AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

CLASSROOM LESSON

TRAINING PROGRAM TITLE	INITIAL LICENSE TRAINING	**TIME:**	15 MIN
NUMBER AND TITLE:	NRC 2016-A1a-RO Calculate QPTR with Inoperable Power Range (PR) Instrument	**REVISION:**	0

Examinee's Name: :_____

Evaluator's Name: :_____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: :_____

Time to Complete: :_____

Comments:_____
_____
_____

REFERENCES/NRC KA/TASKS

Procedure:	2-OHP-4030-214-032				Quadrant Power Tilt Calculation
K/A Number:	2.1.7				Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrumentation interpretation
	SYS 015 A1.04				Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the NIS controls including: Quadrant Power Tilt Ratio
K/A Imp.:	RO:	4.4	SRO:	4.7	
		3.5		3.7	
Task Number:	0130180201				Perform Quadrant Power Tilt Ratio Calculation

TRAINING AIDS/TOOLS/EQUIPMENT

- **Calculator**
- **Rule**r

HANDOUTS

Task Briefing
Completed 2-OHP-4030-214-032 and Data Sheet 3

ATTACHMENTS

NI Calibration Data Card
N41, N42, N43, and N44 Pictures

EVALUATION SETTINGS

Classroom

EVALUATION METHOD:	PERFORM: ☒	SIMULATE: ☐

SIMULATOR/LAB SETUP

None

EVALUATOR INSTRUCTIONS

1. Ensure simulator setup is complete
2. Brief the operator (May be performed by giving out Task Briefing Sheet)
3. Announce start of the JPM
4. Perform evolution
5. At completion of evolution, announce the JPM is complete.
6. Document evaluation performance.

TASK BRIEFING

You are an extra RO.

The following conditions exist:

- NI Channel N-42 has failed low
- Unit 2 is currently at 72% power.
- All actions of 2-OHP-4022-013-004, Power Range Malfunction have been completed
- The Plant Process Computer (PPC) is INOPERABLE

The US directs you to perform a manual QPTR calculation per 2-OHP-4030-214-032, Quadrant Power Tilt Calculation.

The NI amp meters are set to display maximum resolution and the fluke readings confirm that the indicators are reading properly.

NOTE
Simulator Indications are NOT applicable to this JPM

GENERAL STANDARDS/PRECAUTIONS

Correctly obtain values and calculates a Quadrant Power Tilt Ratio calculation with one power range channel out-of-service using 2-OHP-4030-214-032.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-032	Rev. 6	Page 5 of 12
Quadrant Power Tilt Ratio Calculation			

4.3 Manual calculation of QPTR with one NI inoperable

4.3.1 Record the OPERABLE NI numbers in the appropriate blanks on Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs. _____

4.3.2 Obtain power range excore amperages as follows:

NOTE: All eight amp meter settings do not need to be on the same scale setting.

a. Select the amp meter scales for maximum resolution. _____

b. Read **AND** record each individual NI detector current on Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs. _____

4.3.3 Enter the individual upper and lower power range 120% current values in the appropriate blanks on Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs. _____

4.3.4 Divide each individual NI current by its 120% amperage. _____

4.3.5 Total the normalized values determined in Step 4.3.4. _____

4.3.6 Using the formula on Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs, determine the upper and lower QPTR. _____

4.3.7 Enter the highest upper **OR** lower tilt ratio in the space provided on Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs. _____

4.3.8 **IF** reactor power is greater than 75%, **THEN** request Reactor Engineering verify that QPTR is consistent with Incore Detector Readings. [Ref. SR 3.2.4.2] N/A

5 **ACCEPTANCE CRITERIA**

5.1 Acceptance Criteria: QPTR is less than **OR** equal to 1.02.

Operator records Upper & Lower Detector blanks for N-41, 43 and 44 on Data Sheet 3.
SAT: ☐ UNSAT: ☐

Instructor Note: See Page **6** For expected values (Spreadsheet program may be used to verify accuracy of candidate readings and calculations)

CS: Operator records NI detector readings (within ±0.5) on a division mark and within the division marks for all others. (Enter data into spreadsheet for comparison)
SAT: ☐ UNSAT: ☐

CS: Operator enters data from cards provided.
SAT: ☐ UNSAT: ☐

Operator divides respective NI channel with its 120% value (from cards on Channel 3 NI panel)
SAT: ☐ UNSAT: ☐

Operator totals 3 channels of normalized values
SAT: ☐ UNSAT: ☐

CS: Operator determines upper and lower QPTR using data sheet 3 with an accuracy of .01 of Exam Team calculated value (Enter data into spreadsheet for comparison)
SAT: ☐ UNSAT: ☐

Operator enters the highest calculated QPTR (CS: Covered on Page 6)
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-032	Rev. 6	Page 6 of 12
Quadrant Power Tilt Ratio Calculation			

6 CORRECTIVE MEASURES

6.1 **IF** QPTR exceeds Notification Limit of 1.015, **THEN** notify SM and Reactor Engineering.

6.2 **IF** QPTR exceeds Acceptance Criteria, **THEN** perform the following:

- Notify SM and Reactor Engineering.
- Enter appropriate Conditions and Required Actions of TS 3.2.4.

STANDARD: **CS** Operator Determines that Acceptance Criteria is NOT Met (QPTR > 1.02) and Notifies SM & Reactor Engineering
SAT: ☐ UNSAT: ☐

CUE: SM Acknowledges that QPTR has Exceeded TS value and will address the required actions.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-032	Rev. 6	Page 12 of 12
Quadrant Power Tilt Ratio Calculation			
Data Sheet 3	Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs		Page: 12 - 12

Upper Detector	Record Detector "A" Current	Record Detector "A" 120% value	Normalized Value Detector A ÷ 120% value
N- 41	98.8	135.4	.7297
N- 43	98.4	134.4	.7321
N- 44	98.0	136.7	.7169
		Upper Total	2.1787

Lower Detector	Record Detector "B" Current	Record Detector "B" 120% value	Normalized Value Detector B ÷ 120% value
N- 41	91.8	135.6	.6770
N- 43	98.2	134.7	.7290
N- 44	97.3	136.2	.7144
		Lower Total	2.1204

Upper Tilt Ratio = Max Upper Normalized Value / Upper Total x 3 = 1.0081

Lower Tilt Ratio = Max Lower Normalized Value / Lower Total x 3 = 1.0314

Enter the max upper **OR** lower tilt ratio (Calculated QPTR) 1.0314

Verify QPTR Consistent with Incore Detector Readings (N/A if reactor power is less than or equal to 75%) N/A
Reactor Engineering

Notification Limit: 1.015

Acceptance Criteria: Calculated QPTR is less than **OR** equal to 1.02

Performed by: _____ Date: _____ Time: _____

Reviewed by: _____ Date: _____
(Supervisor/Manager Signature)

Data entered on this page based on Simulator readings. Enter data into QPTR calculation spreadsheet to determine accuracy of candidate's calculation

Reference Step 4.3.6 for criteria

CS: Operator enters the highest calculated QPTR of previous 2 values

Candidate marks "N/A"

CS: Operator Determines that Acceptance Criteria is NOT Met (QPTR > 1.02) and **Notifies SM** & Reactor Engineering

Candidate Signs, Dates, & enters Time and reports task completed.

CUE: SM Acknowledges the report and will address the required actions.

Evaluator: "This JPM is complete."

Task Briefing

You are an extra RO.

The following conditions exist:

- NI Channel N-42 has failed low
- Unit 2 is currently at 72% power.
- All actions of 2-OHP-4022-013-004, Power Range Malfunction have been completed
- The Plant Process Computer (PPC) is INOPERABLE

The US directs you to perform a manual QPTR calculation per 2-OHP-4030-214-032, Quadrant Power Tilt Calculation.

The NI amp meters are set to display maximum resolution and the fluke readings confirm that the indicators are reading properly.


N41 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET
A & B
GAIN
DETECTOR B
INSTRUMENT
POWER ON
CHANNEL
ON TEST


N42 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET A & B
GAIN
DETECTOR B
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
INSTRUMENT POWER ON
CHANNEL ON TEST


N43 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET
A & B
GAIN
DETECTOR B
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
INSTRUMENT
POWER ON
CHANNEL
ON TEST


N44 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET
A & B
GAIN
DETECTOR B
INSTRUMENT
POWER ON
CHANNEL
ON TEST

AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

TRAINING PROGRAM TITLE	INITIAL LICENSE TRAINING	**TIME:**	15 MIN
NUMBER AND TITLE:	NRC 2016-A1a-SRO Review QPTR with Inoperable Power Range (PR) Instrument	**REVISION:**	0

Examinee's Name: :_____

Evaluator's Name: :_____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: :_____

Time to Complete: :_____

Comments:_____
_____
_____

REFERENCES/NRC KA/TASKS

Procedure:	2-OHP-4030-214-032				Quadrant Power Tilt Calculation
K/A Number:	2.1.7				Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrumentation interpretation
	SYS 015 A1.04				Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the NIS controls including: Quadrant Power Tilt Ratio
K/A Imp.:	RO:	4.4	SRO:	4.7	
		3.5		3.7	
Task Number:	0130180201				Perform Quadrant Power Tilt Ratio Calculation

TRAINING AIDS/TOOLS/EQUIPMENT

- **Calculator**
- **Rule**r

HANDOUTS

Task Briefing
Completed 2-OHP-4030-214-032 and Data Sheet 3

ATTACHMENTS

NI Calibration Data Card
N41, N42, N43, and N44 Pictures

EVALUATION SETTINGS

Classroom

EVALUATION METHOD:	PERFORM: ☒	SIMULATE: ☐

SIMULATOR/LAB SETUP

None

EVALUATOR INSTRUCTIONS

1. Ensure simulator setup is complete
2. Brief the operator (May be performed by giving out Task Briefing Sheet)
3. Announce start of the JPM
4. Perform evolution
5. At completion of evolution, announce the JPM is complete.
6. Document evaluation performance.

TASK BRIEFING

You are the Unit SRO.

The following conditions exist:

- NI Channel N-42 has failed low
- Unit 2 is currently at 72% power.
- All actions of 2-OHP-4022-013-004, Power Range Malfunction have been completed
- The Plant Process Computer (PPC) is INOPERABLE

The SM directs you to Review the manual 2-OHP-4030-214-032, Quadrant Power Tilt Calculation.

The NI amp meters are set to display maximum resolution and the fluke readings confirm that the indicators are reading properly.

NOTE
Simulator Indications are NOT applicable to this JPM

GENERAL STANDARDS/PRECAUTIONS

Review a Quadrant Power Tilt Ratio calculation with one power range channel out-of-service using 2-OHP-4030-214-032 and identify error and required TS Actions

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-032	Rev. 6	Page 12 of 12
Quadrant Power Tilt Ratio Calculation			
Data Sheet 3	Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIs		Page: 12 - 12

Upper Detector	Record Detector "A" Current	Record Detector "A" 120% value	Normalized Value Detector A ÷ 120% value
N-41	98.8	135.4	.7297
N-43	98.4	134.4	.7321
N-44	98.0	136.7	.7169
		Upper Total	2.1787

Lower Detector	Record Detector "B" Current	Record Detector "B" 120% value	Normalized Value Detector B ÷ 120% value
N-41	91.8	135.6	.6770
N-43	98.2	134.7	.7290
N-44	97.3	136.2	.7144
		Lower Total	2.1204

Upper Tilt Ratio = $\frac{\text{Max Upper Normalized Value}}{\text{Upper Total}}$ x 3 = 1.0081

Lower Tilt Ratio = $\frac{\text{Max Lower Normalized Value}}{\text{Lower Total}}$ x 3 = 1.0031

Enter the max upper **OR** lower tilt ratio (Calculated QPTR) 1.0081

Verify QPTR Consistent with Incore Detector Readings (N/A if reactor power is less than or equal to 75%) N/A
Reactor Engineering

Notification Limit: 1.015

Acceptance Criteria: Calculated QPTR is less than **OR** equal to 1.02

Performed by: _____ Date: _____ Time: _____

Reviewed by: _____ Date: _____
(Supervisor/Manager Signature)

CS: Operator identifies that value was incorrectly calculated. Should be 1.0314 resulting in excessive QPTR.
(Range of 1.0268 to 1.0337)
SAT: ☐ UNSAT: ☐

CS: Operator Determines that Acceptance Criteria is NOT Met (QPTR > 1.02) and Notifies SM
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-032	Rev. 6	Page 6 of 12
Quadrant Power Tilt Ratio Calculation			

6 CORRECTIVE MEASURES

6.1 **IF** QPTR exceeds Notification Limit of 1.015, **THEN** notify SM and Reactor Engineering.

