 UNTIL the RCS is pressurized to 150 psig.

[19.2] **MARK** Steps **5.5.1[20]** and **5.5.1[21]** as N/A. ☐

[19.3] **GO TO** Section 5.3 Step **5.3[22]**. ☐

[20] **IF** total makeup required in App. E is between 465 gal and 1723 gal

AND no further sweeps and vents are desired,
THEN
PERFORM the following:

[20.1] **RECORD** the following in narrative log: _____

- no further sweeps and vents are required
- credit **CANNOT** be taken for filled RCS and 2 S/Gs per Tech Spec LCO 3.4.1.4 UNTIL two opposing loop RCPs are in service (after bubble is drawn).

[20.2] **MARK** Step **5.5.1[21]** as N/A. ☐

[20.3] **GO TO** Section 5.3 Step **5.3[22]**. ☐

Unit_____ Date _____

5.5.1 Individual RCP Sweeps and Vents Following Maintenance Activities (continued)

[21] **IF** total makeup required (App. E) is greater than 1723 gal
OR additional RCP sweeps and vents are desired,
THEN
PERFORM the following:

[21.1] **IF** sweeps and vents have **NOT** been completed for all four individual RCS loops,
THEN
GO TO Step **5.5.1[6]**. ☐

[21.2] **IF** sweeps and vents are complete for all individual RCS loops,
THEN
PERFORM Section **5.5.2** for Multiple RCP Sweeps. _____

End of Section

Appendix E
(Page 1 of 4)

RCS VOID VOLUME DETERMINATION

Unit 1 Date Today

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION.

(11) **MONITOR** RCS pressure rise by using of the following:

EQUIPMENT	INDICATION NUMBER	√
RCS Hot Leg Press Wide Range	P-68-68A (P0499A)	☑
RCS Hot Leg Press Wide Range	PI-68-62 (P2000A)	☑

(12) **ADJUST** [HIC-62-81A] and/or [HIC-62-93A] as necessary to maintain RCS pressure stable at 50 psig. ☑

NOTE

This appendix will require raising RCS pressure to 340 psig. Performance of 0-SI-OPS-000-004.0 is required to verify S/G temperature prior to exceeding 200 psig. This SI must be repeated hourly thereafter UNTIL RCS and S/G pressures are less than 200 psig OR until an RCP is placed in service.

(13) **PERFORM** 0-SI-OPS-000-004.0 on an hourly basis to verify S/G temperatures greater than 70°F (TR 4.7.2). ☑

(14) **ENSURE** RCS temperature is between 85°F and 105°F. ☑

(15) **ENSURE** VCT makeup system is aligned for **AUTO** operation in accordance with 0-SO-62-7, Boron Concentration Control. ☑

Appendix E
(Page 2 of 4)

RCS VOID VOLUME DETERMINATION

Unit 1 **Date** Today

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION. (continued)

[6] **RECORD** the following initial values:

- VCT level using one of the following :
  - Computer point **[L0112A]** 60.6 %
    OR
  - VCT level indicator **[LI-62-129]** _____%
- Boric Acid Batch Counter **[FQ-62-139]** totalizer 794441
- Primary Water Batch Counter **[FQ-62-142]** totalizer 018453

CAUTION

Charging flow must be maintained within makeup capacity. CCP suction must remain aligned to VCT to allow accurate measurement of volume changed.

[7] **ADJUST [HIC-62-81A]** and/or **[HIC-62-93A]** to raise RCS pressure to 340 psig. ☑

[8] **WHEN** RCS pressure is greater than 100 psig, **THEN**

[8.1] **OPEN [FCV-62-63]**, seal return isolation valve using **[HS-62-63A]**.

[8.2] **OPEN [FCV-62-61]**, seal return isolation valve using **[HS-62-61A]**.

[8.3] **INDEPENDENTLY VERIFY [FCV-62-63]**, seal return isolation valve is OPEN.

[8.4] **INDEPENDENTLY VERIFY [FCV-62-61]**, seal return isolation valve is OPEN.