6.2 **IF** QPTR exceeds Acceptance Criteria, **THEN** perform the following:

- Notify SM and Reactor Engineering.
- Enter appropriate Conditions and Required Actions of TS 3.2.4.

CS: Operator Determines that Acceptance Criteria is NOT Met (QPTR > 1.02) and Notifies SM & Reactor Engineering
SAT: ☐ UNSAT: ☐

CUE: SM Acknowledges that QPTR has Exceeded TS value requests that you review the Required Technical Specification and determine the required Actions.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

QPTR
3.2.4

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. QPTR not within limit.	A.1	Reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	AND		
	A.2	Determine QPTR.	Once per 12 hours
	AND		
	A.3	Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1.	24 hours after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1
			AND
			Once per 7 days thereafter
	AND		

Cook Nuclear Plant Unit 2 3.2.4-1 Amendment No. 269

CUE: (If Required) Ask Operator to determine the Technical Specification LCO that applies.

CS: Determines that Power is limited to 3% for each 1% over 1.00 (3.14 x 3% = 9.42%) per LCO 3.2.4 Action A.1 – (note power limit is from RTP – 90.58% is limit)
(Range of 9.12% to 9.72% reduction with a 90.38% to 90.88% power limit)
SAT: ☐ UNSAT: ☐

Also Determines that QPTR must be calculated every 12 hours, Verify $F_Q^C(Z)$ is within limit., Verify $F_Q^W(Z)$ is within limit, & Verify $F_{\Delta h}^N$ is within limits specified in the COLR.
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

QPTR
3.2.4

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.4 Reevaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND	
	A.5 ----------NOTES---------- 1. Perform Required Action A.5 only after Required Action A.4 is completed. 2. Required Action A.6 shall be completed whenever Required Action A.5 is performed. ----------	
	Normalize excore detectors to restore QPTR to within limit.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND	
	A.6 ----------NOTE---------- Perform Required Action A.6 only after Required Action A.5 is completed. ----------	
	Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1.	Within 24 hours after achieving equilibrium conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1

Cook Nuclear Plant Unit 2 3.2.4-2 Amendment No. 269

Identify that safety analyses must be evaluated before raising power above 91.12%
SAT: ☐ UNSAT: ☐

A.5 & A.6 required if power is raised above 91.12%
SAT: ☐ UNSAT: ☐

Evaluator: "This JPM is complete."

Task Briefing

You are the Unit SRO.

The following conditions exist:

- NI Channel N-42 has failed low
- Unit 2 is currently at 72% power.
- All actions of 2-OHP-4022-013-004, Power Range Malfunction have been completed
- The Plant Process Computer (PPC) is INOPERABLE

The SM directs you to Review the manual 2-OHP-4030-214-032, Quadrant Power Tilt Calculation.

The NI amp meters are set to display maximum resolution and the fluke readings confirm that the indicators are reading properly.


N41 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET
A & B
GAIN
DETECTOR B
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
INSTRUMENT
POWER ON
CHANNEL
ON TEST


N42 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET A & B
GAIN
DETECTOR B
INSTRUMENT POWER ON
CHANNEL ON TEST


N43 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET A & B
GAIN
DETECTOR B
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
INSTRUMENT POWER ON
CHANNEL ON TEST


N44 DETECTORS
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
UPPER DETECTOR A
MILLIAMPERES
MICROAMPERES
DETECTOR CURRENT
LOWER DETECTOR B
DETECTOR A
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
OPERATION SELECTOR
NORMAL
DET A
DET B
DET
A & B
GAIN
DETECTOR B
RANGE
MILLI-AMPS
0.1
0.5
1
5
TEST SIGNAL
INSTRUMENT
POWER ON
CHANNEL
ON TEST

NI CALIBRATION DATA
DET A 120% I in µAmps

N41 =	**135.4**
N42 =	**136.6**
N43 =	**134.4**
N44 =	**136.7**

DET B 120% I in µAmps

N41 =	**135.6**
N42 =	**133.6**
N43 =	**134.7**
N44 =	**136.2**

Verified: Print ____John Smithe__
Sign ___*John Smithe* _____
Date __5/11/2016____

AEP
AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

TRAINING PROGRAM TITLE	INITIAL LICENSE TRAINING	**TIME:**	15 MINUTES
NUMBER AND TITLE:	NRC 2016-A1b-SRO Verify Appropriate LCO Action for Inoperable Radiation Monitors	**REVISION:**	0

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES/NRC KA/TASKS

Procedures:	12-OHP-4024-139	Annunciator #139 Response: Radiation
	TRM 8.3.8	Radiation Monitoring Instrumentation
	PMP-4030-EIS-001	Event-Initiated Surveillance Testing
	PMP-6010-OSD-001	Off-Site Dose Calculation Manual
K/A Number:	2.1.12	Ability to apply Technical Specifications for a system.
K/A Imp.:	RO: 2.9 SRO: 4.0	
Task Number:	ADM0370302	Verify Limiting Conditions for Operation are met in accordance with Technical Specifications.
	ADM0420302	Verify Limiting Conditions for Operation are met in accordance with the Offsite Dose Calculation Manual.

TRAINING AIDS/TOOLS/EQUIPMENT

None

HANDOUTS

Task Briefing
12-OHP-4024-139, Annunciator #139 Response: Radiation Drop 24
Unit 2 - TRM 8.3.8., Radiation Monitoring Instrumentation
PMP-4030-EIS-001, Event-Initiated Surveillance Testing
PMP-6010-OSD-001, Off-Site Dose Calculation Manual

ATTACHMENTS

None

EVALUATION SETTINGS

Classroom

EVALUATION METHOD:	PERFORM: ☒	SIMULATE: ☐

SIMULATOR/LAB SETUP

1. None

EVALUATOR INSTRUCTIONS

1. Brief the operator (May be performed by giving out Task Briefing Sheet)
3. Announce start of the JPM
4. Perform evolution
5. At completion of evolution, announce the JPM is complete.
6. Document evaluation performance.

TASK BRIEFING

You are an extra SRO.

Unit 2 is in Mode 1. Annunciator Radiation Monitor Channel VRS-2505, Low Range Noble Gas went into External Failure (WHITE) 5 minutes ago.

The Channel did NOT fail Low.
There is NO Waste Gas release in progress.

The Unit Supervisor directs you to investigate, perform any required actions, and complete required documentation.

NOTE
Simulator Indications are NOT applicable to this JPM.

GENERAL STANDARDS/PRECAUTIONS

Respond to a failed RMS channel and determine the appropriate LCO actions in accordance with applicable procedures.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

12-OHP-4024-139

Level of Use: REFERENCE #24

ANNUNCIATOR #139 RESPONSE: RADIATION

UNIT VENT EFFLUENT MONITOR

INITIATING DEVICE(S) AEP	INITIATING DEVICE(S) Alias	NOMINAL SETPOINT
VRS-2500	CHANNEL ID: VRS-2501 Particulate VRS-2502 (not used) VRS-2503 Iodine VRS-2504 Iodine Subtract VRS-2505 Low Range Noble Gas VRS-2506 Area Monitor (at SPING) VRS-2507 Medium Range Noble Gas VRS-2508 (not used) VRS-2509 High Range Noble Gas VRS-2510 Unit Vent Effluent Flowrate	Refer to Channel Parameter File

1.0 PROBABLE CAUSE(S):

1.1 RED / YELLOW:

- Containment purge operation.
- Higher than expected waste gas release.
- Waste Gas Decay Tank leak.
- Unplanned gas release from various other sources.

1.2 WHITE:

- Any channel is in Calibrate, Maintenance, or Check Source status.
- Any channel is in Standby or Flush mode.
- Any monitor is in local control.
- Any channel is in POLL OFF at RMS Monitor.
- Any channel is in Fail External, Fail High, or Fail Low status.
- Any monitor fails communications program or Unit's RMS Monitor is Off-Line.
- Sample flow is out of normal range by flow fail sensor.

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Rev. 19

General CUES:

If contacted as Rad Protection, report Channel 2505 is in EXTERNAL FAIL.

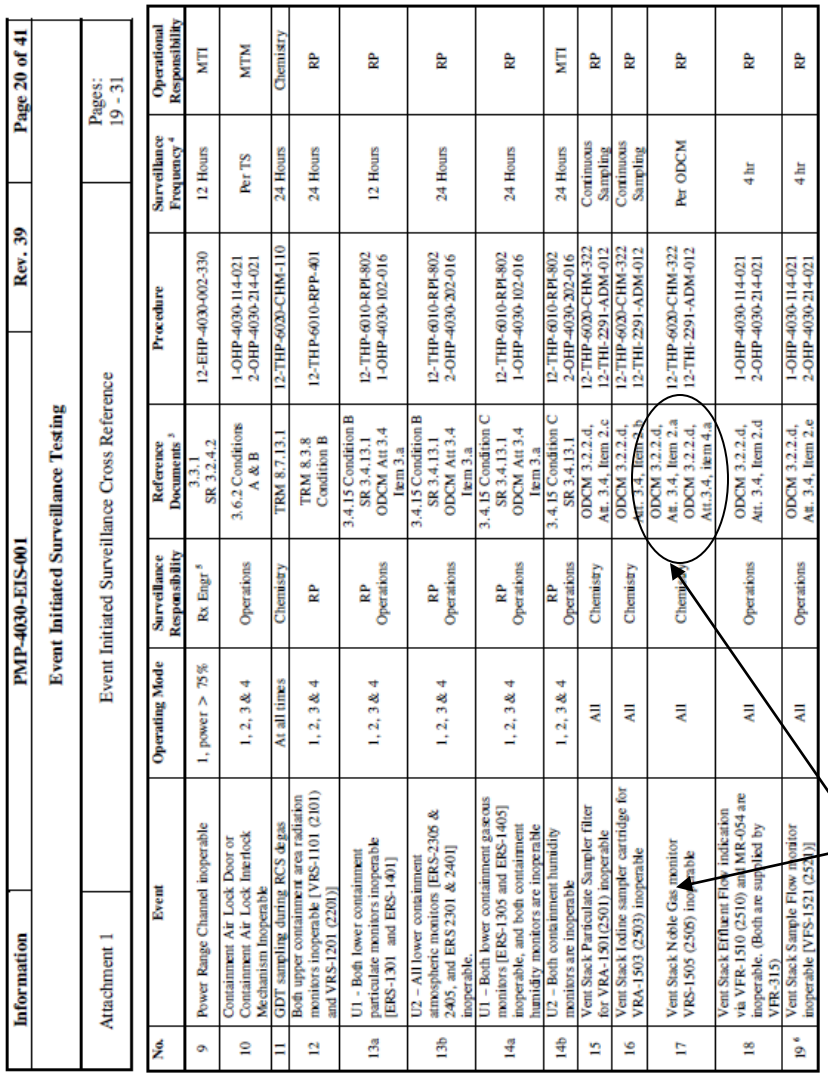
STANDARD: Operator reviews conditions for WHITE light.

SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
12-OHP-4024-139 **Level of Use: REFERENCE** #24 3.1.8 Depress the Unit Vent Effluent Rad Monitor VRS-2500 Trip Reset push button to reset 12-RRV-306, GDT Release Header to Aux Bldg Vent Stack Shutoff Valve: 3.2 YELLOW: 3.2.1 **IF** Gas Decay Tank release is in progress, **THEN** terminate in accordance with 12-OHP-4021-023-002, Release of Radioactive Waste from Gas Decay Tanks. 3.2.2 Check other RMS channels for high activity to help locate source. 3.2.3 Notify RP and Environmental Section that unplanned release may be occurring. 3.2.4 Request RP verify requirements of 12-THP-6010-RPP-706, Gaseous Monitor Alarm Response, have been met. 3.3 YELLOW (2506 only): 3.3.1 Notify RP of ALERT alarm and have RP investigate the immediate area around the SPING for changes in local dose rates and report findings. 3.4 WHITE: 3.4.1 Identify failed channel(s) **AND** refer to TRM 8.3.8. 3.4.2 Attempt to restore affected channel(s) to Normal. 3.4.3 **IF** VRS-2505, 2507 or 2509 is in Low Fail, **THEN** perform the following: a. **IF** desired, wait up to 20 minutes for low counts to build up. b. Notify RP of channel failure. 3.4.4 **IF** channel is Inoperable, **THEN** refer to PMP-4030-EIS-001, Event-Initiated Surveillance Testing, for appropriate actions and surveillances. **Page 100 of 128** **Rev. 19**	**STANDARD:** Operator references TRM 8.3.8 actions (None Required for VRS-2505) SAT: ☐ UNSAT: ☐ **CUE:** If asked, Channel VRS-2505 is NOT due to a low failure and will be out-of-service for at least 5 days. **CUE:** If required, acknowledge report to RP of Channel Failure **CUE:** US will initiate AR processing. **STANDARD (CS):** Operator reports VRS-2505 as Inoperable and references PMP-4030-EIS-001, Attachment 1. SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
12-OHP-4024-139 **Level of Use: REFERENCE** **#24** 3.4.5 **IF** channel is declared Inoperable and it is desired to prevent nuisance alarms, **THEN** perform the following: • Coordinate with RP to remove desired RMS monitor/channel(s) from service. • Remove desired RMS monitor/channel(s) from Scan on the PPC per 2-OHP-4024-211, Attachment's 1 and 2. • Initiate Action. 3.4.6 **IF** non-TS RMS channel(s) failed or Inoperable, **THEN** refer to PMP-6010-OSD-001, Off-Site Dose Calculation Manual. 3.4.7 **IF** ALL channels on a radiation monitor go into COMM FAIL status **AND** communication has **NOT** been re-established within one hour, **THEN** select POLL OFF at RMS Monitor to remove channel. **4.0 REFERENCE INDEX:** 4.1 Source Documents: 4.1.1 Elementary Diagrams: OP-2-98818, OP-2-98820 4.1.2 Flow Diagram: OP-2-5104F 4.1.3 Request For Change: RFC-2448 4.1.4 12-DCP-0641 4.2 Reference Documents: 4.2.1 TRM 8.3.8, Radiation Monitoring Instrumentation 4.2.2 12-THP-6010-RPP-706, Gaseous Monitor Alarm Response 4.2.3 Emergency Plan 4.2.4 PMP-4030-EIS-001, Event-Initiated Surveillance Testing 4.2.5 PMP-6010-OSD-001, Off-Site Dose Calculation Manual **Page 101 of 128** **Rev. 19**	**CUE:** US will coordinate with RP to determine if channel should be removed from service.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)



Information	PMP-4030-EIS-001	Rev. 39	Page 20 of 41
Event Initiated Surveillance Testing			
Attachment 1	Event Initiated Surveillance Cross Reference		Pages: 19 - 31

No.	Event	Operating Mode	Surveillance Responsibility	Reference Documents [3]	Procedure	Surveillance Frequency [4]	Operational Responsibility
9	Power Range Channel inoperable	1, power > 75%	Rx Engr [5]	3.3.1 SR 3.2.4.2	12-EHP-4030-002-330	12 Hours	MTI
10	Containment Air Lock Door or Containment Air Lock Interlock Mechanism Inoperable	1, 2, 3 & 4	Operations	3.6.2 Conditions A & B	1-OHP-4030-114-021 2-OHP-4030-214-021	Per TS	MTM
11	GDT sampling during RCS degas	At all times	Chemistry	TRM 8.7.13.1	12-THP-6020-CHM-110	24 Hours	Chemistry
12	Both upper containment area radiation monitors inoperable [VRS-1101 (2101) and VRS-1201 (2201)]	1, 2, 3 & 4	RP	TRM 8.3.8 Condition B	12-THP-6010-RPP-401	24 Hours	RP
13a	U1 - Both lower containment particulate monitors inoperable [ERS-1301 and ERS-1401]	1, 2, 3 & 4	RP Operations	3.4.15 Condition B SR 3.4.13.1 ODCM Att 3.4 Item 3.a	12-THP-6010-RPI-802 1-OHP-4030-102-016	12 Hours	RP
13b	U2 – All lower containment atmospheric monitors [ERS-2306 & 2405, and ERS 2301 & 2401] inoperable.	1, 2, 3 & 4	RP Operations	3.4.15 Condition B SR 3.4.13.1 ODCM Att 3.4 Item 3.a	12-THP-6010-RPI-802 2-OHP-4030-202-016	24 Hours	RP
14a	U1 – Both lower containment gaseous monitors [ERS-1305 and ERS-1405] inoperable, and both containment humidity monitors are inoperable	1, 2, 3 & 4	RP Operations	3.4.15 Condition C SR 3.4.13.1 ODCM Att 3.4 Item 3.a	12-THP-6010-RPI-802 1-OHP-4030-102-016	24 Hours	RP
14b	U2 – Both containment humidity monitors are inoperable	1, 2, 3 & 4	RP Operations	3.4.15 Condition C SR 3.4.13.1	12-THP-6010-RPI-802 2-OHP-4030-202-016	24 Hours	MTI
15	Vent Stack Particulate Sampler filter for VRA-1501(2501) inoperable	All	Chemistry	ODCM 3.2.2.d, Att. 3.4, Item 2.c	12-THP-6020-CHM-322 12-THI-2291-ADM-012	Continuous Sampling	RP
16	Vent Stack Iodine sampler cartridge for VRA-1503 (2503) inoperable	All	Chemistry	ODCM 3.2.2.d, Att. 3.4, Item 2.b	12-THP-6020-CHM-322 12-THI-2291-ADM-012	Continuous Sampling	RP
17	Vent Stack Noble Gas monitor VRS-1505 (2505) inoperable	All	Chemistry	ODCM 3.2.2.d, Att. 3.4, Item 2.a ODCM 3.2.2.d, Att.3.4, Item 4.a	12-THP-6020-CHM-322 12-THI-2291-ADM-012	Per ODCM	RP
18	Vent Stack Effluent Flow indication via VFR-150 (2510) and MR-054 are inoperable. (Both are supplied by VFR-315)	All	Operations	ODCM 3.2.2.d, Att. 3.4, Item 2.d	1-OHP-4030-114-021 2-OHP-4030-214-021	4 hr	RP
19 [6]	Vent Stack Sample Flow monitor inoperable [VFS-1521 (2521)]	All	Operations	ODCM 3.2.2.d, Att. 3.4, Item 2.e	1-OHP-4030-114-021 2-OHP-4030-214-021	4 hr	RP

.
…

STANDARD (CS): Operator identifies applicability of Item 17, which references ODCM Attachment 3.4, Items 2.a and 4.a
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Information	PMP-4030-EIS-001	Rev. 39	Page 7 of 41
Event Initiated Surveillance Testing			

NOTE: Shift Manager, Unit Supervisor or WCC-SRO has authority to delay initiating paperwork for an Event when probable that event will be exited before a required surveillance becomes necessary.

3.3.2 Upon receiving notification of event, Unit Supervisor or WCC-SRO perform the following:

- Review the normal operating procedure to determine if appropriate response to event is defined.
- **IF** there is no defined response, **THEN** review applicable reference documents listed in Attachment 1, Event Initiated Surveillance Cross Reference, to determine required response.
- Notify appropriate Responsible Department Supervisors, or designees, with responsibility for performing required surveillance tests. (Notification is not required if the Shift Manager, Unit Supervisor or WCC-SRO has authorized delay of initiating paperwork for an Event)
- Document entry into event in the Control Room log.

NOTE: If it is expected that the event will be exited prior to the surveillance becoming necessary, initiation of Data Sheet 1, Surveillance Item Tracking Sheet is **NOT** required.

- Complete Steps 1.1 through 1.7 of Data Sheet 1, Surveillance Item Tracking Sheet.
- **IF** applicable, **THEN** notify the opposite Unit, **AND** complete Step 1.8.

3.3.3 Shift Manager perform the following:

a. Review Steps 1.1 through 1.8 of Data Sheet 1, Surveillance Item Tracking Sheet.

b. Document concurrence by signing Step 1.9.

c. Place Data Sheet 1, Surveillance Item Tracking Sheet, in the Control Room Surveillance Book.

STANDARD (CS): Operator identifies applicability of Item 17.
SAT: ☐ UNSAT: ☐

STANDARD: Notifies Chemistry of Required Surveillance requirements.
SAT: ☐ UNSAT: ☐

CUE: Chemistry acknowledges requirements

CUE: US has logged the event in the Control Room Log.

STANDARD: Completes DATA Sheet 1 Steps 1.1 through 1.7
SAT: ☐ UNSAT: ☐

N/A

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Information	PMP-6010-OSD-001	Rev. 25	Page 58 of 89
OFF-SITE DOSE CALCULATION MANUAL			
Attachment 3.4	Radioactive Gaseous Effluent Monitoring Instrumentation		Pages: 58 - 60

Instrument (Instrument #)	Operable*	Minimum Channels Action	Action
1. Condenser Evacuation System			
a. Noble Gas Activity Monitor (SRA-1905/2905)	(1)	‡‡‡‡	6
b. Flow Rate Monitor (SFR-401 and 1/2-MR-054) OR (SFR-401 and SRA-1910/2910) OR (SFR-402 and 1/2-MR-054)	(1)	‡‡‡‡	5
2. Unit Vent. Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor (VRS-1505/2505)	(1)	‡	6
b. Iodine Sampler Cartridge for VRA-1503/2503	(1)	‡	8
c. Particulate Sampler Filter for VRA-1501/2501	(1)	‡	8
d. Effluent System Flow Rate Measuring Device (VFR-315 and 1/2-MR-054) OR (VFR-315 and VFR-1510/2510)	(1)	‡	5
e. Sampler Flow Rate Measuring Device (VFS-1521/2521)	(1)	‡	5
3. Containment Purge and Containment Pressure Relief (Vent) ‡‡			
a. Containment Noble Gas Activity Monitor ERS-1305/1405 (ERS-2305/2405)	(1)	‡‡‡‡[3,5]	7
b. Containment Particulate Sampler Filter ERS-1301/1401 (ERS-2301/2401)	(1)	‡‡‡‡	10
4. Waste Gas Holdup System and CVCS HUT (Batch releases)‡‡			
a. Noble Gas Activity Alarm and Termination of Waste Gas Releases (VRS-1505/2505)	(1)	‡‡‡‡*	9
5. Gland Seal Exhaust			
a. Noble Gas Activity Monitor (SRA-1805/2805)	(1)	‡‡‡‡	6
b. Flow Rate Monitor (SFR-301 and 1/2-MR-54) OR (SFR-301 and SFR-1810/2810)	(1)	‡‡‡‡	5

‡ At all times
‡‡ Containment Purge and other identified gaseous batch releases can be released utilizing the same double sampling compensatory action requirements of action 9 identified here even if there is no termination function associated with it like that associated with the two specific tank types listed here.
‡‡‡‡ During releases via this pathway

STANDARD: Operator references action item 6 for VRS-2505 being inoperable.
SAT: ☐ UNSAT: ☐

STANDARD: Operator references action item 9 for VRS-2505 being inoperable. (ONLY required if release is in progress which briefing stated was NOT)
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Information	PMP-6010-OSD-001	Rev. 25	Page 59 of 89
OFF-SITE DOSE CALCULATION MANUAL			
Attachment 3.4	Radioactive Gaseous Effluent Monitoring Instrumentation		Pages: 58 - 60

TABLE NOTATIONS

1. **IF** an RMS monitor is inoperable solely as the result of the loss of it's control room alarm annunciation, **THEN** one of the following actions is acceptable to satisfy the ODCM action statement compensatory surveillance requirement:

   1. Take grab samples and conduct laboratory analyses per the specific monitor's action statement,
   -OR-
   2. Take local monitor readings at a frequency equal to or greater than (more frequently than) the action frequency.

   IF the RMS monitor is inoperable for reasons other than the loss of control room annunciation, **THEN** the only acceptable action is taking grab samples and conducting laboratory analyses as the reading is equivalent to a grab sample when the monitor is functional.

2. Consider releases as occurring "via this pathway" under the following conditions:

   - The Containment Purge System is in operation and Containment Operability is applicable,
   -OR-
   - The Containment Purge System is in operation and the 'Clean-up' batch release of the Containment air volume has not been fully completed.

   IF neither of the above are applicable **AND** the unit is in Mode 5 or 6, **THEN** the containment purge system is acting as a ventilation system (an extension of the Auxiliary Building) and is covered by Item 2 of this Attachment. This is called 'Ventilation Mode'. 'Ventilate Mode' cannot be entered without performing a Clean-up batch release.

   -OR-
   - A Containment Pressure Relief (CPR) is being performed.

   Once the 'Clean-up' batch release has been completed and 'Ventilation' mode of Purge has commenced – resultant return to 'Clean-up' mode can be made with no additional sampling requirements or paperwork – so long as either ERS-1305/2305 OR ERS-1405/2405 are operable. Containment particulate channels are not needed once the RCS has entered Mode 5 per Technical Specification 3.4.15.