Appendix E
(Page 3 of 4)

RCS VOID VOLUME DETERMINATION

Unit 1 **Date** TODAY

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION. (continued)

[9] **WHEN** RCS pressure is 340 psig,
THEN
ADJUST [HIC-62-81A] and/or **[HIC-62-93A]** as necessary to maintain RCS pressure stable at 340 psig. ☑

[10] **RECORD** the following final values:

[10.1] VCT level using one of the following : J

[10.1.1] Computer point **[L0112A]** 29.7 %
OR

- VCT level indicator **[LI-62-129]** _____%

[10.2] Boric Acid Batch Counter **[FQ-62-139]** totalizer
795150 J

[10.3] Primary Water Batch Counter **[FQ-62-142]** totalizer
018882 J

[11] **DETERMINE** volume required to pressurize the RCS from 50 psig to 340 psig as follows:

[11.1] Determine makeup volume added based on change in Boric Acid Batch Counter **[FQ-62-139]** totalizer readings. _____

_____ - _____ = _____

Final reading (step 10) | Initial reading (Step 6) | gallons

[11.2] Determine makeup volume added based on change in Primary Water Batch Counter **[FQ-62-142]** readings. _____

_____ - _____ = _____

Final reading (step 10) | Initial reading (Step 6) | gallons

Appendix E
(Page 4 of 4)

RCS VOID VOLUME DETERMINATION

Unit_____ **Date** _____

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION. (continued)

[11.3] Determine change in VCT level. _____

_____ - _____ = _____

Initial level (step 6)	Final level (Step 10)	% change

[11.4] Convert VCT level change to gallons as follows: _____

_____ X 19.27 = _____

% change (step 11.3)	gallons / %	gallons

NOTE

A higher final VCT level will result in the change in VCT level being subtracted from total totalizer change.

[12] **DETERMINE** total volume required to pressurize RCS. _____

_____ + _____ +/- _____ = _____

change in Boric Acid totalizer (Step 11.1)	change in Pri. Water totalizer (Step 11.2)	change in VCT level (Step 11.4)	Total makeup required

End of Section

Appendix E
(Page 3 of 4)

RCS VOID VOLUME DETERMINATION

Unit 1 **Date** Today

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION. (continued)

WHEN RCS pressure is 340 psig,
THEN
ADJUST [HIC-62-81A] and/or [HIC-62-93A] as necessary to maintain RCS pressure stable at 340 psig. ☑

RECORD the following final values:

VCT level using one of the following :

Computer point **[L0112A]** 29.7 %
OR

- VCT level indicator **[LI-62-129]** _____ %

- Boric Acid Batch Counter **[FQ-62-139]** totalizer 795150 — 0

- Primary Water Batch Counter **[FQ-62-142]** totalizer 018882 — 0

DETERMINE volume required to pressurize the RCS from 50 psig to 340 psig as follows:

[11.1] Determine makeup volume added based on change in Boric Acid Batch Counter **[FQ-62-139]** totalizer readings.

* 795150 (Final reading, step 10) − 794441 (Initial reading, Step 6) = 709 gallons

[11.2] Determine makeup volume added based on change in Primary Water Batch Counter **[FQ-62-142]** readings.

* 018882 (Final reading, step 10) − 019453 (Initial reading, Step 6) = 429 gallons

* CRITICAL

KEY

KEY

Appendix E
(Page 4 of 4)

RCS VOID VOLUME DETERMINATION

Unit 1 **Date** Today

1.0 REACTOR COOLANT SYSTEM LOOPS FILLED DETERMINATION. (continued)

[11.3] Determine change in VCT level. d

* 60.6 − 29.7 = 30.9

Initial level (step 6) | Final level (Step 10) | % change

[11.4] Convert VCT level change to gallons as follows: d

* 30.9 X 19.27 = 595.4 / 595

% change (step 11.3) | gallons / % | gallons

NOTE

A higher final VCT level will result in the change in VCT level being subtracted from total totalizer change.

[12] **DETERMINE** total volume required to pressurize RCS. d

* 709 + 429 +/- 595.4 = 1733.4 (1733)

change in Boric Acid totalizer (Step 11.1) | change in Pri. Water totalizer (Step 11.2) | change in VCT level (Step 11.4) | Total makeup required

END OF TEXT

* CRITICAL

KEY

SRO ADMIN A.2

SEQUOYAH NUCLEAR PLANT

1211 NRC
SRO ADMIN JPM A.2

JOB PERFORMANCE MEASURE

Task: Determine the risk level for safety systems as identified by PSA for scheduling maintenance.

Task #: 0001720302

Task Standard: The operator determines the Unit 1 risk level changes from green to orange by using the EOOS test case computer program.

Time Critical Task: **YES:** _____ **NO:** X

K/A Reference/Ratings: 2.2.14 (3.9/4.3)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 5 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management
2. LAN connected computer with EOOS test case program capability
3. Ensure the 1B-B EDG is removed from service by inserting "**WO TAGROLL1B"** using the EOOS test case program

References:

	Reference	Title	Rev No.
1.	NPG-SPP-09.11.1	Equipment Out of Service (EOOS) Management	5

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Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 is in MODE 1
2. 1B-B EDG is OOS in preparation for 1-SI-OPS-082-007.B ELECTRICAL POWER SYSTEM DIESEL GENERATOR 1B-B performance.
3. 1A-A Diesel Generator was found to be unavailable due to loss of jacket water cooling (flood from the heat exchanger

INITIATING CUES:

1. Perform a Risk Assessment for Unit 1 using the EOOS test case program and NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management starting at step 3.2.1.
2. Notify the examiner of your results.

Start Time _____

STEP 1 :	Obtain a copy of NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management.	___ SAT ___ UNSAT
Standard:	Copy of NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management is obtained.	
Cue	Provide a copy of NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management.	
Comment		

NOTES

1) The "Operator's Screen" is typically used to analyze the risk for the current unit configuration. The "What If" mode of the "Operator's Screen" may be used to analyze the potential future maintenance configuration.

2) Changes to the configuration of shared or common systems/components may affect the EOOS model of more than one unit. For example, the unavailability of a diesel generator will have a separate risk impact on each unit.

3) BFN ONLY - System alignments in the BFN model can affect EOOS results and therefore must be verified before running an evaluation. Note: The SQN and WBN PRA models do not currently have any system alignments identified.

STEP 2 :	A. From appropriately installed location, access EOOS for the desired plant and unit.	___ SAT ___ UNSAT
Standard:	Operator accesses the test case EOOS program by clicking on the Unit 1 icon	**CRITICAL**
Comment		

STEP 3 :	B. Log in using the assigned User Name and Password which are available from the Corporate PRA Group.	___ SAT ___ UNSAT
Standard:	Operator logs in the test case EOOS program	
Cue	If asked, provide the following cue, **"The password is OPS."**	
Comment		

STEP 4 :	C. Select the "Operator's Screen".	___ SAT ___ UNSAT
Standard:	The operator selects the Operator's Screen from the test case EOOS program	
Comment		

STEP 5 :	D. Determine if any Functional Equipment Groups (FEGs) or components are unavailable.	___ SAT ___ UNSAT
Standard:	The operator verifies 1B-B EDG is OOS by referring to the initial conditions.	
Examiner Note	The 1B-B EDG was OOS in the initial conditions.	
Comment		

STEP 6 :	E. Ensure the list of components/FEGs out of service matches the current unit configuration or make updates as necessary. The changes may be made in the "What- If" mode first to determine the risk impact before the component/FEG is actually removed from service.	____ SAT ____ UNSAT
Standard:	The operator selects 1A-A EDG from the drop down menu in the change active item list in the EOOS test program.	**CRITICAL**
Comment		

STEP 7 :	F. BFN only.....	____ SAT ____ UNSAT
Standard:	The operator determines the step is not applicable.	
Comment		