3. For purge (including pressure relief) purposes only. Reference TS 3.3.6, Containment Purge Supply and Exhaust System Isolation Instrumentation and 3.4.15, RCS Leakage Detection Instrumentation for additional information.

4. For waste gas releases only, see Item 2 (Unit Vent, Auxiliary Building Ventilation System) for additional requirements.

ACTIONS

5. With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours. After 30 days, **IF** the channels are not OPERABLE, **THEN** continue releases with estimation of the flow rate once per 4 hours and provide a description of why the inoperability was not corrected in the next Annual Radiological Effluent Release Report.

6. With the number of channels OPERABLE less required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per shift and these samples are analyzed for gross activity within 24 hours. After 30 days, **IF** the channels are not OPERABLE, **THEN** continue releases with grab samples once per shift and provide a description of why the inoperability was not corrected in the next Annual Radiological Effluent release Report.

STANDARD (CS): Operator reports requirement that release may continue for up to 30 days provided grab samples are taken shiftly and analyzed within 24 hours. (If Not returned in 30 days provide a description in Annual Report) (may be entered on PMP-4030-EIS-001, Data Sheet 1)
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Information	PMP-6010-OSD-001	Rev. 25	Page 60 of 89
OFF-SITE DOSE CALCULATION MANUAL			
Attachment 3.4	Radioactive Gaseous Effluent Monitoring Instrumentation		Pages: 58 - 60

7. With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, immediately suspend PURGING or VENTING (CVR) of radioactive effluents via this pathway.

8. With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided samples required for weekly Iodine & Particulates analysis are continuously collected with auxiliary sampling equipment as required in Attachment 3.7, Radioactive Gaseous Waste Sampling and Analysis Program. After 30 days, IF the channels are not OPERABLE, THEN continue releases with sample collection by auxiliary sampling equipment and provide a description of why the inoperability was not corrected in the next Annual Radiological Effluent Release Report.

   Sampling evolutions are not an interruption of a continuous release or sampling period.

9. With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment for up to 14 days provided that prior to initiating the release:

   a. At least two independent samples of the tank's contents are analyzed and,
   b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineups; otherwise, suspend release of radioactive effluents via this pathway.

   After 14 days, IF the channels are not OPERABLE, THEN continue releases with sample collection by auxiliary sampling equipment and provide a description of why the inoperability was not corrected in the next Annual Radiological Effluent Release Report

10. Technical Specification 3.4.15, RCS Leakage Detection System Instrumentation.

Compensatory actions are governed by PMP-4030-EIS-001, Event-Initiated Surveillance Testing.

STANDARD: Operator reports requirement that release may continue for up to 14 days provided contingency actions are taken. (ONLY required if release is in progress which briefing stated was NOT)
SAT: ☐ UNSAT: ☐

CUE: If Required, Unit Supervisor acknowledges ability to continue release up to 14 days provide contingencies are met.

CUE: If required, ask "What Documentation is required?" (**to ensure PMP-4030-EIS-001, Data Sheet 1 is initiated**).

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Information	PMP-4030-EIS-001	Rev. 39	Page 32 of 41
Event Initiated Surveillance Testing			
Data Sheet 1	Surveillance Item Tracking Sheet		Pages 32 - 34

1 **INITIAL ACTION**

1.1 Event #: 17 Event: Vent Stack Noble Gas Monitor VRS-2505 Inoperable

1.2 Unit: 2 Event Date: Current Date Event Time: Current Time

NOTE: If no time limit exists, enter N/A in Steps 1.3 and 1.4.

1.3 Event Time Limit: _____

1.4 Limit Expires: Date: _____ Time: _____

1.5

Record surveillance procedure or action required for event	Required Frequency

1.6 Action Request initiated in accordance with PMP-7030-CAP-001:

AR#: _____ N/A: _____

1.7 Unit Supervisor or WCC-SRO performing Initial Action, and appropriate log entries made.

_____/_____ ____/____
(print & sign) Time/Date

NOTE: Step 1.8 may be marked N/A if the Event does NOT affect the opposite Unit.

1.8 Opposite Unit # ___ Unit Supervisor notified.

_____/_____ ____/____
(print & sign) Time/Date

1.9 Shift Manager concurrence.

_____/_____ ____/____
(print & sign) Time/Date

STANDARD (CS): Enters Data as required in steps 1.1 and 1.2. (Date and Time are NOT Critical Standards)
SAT: ☐ UNSAT: ☐

STANDARD: Enters 30 days / (14 days for releases – NA)
SAT: ☐ UNSAT: ☐

STANDARD (CS): Enters 12-THP-6020-CHM-322 (12-THI-2291-ADM-012 not required) OR "Requirement that release may continue for up to 30 days provided grab samples are taken shiftly and analyzed within 24 hours." (Procedure or Action Required)
SAT: ☐ UNSAT: ☐

Instructor Note: If Gaseous Waste release will be performed then may determine ODCM, Attachment 3.4, Action 9, is applicable.

CUE: Chemistry indicates that Samples are required once per 10 (Admin)/12 hours (Shiftly – Required) and analyzed within 35 minutes(Admin) /24 hours (Required) per ODCM Attachment 3.4 action 6 (and 12-THI-2291-ADM-012)

CUE: Provide AR# from Unit Supervisor as "2016-9999"

CUE: Step 1.7 is completed and signed off.
SAT: ☐ UNSAT: ☐

STANDARD: Notify Unit 1 (May be NA)
CUE: Acknowledge Unit 1 has been notified

TERMINATION CUE: This JPM is complete.

Task Briefing

You are an extra SRO.

Unit 2 is in Mode 1. Annunciator Radiation Monitor Channel VRS-2505, Low Range Noble Gas went into External Failure (WHITE) 5 minutes ago.

The Channel did NOT fail Low.
There is NO Waste Gas release in progress.

The Unit Supervisor directs you to investigate, perform any required actions, and complete required documentation.

NOTE
Simulator Indications are NOT applicable to this JPM.

AEP
AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

NUMBER:	**NRC 2016-A2-RO**	**TIME:**	15 MINUTES
TITLE:	**Perform Unit 2 LTOP Verification**	**REVISION:**	0

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES/NRC KA/TASKS

Procedure:	2-OHP-4030-214-030	Daily and Shiftly Surveillance Checks
K/A Number:	2.2.37	
K/A Imp.:	RO: 3.6 SRO: 4.6	
Task Number:	STP0390201	Perform Shiftly Surveillance checks for MODE 5 & 6

TRAINING AIDS/TOOLS/EQUIPMENT

None

HANDOUTS

1. Task Briefing sheet
2. Work Management Listing (Open Items) – 2 pages
3. Unit 2 Technical Specifications
4. 2-OHP-4030-214-030, Daily And Shiftly Surveillance Checks:
   - Data Sheet 20,LTOP Verification
   - Data Sheet 20A, LTOP Verification LCO 3.4.12.A
   - Data Sheet 20B, LTOP Verification LCO 3.4.12.B

ATTACHMENTS

None

EVALUATION SETTINGS

Classroom.

EVALUATION METHOD:	PERFORM: ☒	SIMULATE: ☐

SIMULATOR/LAB SETUP

None.

EVALUATOR INSTRUCTIONS

1. Brief the operator (May be performed by giving out Task Briefing sheet).
2. Announce start of the JPM.
3. Perform evolution.
4. At completion of evolution, announce the JPM is complete.
5. Document evaluation performance.

TASK BRIEFING

The US directs you to determine whether the Unit 2 LTOP Requirements are met per 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20.

To determine equipment status, use the Open Items Summary (attachment) and the **Equipment Availability Table**, as shown below:

Equipment Availability Table		
COMPONENT I.D.:	DESCRIPTION:	STATUS:
2-NMO-152	PORV Block Valve	Open & Energized
2-NMO-153	PORV Block Valve	Open & Energized
2-NRV-152 Control Selector	Cold Over-Pressure Block for 2-NRV-152	Cold Over Press
2-NRV-153 Control Selector	Cold Over-Pressure Block for 2-NRV-153	Cold Over Press
2-IMO-128	Return from Hot Leg 2	Open & Energized
2-ICM-129	Return from Hot Leg 2	Open & Energized
Annunciator Panel 208 Drop 27	2-NRV-152 EMER AIR TANK PRESSURE LOW	NOT Lit
Annunciator Panel 208 Drop 28	2-NRV-153 EMER AIR TANK PRESSURE LOW	Lit
2-PP-50E	East Centrifugal Charging Pump	PTL (Racked Out)
2-PP-50W	West Centrifugal Charging Pump	Running (Racked In)
Loop 2 WR Cold Leg Temp	RCS Lowest Cold Leg Temperature	185^{o} F
RCS WR Pressure 2-NPS-121	RCS Highest Reading Pressure	230 psig
2-PP-26N	North Safety Injection Pump	PTL (Racked Out)
2-PP-26S	South Safety Injection Pump	PTL (Racked Out)
2-NTA-251	Pressurizer Liquid Temp	400^{o} F
2-IMO-110, 120, 130, 140	SI Accumulator Isolation Valves	Closed & De-Energized

GENERAL STANDARDS/PRECAUTIONS

When directed by the Unit Supervisor, determine if LTOP Requirements for Unit 2 are met per 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-030	Rev. 30	Page 53 of 68
Daily And Shiftly Surveillance Checks			
Data Sheet 20	LTOP Verification		Pages: 53 - 54

1 PURPOSE AND SCOPE

1.1 Provide instructions for performing LTOP verification.

2 DETAILS

2.1 Complete one of the following flowcharts:

- Data Sheet 20A, LTOP Verification TS 3.4.12.A
- Data Sheet 20B, LTOP Verification TS 3.4.12.B

NOTE: When responding to OPERABILITY questions on the following flowchart:

- An LTOP PORV, (2-NRV-152 or 2-NRV-153), is considered OPERABLE if all of the following exist:
  - It has passed the required stroke time testing.
  - Backup air supplies are available (and reading within limits).
  - Its setpoint is within Tech Spec requirements.
  - Its controls are in the Cold Overpressure Mode.
- The RHR Suction Safety is considered OPERABLE if both of the following exist:
  - Its relief setpoint is set in accordance with Tech Spec requirements.
  - The suction path isolation valves are full open.

3 ACCEPTANCE CRITERIA (✓ applicable conditions, mark others N/A)

- ❑ Accumulators are isolated per SR 3.4.12.3. _____
- ❑ RHR suction isolation valves are open for the required suction relief valve per SR 3.4.12.4. _____
- ❑ PORV block valve is open for each required PORV per SR 3.4.12.6 _____
- ❑ Data Sheet 20A is met to satisfy Tech Spec 3.4.12 _____
- ❑ Data Sheet 20B is met to satisfy Tech Spec 3.4.12 _____

General CUES:

Provide a copy of the following handouts:

1) Work Management Listing (Open Items) – 3 pages.
2) 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks:
   - Data Sheet 20
   - Data Sheet 20A
   - Data Sheet 20B

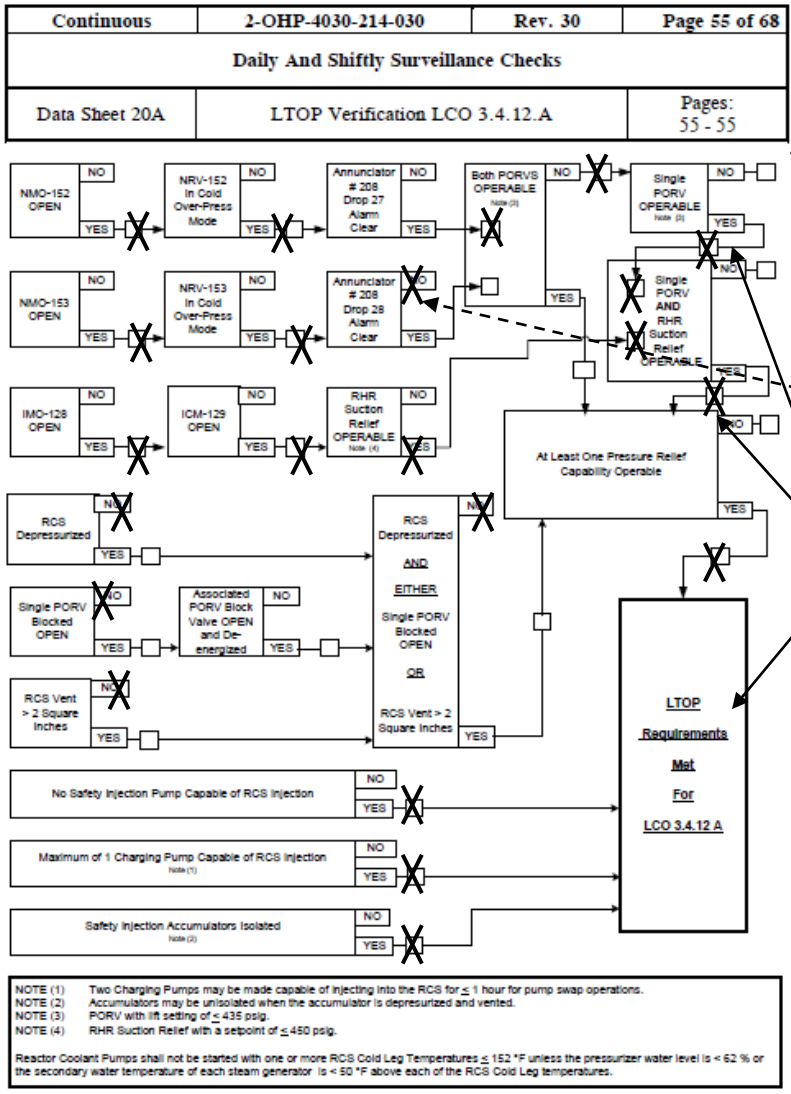
CS: Determines based on Task Briefing information that Data Sheet 20A, LTOP Verification LCO 3.4.12.A is applicable.