STEP 8 :	G. Calculate Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) Multiplier (i.e., the risk measure(s) on the "Operator's Screen" or the risk profile on the "Scheduler's Screen") for the unit configu ration using EOOS (Calculate Risk Measure(s) Button).	____ SAT ____ UNSAT
Standard:	The operator calculates CDF and LERF. Operator determines the LERF changes to ORANGE.	**CRITICAL**
Examiner Note	CDF remains green with a value of approximately 2.44. LERF changes to orange with a value of approximately 7.2.	
Comment		
Terminating Cue:	**The JPM is terminated when the operator returns the JPM Briefing sheet to the examiner."**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 is in MODE 1
2. 1B-B EDG is OOS in preparation for 1-SI-OPS-082-007.B ELECTRICAL POWER SYSTEM DIESEL GENERATOR 1B-B performance.
3. 1A-A Diesel Generator was found to be unavailable due to loss of jacket water cooling (flood from the heat exchanger

INITIATING CUES:

1. Perform a Risk Assessment for Unit 1 using the EOOS test case program and NPG-SPP-09.11.1 Equipment Out of Service (EOOS) Management starting at step 3.2.1.
2. Notify the examiner of your results.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

SRO ADMIN
A.3

SEQUOYAH NUCLEAR PLANT

1211 NRC
SRO ADMIN A.3

SRO

JOB PERFORMANCE MEASURE

Task: Determine Reporting Requirements for a Contaminated and Injured Worker

Task #: 3440030302

Task Standard:

Time Critical Task: **YES:** _____ **NO:** X

K/A Reference/Ratings: 2.3.14 (3.8)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 10 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. NPG-SPP-03.5, Regulatory Reporting Requirements

References:

	Reference	Title	Rev No.
1.	NPG-SPP-03.5	Regulatory Reporting Requirements	5

==========

Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 2 is in a Refueling Outage, no fuel is in the Reactor Vessel.
2. A vendor was performing work activities in the S/G bowl area.
3. The vendor was overcome with heat exhaustion and fell into the S/G bowl area.
4. Radcon reports the individual was contaminated 9000 cpm in the area of the wound.
5. The fall caused a compound fracture on his right leg that pierced his bubble suit.
6. Due to congested conditions and other delays in lifesaving activities, the injured individual received an estimated exposure of 16 Rem.
7. Due to the nature of his injury, he was immediately transferred to Erlanger Hospital.
8. Site personnel are preparing a news release for immediate delivery to the media.

INITIATING CUES:

1. You are the Shift Manager.
2. Determine all applicable (if any) NRC notifications of less than 24 hours using NPG-SPP-03.5 Regulatory Reporting Requirements.
3. Determine all applicable (if any) Internal Management Notifications the SHIFT MANAGER is required to make using NPG-SPP-03.5 Regulatory Reporting Requirements, Appendix D Site Event Notification Matrix.
4. Record your answers on the JPM briefing sheet.

Start Time _____

STEP 1 :	Obtain a copy of NPG-SPP-3.5, Regulatory Reporting Requirements.	___ SAT ___ UNSAT
Standard:	Copy of NPG-SPP-3.5, Regulatory Reporting Requirements is obtained.	
Cue	Provide a copy of NPG-SPP-3.5, Regulatory Reporting Requirements.	
Comment		

NOTES

1) Internal management notification requirements for plant events are found in Appendix D. The Operations Shift Manager is responsible for notifying Site Operations Management and the Duty Plant Manager. The Duty Plant Manager is responsible for making the remaining internal management notifications.

2) NRC NUREG-1022, Supplements and subsequent revisions should be used as guidance for determining reportability of plant events pursuant to §50.72 and §50.73. A text searchable copy of NUREG-1022 is maintained on the TVA NPG Nuclear Licensing Webpage at address http://tvanweb.cha.tva.gov/licensing/Pages/NRC-Industry_Guidance_Documents.htm.

STEP 2 :	**3.1 Immediate Notification - NRC** TVA is required by §50.72 to notify NRC immediately if certain types of events occur. This appendix contains the types of events and the allotted time in which NRC must be notified. (Refer to Form NPG-SPP-03.5-1 or NRC Form 361). Operations is responsible for making the reportability determinations for §50.72 and §50.73 reports. For any event, condition, or issue having the potential for being reportable, contact Site Licensing for consultation and concurrence on the reportability determination. In no event shall the lack of licensing concurrence result in a failure to meet specified reporting timeframes. Operations is responsible for making the immediate notification to NRC in accordance with §50.72. A. The Immediate Notification Criteria of §50.72 is divided into 1-hour, 4-hour, and 8- hour phone calls. Notify the NRC Operations Center within the applicable time limit for any item which is identified in the Immediate Notification Criteria. C. The following criteria require 4-hour notification: 4. §50.72(b)(2)(xi) - Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactive contaminated materials.	____ SAT ____ UNSAT
Standard:	Examinee reviews the data and determines a 4 hour notification to the NRC is required due to the impending news media release.	**CRITICAL**
Comment		

NOTE

According to §50.72 (b)(3)(vi) events covered by §50.72(b)(3)(v) may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.

STEP 3 :	**3.1 Immediate Notification - NRC** TVA is required by §50.72 to notify NRC immediately if certain types of events occur. This appendix contains the types of events and the allotted time in which NRC must be notified. (Refer to Form NPG-SPP-03.5-1 or NRC Form 361). Operations is responsible for making the reportability determinations for §50.72 and §50.73 reports. For any event, condition, or issue having the potential for being reportable, contact Site Licensing for consultation and concurrence on the reportability determination. In no event shall the lack of licensing concurrence result in a failure to meet specified reporting timeframes. Operations is responsible for making the immediate notification to NRC in accordance with §50.72. D. The following criteria require 8-hour notification: 5. §50.72(b)(3)(xii) - Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.	____ SAT ____ UNSAT
Standard:	Examinee reviews the data and determines an 8 hour notification to the NRC is required due to the required transport of the contaminated and injured worker to Erlanger Hospital.	**CRITICAL**
Comment		

NOTE

The Operations Shift Manager is responsible for notifying Site Operations management and the Duty Plant Manager. The Duty Plant Manager is responsible for the remaining internal management notifications as noted in the matrix.

STEP 4 :	**Appendix D** **(Page 2 of 2)** **Site Event Notification Matrix**	____ SAT ____ UNSAT
Standard:	Examinee reviews the data and determines notification to Site Operations management and the Duty Plant Manager is required.	**CRITICAL**
Comment		

Event/Condition	Notification Requirements				
	Duty Plant Manager	Plant Manager	Ops. Duty Spec. (ODS)	Site VP	Corporate Duty Officer*
NRC 1 hour, 4 hour, or 8 hour phone calls.	Yes	Yes	Yes for reactor trips, shutdowns, transport of contaminated or potentially contaminated victim to hospital and for loss of Prompt Notification System.	Yes	Yes for 1 hour and 4 hour calls.

Terminating Cue:	**The JPM is complete when the examinee returns the JPM briefing sheet to the Examiner.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 2 is in a Refueling Outage, no fuel is in the Reactor Vessel.
2. A vendor was performing work activities in the S/G bowl area.
3. The vendor was overcome with heat exhaustion and fell into the S/G bowl area.
4. Radcon reports the individual was contaminated 9000 cpm in the area of the wound.
5. The fall caused a compound fracture on his right leg that pierced his bubble suit.
6. Due to congested conditions and other delays in lifesaving activities, the injured individual received an estimated exposure of 16 Rem.
7. Due to the nature of his injury, he was immediately transferred to Erlanger Hospital.
8. Site personnel are preparing a news release for immediate delivery to the media.

INITIATING CUES:

1. You are the Shift Manager.
2. Determine all applicable (if any) NRC notifications of less than 24 hours using NPG-SPP-03.5 Regulatory Reporting Requirements.
3. Determine all applicable (if any) Internal Management Notifications the SHIFT MANAGER is required to make using NPG-SPP-03.5 Regulatory Reporting Requirements, Appendix D Site Event Notification Matrix.
4. Record your answers on the JPM briefing sheet.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

SRO ADMIN A.4

SEQUOYAH NUCLEAR PLANT

1211NRC
SRO ADMIN A.4

SRO

JOB PERFORMANCE MEASURE

Task: Classify the Event using the EPIP-1 and Complete a TVA INITIAL NOTIFICATION.