SAT: ☐ UNSAT: ☐

Note: Data Sheet 20B is for LCO 3.4.12.B when Both CCPs are available. Based on the given Conditions One CCP is Locked out, and so the relaxed requirements of 3.4.12.A are applicable.

Note: Candidate should complete Data Sheet 20A, per following page prior to completing the remainder of Data Sheet 20.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)



CS: Marks page as shown [at **X**s] (only one PORV is operable and RHR Suction Relief Operable).

SAT: ☐ UNSAT: ☐

Note: PORV NRV-153 is Inoperable due to low Accumulator Tank Pressure ANN 208 Drop 28 is LIT

CS: Determines that LTOP Requirements are Met.

SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-030	Rev. 30	Page 53 of 68
Daily And Shiftly Surveillance Checks			
Data Sheet 20	LTOP Verification		Pages: 53 - 54

1 PURPOSE AND SCOPE

1.1 Provide instructions for performing LTOP verification.

2 DETAILS

2.1 Complete one of the following flowcharts:

- Data Sheet 20A, LTOP Verification TS 3.4.12.A
- Data Sheet 20B, LTOP Verification TS 3.4.12.B

NOTE: When responding to OPERABILITY questions on the following flowchart:

- An LTOP PORV, (2-NRV-152 or 2-NRV-153), is considered OPERABLE if all of the following exist:
  - It has passed the required stroke time testing.
  - Backup air supplies are available (and reading within limits).
  - Its setpoint is within Tech Spec requirements.
  - Its controls are in the Cold Overpressure Mode.
- The RHR Suction Safety is considered OPERABLE if both of the following exist:
  - Its relief setpoint is set in accordance with Tech Spec requirements.
  - The suction path isolation valves are full open.

3 ACCEPTANCE CRITERIA (✓ applicable conditions, mark others N/A)

- ❑ Accumulators are isolated per SR 3.4.12.3. _____
- ❑ RHR suction isolation valves are open for the required suction relief valve per SR 3.4.12.4. _____
- ❑ PORV block valve is open for each required PORV per SR 3.4.12.6 _____
- ❑ Data Sheet 20A is met to satisfy Tech Spec 3.4.12 _____
- ❑ Data Sheet 20B is met to satisfy Tech Spec 3.4.12 _____

Completes Section 3 based on Task Brief information, Work Management Listing, and Data Sheet 20A:
SAT: ☐ UNSAT: ☐

- Accumulators Isolated (Yes)
- RHR Suctions Isolations Open (Yes)
- PORV Block Valves Open (Yes)
- Data Sheet 20A is Met (**YES**)
- Data Sheet 20B is met (N/A)

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Continuous	2-OHP-4030-214-030	Rev. 30	Page 54 of 68
Daily And Shiftly Surveillance Checks			
Data Sheet 20	LTOP Verification		Pages: 53 - 54

4 FINAL CONDITIONS

4.1 Test Performance:

Start Time: _____ Date: ___/___/___ Stop Time: _____ Date: ___/___/___

Comments: _____

_____

_____

_____
Test Performer or Lead Worker

4.2 Department Review:

Were all applicable Acceptance Criteria met?: ☐ Yes ☐ No, Action_____
Is this a Scheduled Surveillance? ☐ Yes, Work Order: _____ ☐ No
If yes, is this a complete surveillance? ☐ Yes ☐ No, Action:_____ ☐ N/A

Additional Work Orders: _____ _____ _____

Comments: _____

_____

_____

Reviewed By: _____ Time: _____ Date: ___/___/___
Dept Supervisor or Designee

4.3 Senior Reactor Operator (SRO) Review and Acceptance:

❑ A review of the test results was performed and the applicable Acceptance Criteria were met. Equipment is OPERABLE or the corresponding Event Initiated Surveillance has been satisfied.

❑ A review of the test results was performed and NOT all of the applicable Acceptance Criteria were met. Equipment is INOPERABLE with applicable Technical Specification LCO Actions in effect.

Comments: _____

_____

_____

Reviewed By: _____ Time: _____ Date: ___/___/___
Work Control or On-Shift SRO

CS: Informs US/SM that LTOP Requirements are is Met.

SAT: ☐ UNSAT: ☐

CUE: Acknowledge Test Results. When candidate documents FINAL CONDITIONS in step 4.1, then **"JPM is Complete."**

Task Briefing

The US directs you to determine whether the Unit 2 LTOP Requirements are met per 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20.

To determine equipment status, use the Open Items Summary (attachment) and the **Equipment Availability Table**, as shown below:

Equipment Availability Table		
COMPONENT I.D.:	DESCRIPTION:	STATUS:
2-NMO-152	PORV Block Valve	Open & Energized
2-NMO-153	PORV Block Valve	Open & Energized
2-NRV-152 Control Selector	Cold Over-Pressure Block for 2-NRV-152	Cold Over Press
2-NRV-153 Control Selector	Cold Over-Pressure Block for 2-NRV-153	Cold Over Press
2-IMO-128	Return from Hot Leg 2	Open & Energized
2-ICM-129	Return from Hot Leg 2	Open & Energized
Annunciator Panel 208 Drop 27	2-NRV-152 EMER AIR TANK PRESSURE LOW	NOT Lit
Annunciator Panel 208 Drop 28	2-NRV-153 EMER AIR TANK PRESSURE LOW	Lit
2-PP-50E	East Centrifugal Charging Pump	PTL (Racked Out)
2-PP-50W	West Centrifugal Charging Pump	Running (Racked In)
Loop 2 WR Cold Leg Temp	RCS Lowest Cold Leg Temperature	185^{o} F
RCS WR Pressure 2-NPS-121	RCS Highest Reading Pressure	230 psig
2-PP-26N	North Safety Injection Pump	PTL (Racked Out)
2-PP-26S	South Safety Injection Pump	PTL (Racked Out)
2-NTA-251	Pressurizer Liquid Temp	400^{o} F
2-IMO-110, 120, 130, 140	SI Accumulator Isolation Valves	Closed & De-Energized

Unit 2 Open Items Summary

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0594	2-VTR-300	Control Room Air Temperature	VCRAC	Tuesday, May 22, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.7.11				2016-13357				

Condition Description

12-IHP-5021-IMP-001 (55384995-01) Temperature Instrument Calibration

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0600	2-NTR-12	CORE EXIT THERMOCOUPLE LOCATION F-15	NI	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.3.3		A	Modes 1, 2, 3, and 4					

Condition Description

Failed TC

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0601	2-NRV-153	PRESSURIZER PORV NRV-153	PZR	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.4.12	F	N/A	Modes 5 & 6					
3.4.12	E	N/A	Mode 4					
3.4.11	A	N/A	Modes 1, 2, and 3					

Condition Description

Emergency Air Tank is depressurized and Isolated due to air leak at pressure connection

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0602	2-IMO-110	Safety Injection Accumulator Discharge Valve	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	A	Modes 1, 2 and 3 > 1000 psig					

Condition Description

Valve is tagged closed to prevent Injection

Notes

Required for SR 3.4.12.3

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0603	2-IMO-120	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	A	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0604	2-IMO-130	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	B	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0605	2-IMO-140	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	B	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0606	2-PP-26N	NORTH SAFETY INJECTION PUMP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	A	Modes 1, 2, and 3					

Condition Description
SI Pumps Tagged to Prevent Injection

Notes
Required for SR 3.4.12.1

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0607	2-PP-26S	SOUTH SAFETY INJECTION PUMP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	B	Modes 1, 2, and 3					

Condition Description
SI Pumps Tagged to Prevent Injection

Notes
Required for SR 3.4.12.1

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0609	2-PP-50E	East CCP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	A	Modes 1, 2, 3					

Condition Description
CCP Tagged Out to Prevent Injection

Notes
Required for SR 3.4.12.2

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0610	2-SRA-2900	SJAE Radiation Monitor	RMS	Saturday, June 23, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
8.3.8	C							

Condition Description
RP has not completed Operability recommendation checks following I & C board replacement under WOT 55403403

Notes

Procedure **Title** **Drop Dead Date**

AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

NUMBER:	**NRC 2016-A2-SRO**	**TIME:**	15 MINUTES
TITLE:	**Review Unit 2 LTOP Verification**	**REVISION:**	1 Changed Error from RHR to NRV-153

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES/NRC KA/TASKS

Procedure:	2-OHP-4030-214-030			Daily and Shiftly Surveillance Checks
K/A Number:	2.2.42			
K/A Imp.:	RO:	3.9	SRO:	4.6
Task Number:	STP0390201			Perform Shiftly Surveillance checks for MODE 5 & 6

TRAINING AIDS/TOOLS/EQUIPMENT

None

HANDOUTS

- Task Briefing sheet
- Work Management Listing (Open Items) – 2 pages
- Copy of Completed 2-OHP-4030-214-030, Data Sheet 20 (fill in Sections 3 & 4)
- Copy of Completed 2-OHP-4030-214-030, Data Sheet 20A (attached)

ATTACHMENTS

None

EVALUATION SETTINGS

Classroom.

EVALUATION METHOD:	PERFORM: ☒	SIMULATE: ☐

SIMULATOR/LAB SETUP

None.

EVALUATOR INSTRUCTIONS

1. Brief the operator (May be performed by giving out Task Briefing sheet).
2. Announce start of the JPM.
3. Perform evolution.
4. At completion of evolution, announce the JPM is complete.
5. Document evaluation performance.

TASK BRIEFING

The Shift Manager directs you to perform the SRO review of the completed LTOP Verification 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20A.

To determine equipment status, use the **Open Items Summary** (attachment) and the **Equipment Availability Table**, as shown below:

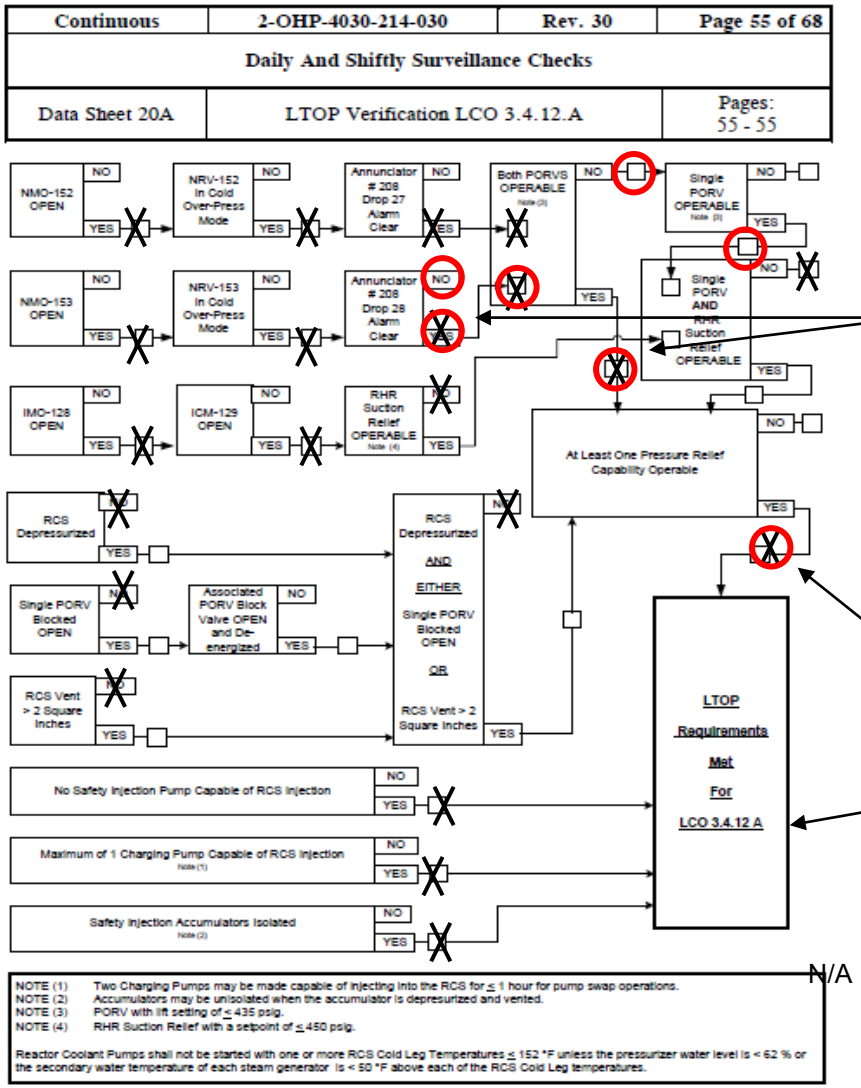
Equipment Availability Table		
COMPONENT I.D.:	DESCRIPTION:	STATUS:
2-NMO-152	PORV Block Valve	Open & Energized
2-NMO-153	PORV Block Valve	Open & Energized
2-NRV-152 Control Selector	Cold Over-Pressure Block for 2-NRV-152	Cold Over Press
2-NRV-153 Control Selector	Cold Over-Pressure Block for 2-NRV-153	Cold Over Press
2-IMO-128	Return from Hot Leg 2	Open & Energized
2-ICM-129	Return from Hot Leg 2	Open & Energized
Annunciator Panel 208 Drop 27	2-NRV-152 EMER AIR TANK PRESSURE LOW	NOT Lit
Annunciator Panel 208 Drop 28	2-NRV-153 EMER AIR TANK PRESSURE LOW	Lit
2-PP-50E	East Centrifugal Charging Pump	PTL (Racked Out)
2-PP-50W	West Centrifugal Charging Pump	Running (Racked In)
Loop 2 WR Cold Leg Temp	RCS Lowest Cold Leg Temperature	185^{o} F
RCS WR Pressure 2-NPS-121	RCS Highest Reading Pressure	230 psig
2-PP-26N	North Safety Injection Pump	PTL (Racked Out)
2-PP-26S	South Safety Injection Pump	PTL (Racked Out)
2-NTA-251	Pressurizer Liquid Temp	400^{o} F
2-IMO-110, 120, 130, 140	SI Accumulator Isolation Valves	Closed & De-Energized

GENERAL STANDARDS/PRECAUTIONS

Perform the SRO review of the completed LTOP Verification and determine if LTOP Requirements for Unit 2 are met per 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20A.

OPERATIONS JPM

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)



N/A

General CUES:

- If requested, provide a Copy of 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20.
- If required prompt the candidate to identify Tech Spec and correct Data Sheet 20A after determining the error.

CS: Reviews Data Sheet 20A and determines that PORV NRV-153 is In-Operable (**X**s in Circles are wrong, Empty Circles Should Have **X**s).
SAT: ☐ UNSAT: ☐

Note: Annunciator Panel 208 Drop 28 is LIT (not Clear)(See Work Management Listing – pg 2).

CS: Determines that LTOP Requirements are **NOT** Met.
SAT: ☐ UNSAT: ☐

Informs Shift Manager that LTOP Requirements are NOT met and determines that Tech Spec LCO 3.4.12, Action F applies (Mode 5 - One required relief is In-Operable).
SAT: ☐ UNSAT: ☐

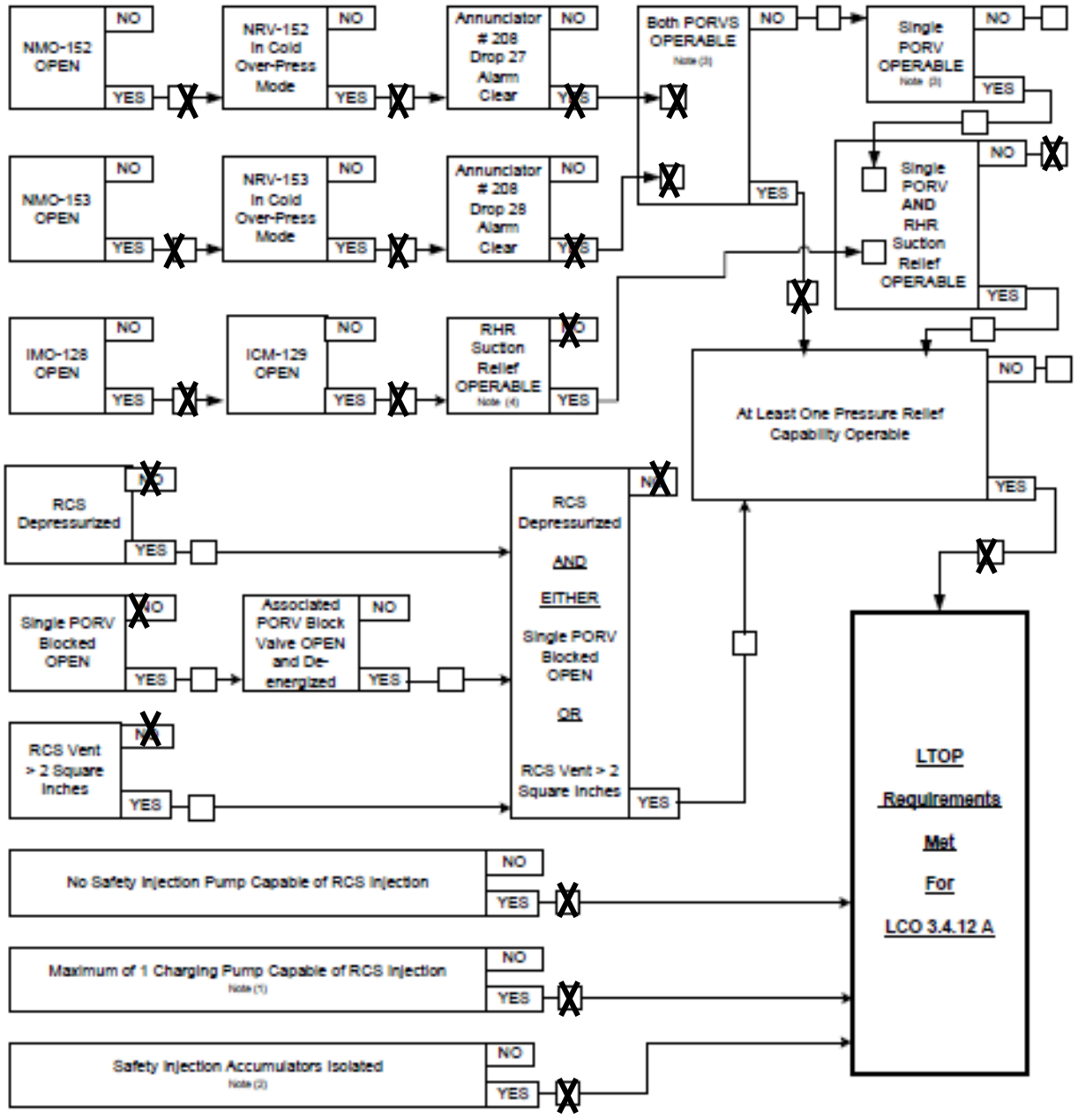
CUE: "This JPM is complete."

Task Briefing

The Shift Manager directs you to perform the SRO review of the completed LTOP Verification 2-OHP-4030-214-030, Daily and Shiftly Surveillance Checks, Data Sheet 20A.

To determine equipment status, use the **Open Items Summary** (attachment) and the **Equipment Availability Table**, as shown below:

Equipment Availability Table		
COMPONENT I.D.:	DESCRIPTION:	STATUS:
2-NMO-152	PORV Block Valve	Open & Energized
2-NMO-153	PORV Block Valve	Open & Energized
2-NRV-152 Control Selector	Cold Over-Pressure Block for 2-NRV-152	Cold Over Press
2-NRV-153 Control Selector	Cold Over-Pressure Block for 2-NRV-153	Cold Over Press
2-IMO-128	Return from Hot Leg 2	Open & Energized
2-ICM-129	Return from Hot Leg 2	Open & Energized
Annunciator Panel 208 Drop 27	2-NRV-152 EMER AIR TANK PRESSURE LOW	NOT Lit
Annunciator Panel 208 Drop 28	2-NRV-153 EMER AIR TANK PRESSURE LOW	Lit
2-PP-50E	East Centrifugal Charging Pump	PTL (Racked Out)
2-PP-50W	West Centrifugal Charging Pump	Running (Racked In)
Loop 2 WR Cold Leg Temp	RCS Lowest Cold Leg Temperature	185^{o} F
RCS WR Pressure 2-NPS-121	RCS Highest Reading Pressure	230 psig
2-PP-26N	North Safety Injection Pump	PTL (Racked Out)
2-PP-26S	South Safety Injection Pump	PTL (Racked Out)
2-NTA-251	Pressurizer Liquid Temp	400^{o} F
2-IMO-110, 120, 130, 140	SI Accumulator Isolation Valves	Closed & De-Energized



NOTE (1) Two Charging Pumps may be made capable of injecting into the RCS for ≤ 1 hour for pump swap operations.
NOTE (2) Accumulators may be unisolated when the accumulator is depressurized and vented.
NOTE (3) PORV with lift setting of ≤ 435 psig.
NOTE (4) RHR Suction Relief with a setpoint of ≤ 450 psig.

Reactor Coolant Pumps shall not be started with one or more RCS Cold Leg Temperatures ≤ 152 °F unless the pressurizer water level is < 62 % or the secondary water temperature of each steam generator is < 50 °F above each of the RCS Cold Leg temperatures.

Unit 2 Open Items Summary

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0594	2-VTR-300	Control Room Air Temperature	VCRAC	Tuesday, May 22, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.7.11				2016-13357				

Condition Description

12-IHP-5021-IMP-001 (55384995-01) Temperature Instrument Calibration

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0600	2-NTR-12	CORE EXIT THERMOCOUPLE LOCATION F-15	NI	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.3.3		A	Modes 1, 2, 3, and 4					

Condition Description

Failed TC

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0601	2-NRV-153	PRESSURIZER PORV NRV-153	PZR	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.4.12	F	N/A	Modes 5 & 6					
3.4.12	E	N/A	Mode 4					
3.4.11	A	N/A	Modes 1, 2, and 3					

Condition Description

Emergency Air Tank is depressurized and Isolated due to air leak at pressure connection

Notes

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0602	2-IMO-110	Safety Injection Accumulator Discharge Valve	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	A	Modes 1, 2 and 3 > 1000 psig					

Condition Description

Valve is tagged closed to prevent Injection

Notes

Required for SR 3.4.12.3

Procedure	Title	Drop Dead Date

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0603	2-IMO-120	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	A	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0604	2-IMO-130	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	B	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0605	2-IMO-140	SAFETY INJECTION ACCUMULATOR DISCHARGE VALVE	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.1	B	B	Modes 1, 2 and 3 > 1000 psig					

Condition Description
Valve is tagged closed to prevent Injection

Notes
Required for SR 3.4.12.3

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0606	2-PP-26N	NORTH SAFETY INJECTION PUMP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	A	Modes 1, 2, and 3					

Condition Description
SI Pumps Tagged to Prevent Injection

Notes
Required for SR 3.4.12.1

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0607	2-PP-26S	SOUTH SAFETY INJECTION PUMP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	B	Modes 1, 2, and 3					

Condition Description
SI Pumps Tagged to Prevent Injection

Notes
Required for SR 3.4.12.1

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0608	2-SV-103	RHR Suction Line Relief Valve	RHR	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.4.12	E	N/A	MODE 4 when any RCS cold leg temperature is ≤ 299°F					
3.4.12	F	N/A	Modes 5 and 6, when the vessel head is on					
5.5.6								

Condition Description
RHR Suction Line Relief Valve failed to lift at required setpoint

Notes
Valve did not Open Until 460 psig.