Task #: 3440190302

Task Standard: The Examinee classifies the event as a GENERAL EMERGENCY based on EAL 1.1.2.L and 1.2.3.L and 1.3.4.L and the Examinee issues a Protective Action Recommendation #3.

Time Critical Task: **YES:** X **NO:** _____

K/A Reference/Ratings: 2.4.41. (2.9/4.6)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____ _____
Name / Signature DATE

Performance Rating: **SAT:** _____ **UNSAT:** _____

Validation Time: 20 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

Tools/Equipment/Procedures Needed:

1. EPIP- 1, EMERGENCY PLAN CLASSIFICATION MATRIX
2. EPIP-5 General Emergency.
3. A clock must be available in classroom that all examinees and evaluator can see

References:

	Reference	Title	Rev No.
1.	EPIP-1	Emergency Plan Classification Matrix	43
2.	EPIP-5	General Emergency	39

==========

Read to the examinee:

DIRECTIONS TO TRAINEE:
I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

INITIAL CONDITIONS:

1. Unit 1 and Unit 2 have experienced a Reactor trip due to major storms that have occurred in East Tennessee.
2. The State of Tennessee has issued notifications of road closures in Northern Hamilton County and Hixson due to flooding.
3. Unit 1 has had a Safety Injection.
4. Security reports that at the time of the trip, steam started blowing from the roof of the Unit 1 east valve vault and steam flow is still in progress at this time.
5. Steam Generator #2 is isolated per E-3, Steam Generator Tube Rupture.
6. CRO has informed you that SG #2 pressure is slowly lowering.
7. Containment pressure is 0.1 psig and steady.
8. RCS pressure is 1500 psig.
9. Core exit TCs 532 °F and slowly rising.
10. The most recent Chem Lab sample of RCS indicates that RCS activity has risen to 345 µCi/gm Equivalent Iodine-131.
11. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. Using the data provided and the applicable procedure (s) classify the event.
2. Raise your hand when you have classified the event.
3. Determine what, if any, Protective Action Recommendations are required.
4. Raise your hand when you have completed the Protective Action Recommendations.
5. Record your answers on the JPM briefing sheet.
6. There is (are) an element (s) of this task that is (are) time critical.

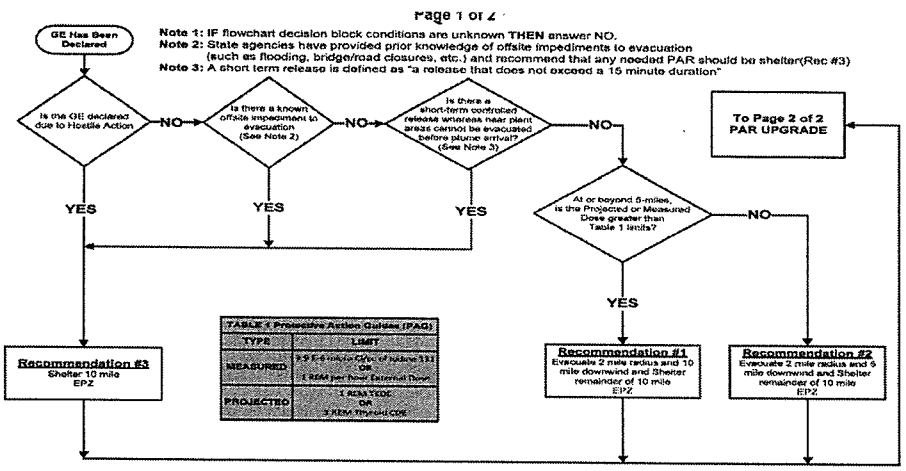
Start Time

STEP 1 :	Obtain a copy of EPIP-1, EMERGENCY PLAN CLASSIFICATION MATRIX.	___ SAT ___ UNSAT
Standard:	Examinee obtains a copy of EPIP-1, EMERGENCY PLAN CLASSIFICATION MATRIX.	
Cue	Provide a copy of EPIP-1, EMERGENCY PLAN CLASSIFICATION MATRIX.	
Comment		
Examiner Note	Annotate start time when the examinee acknowledges the task is understood. Start time_____	

Procedure Note	***INSTRUCTIONS*** **Note:** A condition is considered to be **MET** if, in the judgment of the SED, the condition will be **MET IMMINENTLY** (i.e.: with two hours). The classification shall be made as soon as this determination is made.	
STEP 2 :	1. In the matrix to the left, REVIEW the initiating conditions in all three barrier columns and circle the conditions that are MET. 2. In each of the three barrier columns, IDENTIFY if any Loss or Potential Loss **INITIATING CONDITIONS** have been MET.	___ SAT ___ UNSAT
Standard:	Examinee reviews the EMERGENCY PLAN CLASSIFICATION MATRIX and identifies initiating conditions provided in the initial conditions.	
Comment		

STEP 3 :	3. COMPARE the number of barrier Losses and Potential losses to the criteria below and make the appropriate declaration. **Emergency Class Criteria** **General Emergency** **LOSS** of any two barriers and **Potential LOSS** of third barrier	___ SAT ___ UNSAT
Standard:	The examinee compares barrier losses and classifies the event as a General Emergency within 15 minutes of starting the task. **LOSS of the Fuel Clad Barrier 1.1.2.L** due to RCS sample activity greater than 300 µCi/gm dose equivalent I131 AND **LOSS of the RCS Barrier 1.2.3.L** due to the SGTR AND **Potential LOSS of the Containment 1.3.4.L** RUPTURED S/G that is also faulted outside containment (E2 and E3.	**CRITICAL**
Comment		
EXAMINER NOTE:	Annotate the stop time for the event classification here. _____	
EXAMINER NOTE:	Annotate the start time for the Protective Action Recommendation here. _____	
EXAMINER NOTE:	The start data is provided to the examinee on the JPM briefing sheet.	
EXAMINER NOTE:	Examinee transitions to EPIP-5, GENERAL EMERGENCY	

STEP 4 :	Obtain a copy of EPIP-5, GENERAL EMERGENCY	___ SAT ___ UNSAT
Standard:	Examinee obtains a copy of EPIP-5, GENERAL EMERGENCY.	
Cue	Provide a copy of EPIP-5, GENERAL EMERGENCY	
Comment		

STEP 6 :	**[4] EVALUATE** Protective Action Recommendations (PARs) using Appendix B. ☐  	____ SAT ____ UNSAT
Standard:	Examinee determines Protective Action Recommendations (PARs) Recommendation 3 using Appendix B.	**CRITICAL**
Comment		

Terminating Cue:	**The task is complete when the Examinee has classified the event and issued Protective Action Recommendations.**	**STOP**

Stop Time _____

JPM BRIEFING SHEET

DIRECTIONS TO TRAINEE:

The examiner will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

1. Unit 1 and Unit 2 have experienced a Reactor trip due to major storms that have occurred in East Tennessee.
2. The State of Tennessee has issued notifications of road closures in Northern Hamilton County and Hixson due to flooding.
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4. Security reports that at the time of the trip, steam started blowing from the roof of the Unit 1 east valve vault and steam flow is still in progress at this time.
5. Steam Generator #2 is isolated per E-3, Steam Generator Tube Rupture.
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9. Core exit TCs 532 °F and slowly rising.
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11. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. Using the data provided and the applicable procedure (s) classify the event.
2. Raise your hand when you have classified the event.
3. Determine what, if any, Protective Action Recommendations are required.
4. Raise your hand when you have completed the Protective Action Recommendations.
5. Record your answers on the JPM briefing sheet.
6. There is (are) an element (s) of this task that is (are) time critical.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.