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0609	2-PP-50E	East CCP	ECCS	Monday, July 03, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
3.5.2	A	A	Modes 1, 2, 3					

Condition Description
CCP Tagged Out to Prevent Injection

Notes
Required for SR 3.4.12.2

Procedure **Title** **Drop Dead Date**

Open Item #	Component	Noun	System	Open Item Entered
2-2016-0610	2-SRA-2900	SJAE Radiation Monitor	RMS	Saturday, June 23, 2016

LCO/TRO/ODCM	Condition/Action	Train	Applicability	Action	Work Order	Clearance	Work Request	EIS Events
8.3.8	C							

Condition Description
RP has not completed Operability recommendation checks following I & C board replacement under WOT 55403403

Notes

Procedure **Title** **Drop Dead Date**

AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

TRAINING PROGRAM TITLE	ILT	**TIME:**	15 MINUTES
NUMBER AND TITLE:	NRC 2016-A3 Respond to a High SJAE Radiation Alarm	**REVISION:**	0

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES

Procedures:

12-OHP-4024-139	ANNUNCIATOR #139 RESPONSE: RADIATION, Rev. 19

Miscellaneous References:

TBD-2-FIG-19-19A	Primary to secondary leak rate (Unit 2 at 5 SCFM), Rev. 13
TBD-2-FIG-19-19B	Primary to secondary leak rate (Unit 2 at 10 SCFM), Rev. 12
TBD-2-FIG-19-19C	Primary to secondary leak rate (Unit 2 at 15 SCFM), Rev. 12
TBD-2-FIG-19-19E	Primary to secondary leak rate (Unit 2 at 20 SCFM), Rev. 10
TBD-2-FIG-19-19F	Primary to secondary leak rate (Unit 2 at 30 SCFM), Rev. 10
TBD-2-FIG-19-19G	Primary to secondary leak rate (Unit 2 at 25 SCFM), Rev. 9

TRAINING AIDS/TOOLS/EQUIPMENT

NRC KA

APE.037.AK3.05 RO/SRO 3.7/4.0	Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak: Actions contained in the procedures for radiation Monitoring, RCS water inventory balance, S/G tube failure, and plant shutdown.
APE.037.AA2.01 RO/SRO 3.0/3.4	Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: Unusual readings of the monitors; steps needed to verify readings
2.3.14 RO/SRO 3.4/3.8	Knowledge of the radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

2.3.14
TASKS

ADM0420302	Verify Limiting Conditions for Operation are met in accordance with the Offsite Dose Calculation Manual (ODCM).

HANDOUTS:
Task Briefing
Copy of Data Sheet 1 of 12-OHP-4024-139 Drop 27
2-Figure 19.19a, 2-Figure 19.19b, 2-Figure 19.19c, 2-Figure 19.19e, 2-Figure 19.19f, and 2-Figure 19.19g

ATTACHMENTS:
12-OHP-4024-139 Drop 27
2-Figure 19.19a, 2-Figure 19.19b, 2-Figure 19.19c, 2-Figure 19.19e, 2-Figure 19.19f, and 2-Figure 19.19g

EVALUATION SETTINGS:
Classroom

EVALUATOR INSTRUCTIONS

Give copy of Task Briefing and attachments to examinee.
Provide student with 12-OHP-4024-139 Drop 27.
2-Figure 19.19a, 2-Figure 19.19b, 2-Figure 19.19c, 2-Figure 19.19e, 2-Figure 19.19f, and 2-Figure 19.19g

TASK BRIEFING:

- Unit 2 is at 100% power. Radiation Monitoring Panel Alert alarm was received on SRA 2900. A RCS to Steam Generator Tube Leak is suspected. The activities from SRA-2905 has been recorded at 15 minute intervals as shown below. The SJAE flowrate is 17 scfm.
- Your are the extra RO.
- The US directs you to plot the data and determine the total leak rate in accordance with 12-OHP-4024-139, Drop 27. Report your results and any operational limitations required per 12-OHP-4024-139, Drop 27.
-

Time	Activity (uCi/cc)
0300	1.4e-6
0315	1.7e-6
0330	2.0e-6
0345	2.7e-6
0400	3.9e-6
0415	4.8e-6
0430	5.7e-6
0445	7.1.e-6
0500	8.1e-6
0515	8.3e-6

-

JPM OVERVIEW

Complete Data Sheet 1 of 12-OHP-4024-139 Drop 27 for accuracy and determine required actions based upon that data.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
12-OHP-4024-139 **Level of Use: REFERENCE** #27 **NOTE** • If SRA-2910 alarm is suspected to be due to high secondary system air in-leakage and is the only channel in Alarm, plotting actual SJAE monitor readings versus time is only necessary if indications of primary to secondary tube leakage was confirmed in Step 3.1.1. • Plotting actual SJAE monitor readings versus time on the appropriate TDB Unit 2 Figure 19.19 graph is not required if primary to secondary leakage is greater than the TS 3.4.13 limit. Subsequent step(s) for plotting may be N/A. • Plotting actual SJAE monitor readings versus time on the appropriate TDB Unit 2 Figure 19.19 graph (5, 10, 15, 20, 25, or 30 scfm SJAE flow rate) results in a line with a slope comparable to the calculated 30 gpd/hr leak rate rise. The SJAE graph representing the closest HIGHER flow rate is used. If SJAE flow is 6 scfm, the 10 scfm graph is used. If SJAE flow is 12 scfm, the 15 scfm graph is used. 3.1.3 Select appropriate Primary to Secondary Leak Rate Change graph from the TDB Unit 2 Figures 19.19.a, b, c, e, f, or g to determine primary to secondary leak rate and rate of change of primary to secondary leakage. 3.1.4 Record SRA-2905 activity and leak rate on Drop 27, Data Sheet 1, Unit 2 Primary to Secondary Leak Rate, at 15 minute intervals. **NOTE** The Primary to Secondary Leak Rate Change graphs represent expected SJAE monitor readings corresponding to a 30 gpd/hr leak rate rise versus time based or steady-state (i.e. equilibrium) conditions between the primary and secondary systems. A plotted line with a slope greater than the calculated slope indicates a leak rate rising at a rate greater than 30 gpd/hr. A plotted line with a slope less than the calculated slope indicates a leak rate rising at a rate less than 30 gpd/hr. SJAE ↑ Activity Time →  > 30 gpd/hr < 30 gpd/hr 3.1.5 Plot the data recorded on Drop 27, Data Sheet 1 on a copy of the applicable TDB Unit 2 Figure Primary to Secondary Leak Rate Change graph. **Page 113 of 128** **Rev. 19**	STANDARD: Operator determines that SJAE graph for 20 scfm (17 scfm actual) should be used for graphing radiation reading. SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
12-OHP-4024-139 Level of Use: REFERENCE #27 Data Sheet 1 Unit 2 Primary to Secondary Leak Rate	STANDARD: **CS:** Operator determines the final leakrate is 87 GPD (85-90) SAT: ☐ UNSAT: ☐ COMMENT:

Time	Activity	Leak Rate	Time	Activity	Leak Rate	Time	Activity	Leak Rate
0	1.4E-6	15						
+15	1.7E-6	17						
+30	2.0E-6	22						
+45	2.7E-6	29						
+60	3.9E-6	40						
+75	4.8E-6	50						
+90	5.7E-6	59						
+105	7.1E-6	74						
+120	8.1E-6	84						
+135	8.3E-6	87						

Completed by: R Smith Date: Today

Reviewed by: _____ Date: _____

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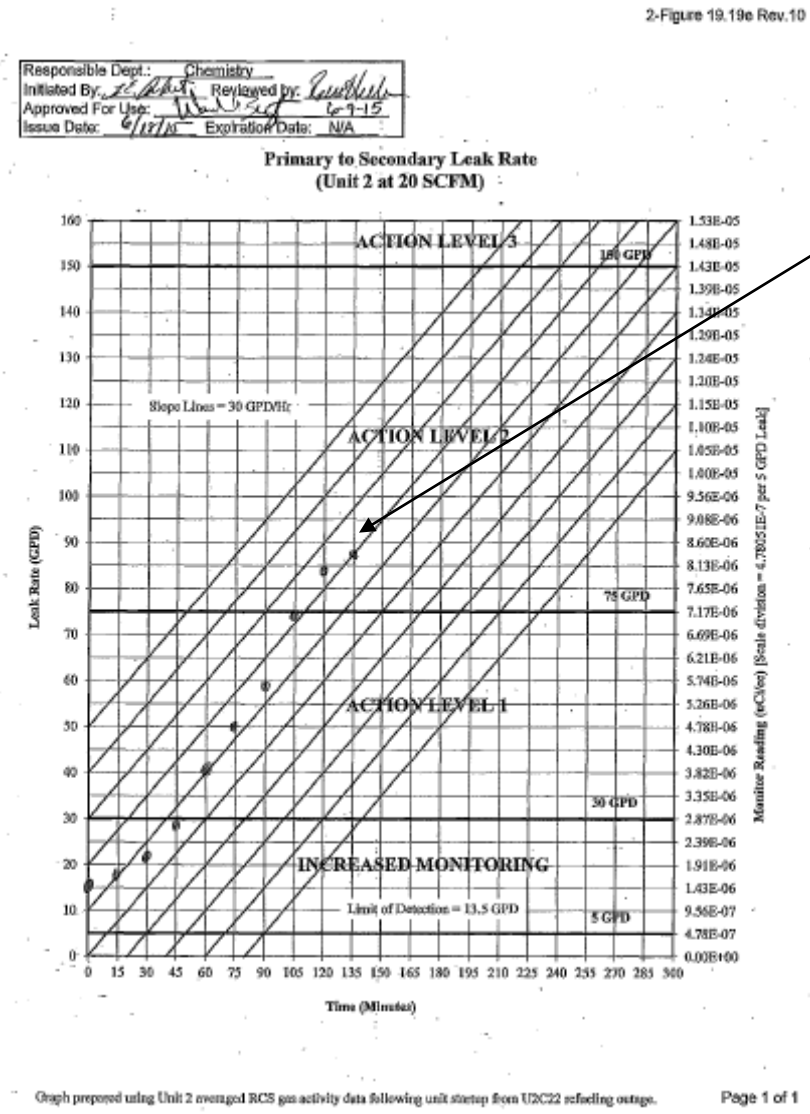
Rev. 19

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
	STANDARD: Operator graphs the radiation monitor data as indicated. SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: **CS:** Operator determines slope of curve indicates the rate of rise of the leakrate exceeds 30 GPD/hr. SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
12-OHP-4024-139 **Level of Use: REFERENCE** **#27** **NOTE** Action Levels are provided in 12-THP-4030-002-208, Primary to Secondary Leak Rate. 3.1.6 **IF** slope of confirmed activity levels vs. time is greater than or equal to the 30 gpd/hr curve over any 30 minute interval **AND** total leakage is greater than or equal to 75 gpd, **THEN** reduce power to less than or equal to 50% in 1 hour **AND** be in Mode 3 within the next 2 hours. 3.1.7 **IF** slope of confirmed activity levels vs. time remains less than 30 gpd/hr curve **AND** total leakage is greater than or equal to 75 gpd for at least one hour, **THEN** be in at least Mode 3 within 24 hours of entering Action Level 2. 3.1.8 **IF** slope of confirmed activity levels vs. time remains less than 30 gpd/hr curve **AND** total leakage is greater than or equal to 150 gpd, **THEN** be in at least Mode 3 within next 6 hours. 3.1.9 Request TS Chemistry Technician obtain steam jet air ejector off-gas sample to determine if primary to secondary leakage is occurring. 3.1.10 Notify TS RP Technician to report to Control Room to assist with trending of activity levels of radiation monitor alarm and determination of primary to secondary leakage. 3.1.11 **IF** primary to secondary leakage is confirmed, **THEN** perform the following: a. Notify Operations Management. b. Request TS Chemistry Technician to quantify primary to secondary leak rate **AND** evaluate SG Blowdown sample line activity per 12-THP-4030-002-208, Primary to Secondary Leak Rate, to identify leaking SG. c. Notify Environmental section of primary to secondary leakage and potential release. d. Refer to TS 3.4.13, RCS Operational Leakage. e. Implement 2-OHP-4022-002-021, Steam Generator Tube Leak. **Page 114 of 128** **Rev. 19**	STANDARD: **CS:** Operator reports the need to reduce power to less than 50% within one hour and be in MODE 3 within the next two hours. SAT: ☐ UNSAT: ☐ COMMENT:

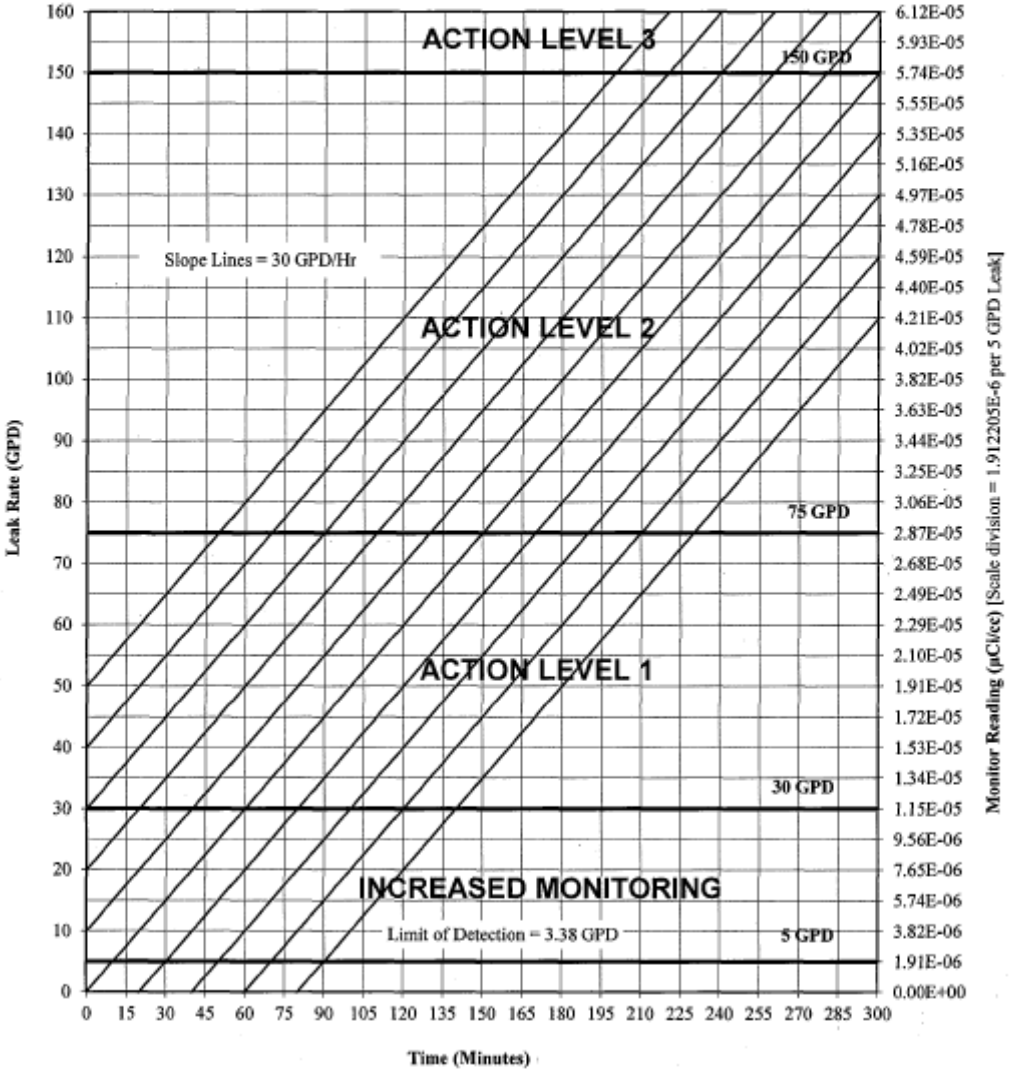
TASK BRIEFING:

- Unit 2 is at 100% power. Radiation Monitoring Panel Alert alarm was received on SRA 2900. A RCS to Steam Generator Tube Leak is suspected. The BOP has taken initial action per 12-OHP-4024-139, Drop 27 to record SRA-2905 activity on Data Sheet 1 at 15 minute intervals. The SJAE flowrate is 17 scfm.
- Your are the extra RO.
- The US directs you to plot the data and determine the total leak rate in accordance with 12-OHP-4024-139, Drop 27. Report your results and any operational limitations required per 12-OHP-4024-139, Drop 27.

Time	Activity (uCi/cc)
0300	1.4e-6
0315	1.7e-6
0330	2.0e-6
0345	2.7e-6
0400	3.9e-6
0415	4.8e-6
0430	5.7e-6
0445	7.1.e-6
0500	8.1e-6
0515	8.3e-6

Responsible Dept.: Chemistry
Initiated By: T.E. Ardent Reviewed by: [signature]
Approved For Use: [signature] Date: 6/9/15
Issue Date: 6/18/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 5 SCFM)



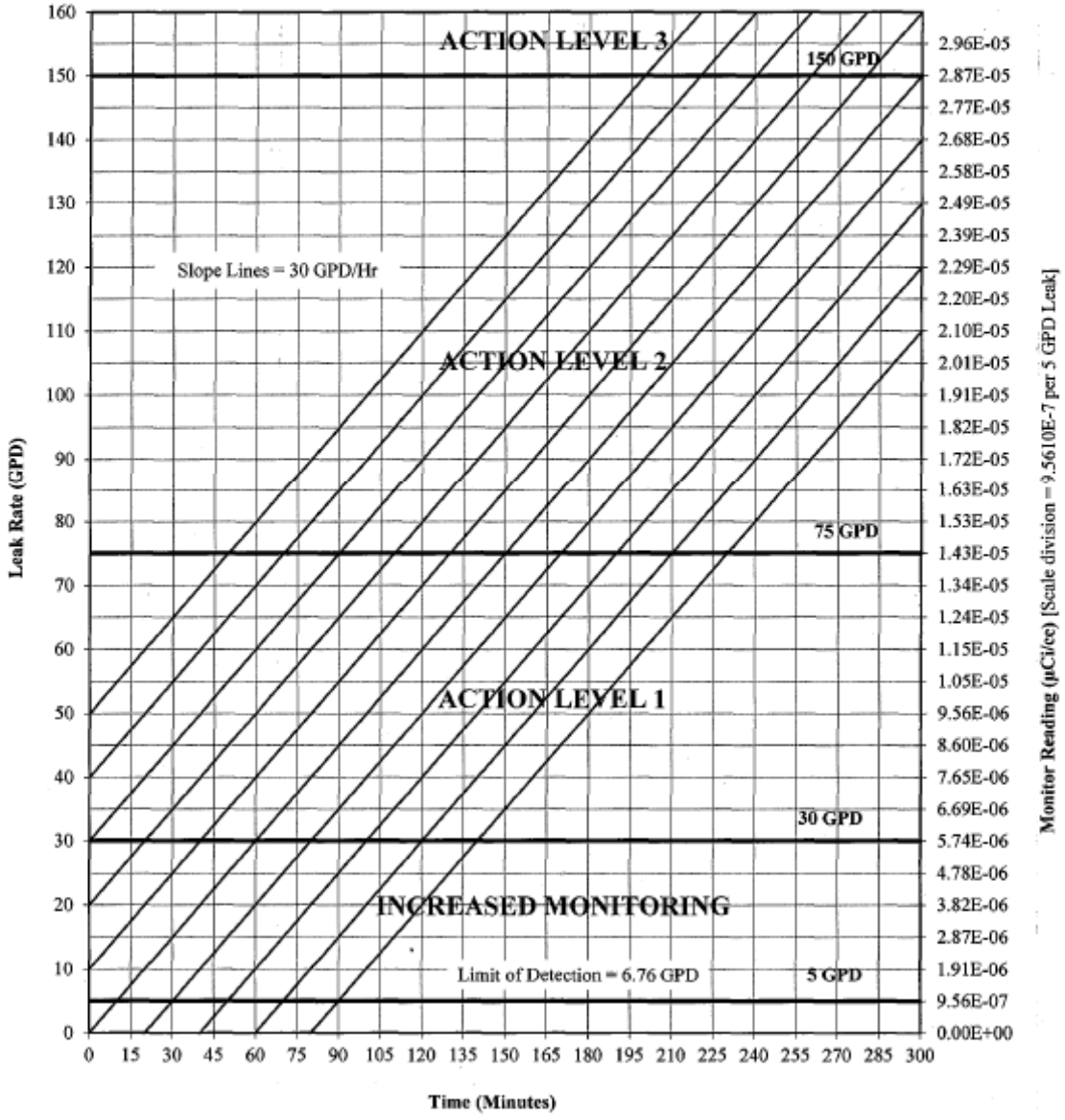
Graph prepared using Unit 2 averaged RCS gas activity data following unit startup from U2C22 refueling outage.

Page 1 of 1

TDB-2-Figure 19-19a

Responsible Dept.: Chemistry
Initiated By: [signature] Reviewed by: [signature]
Approved For Use: [signature] Date: 6/9/15
Issue Date: 6/18/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 10 SCFM)

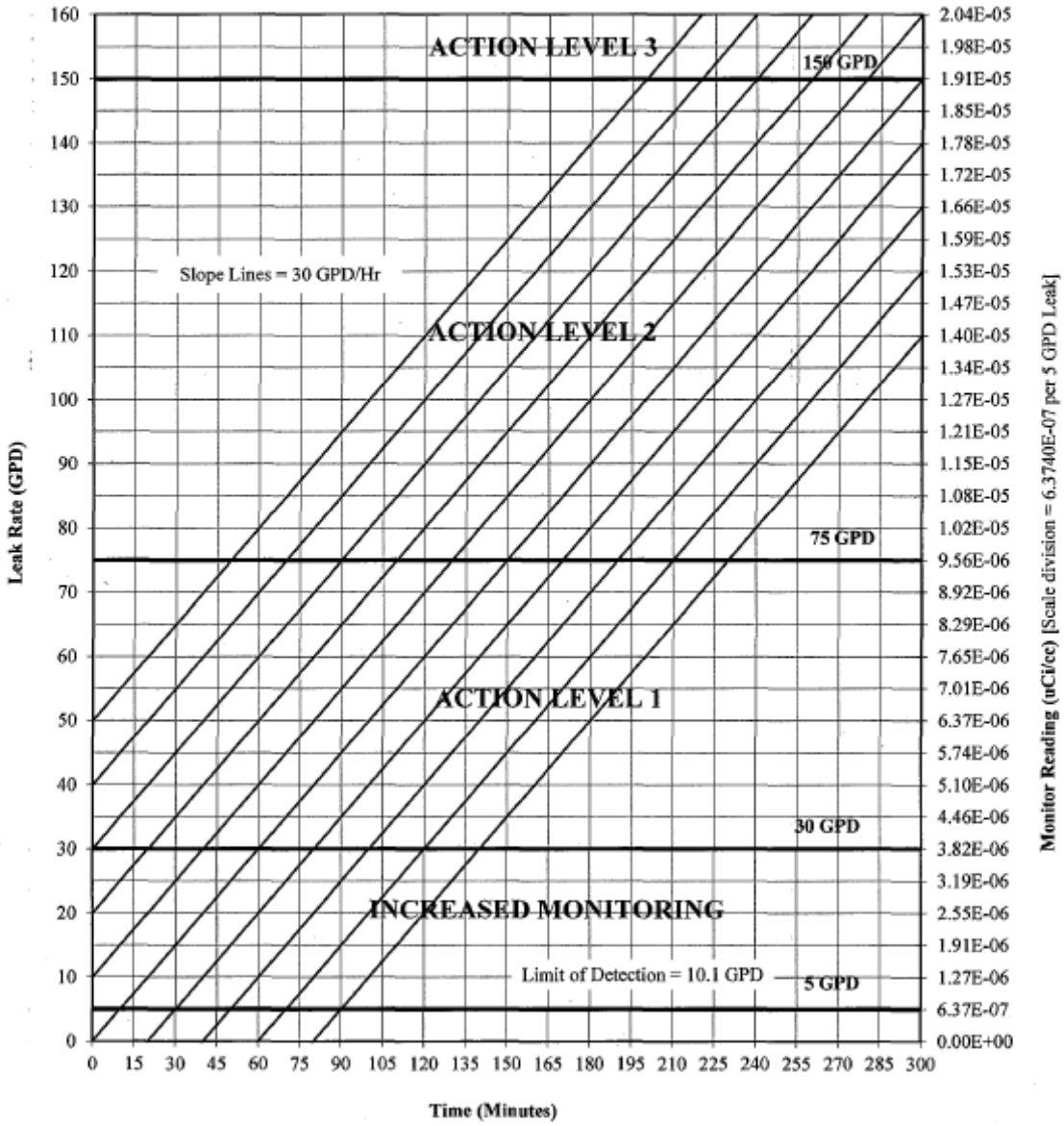


Graph prepared using Unit 2 averaged RCS gas activity data following unit startup from U2C22 refueling outage.

TDB-2-Figure 19-19b

Responsible Dept.: Chemistry
Initiated By: [signature] Reviewed by: [signature]
Approved For Use: [signature] 6/9/15
Issue Date: 6/18/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 15 SCFM)

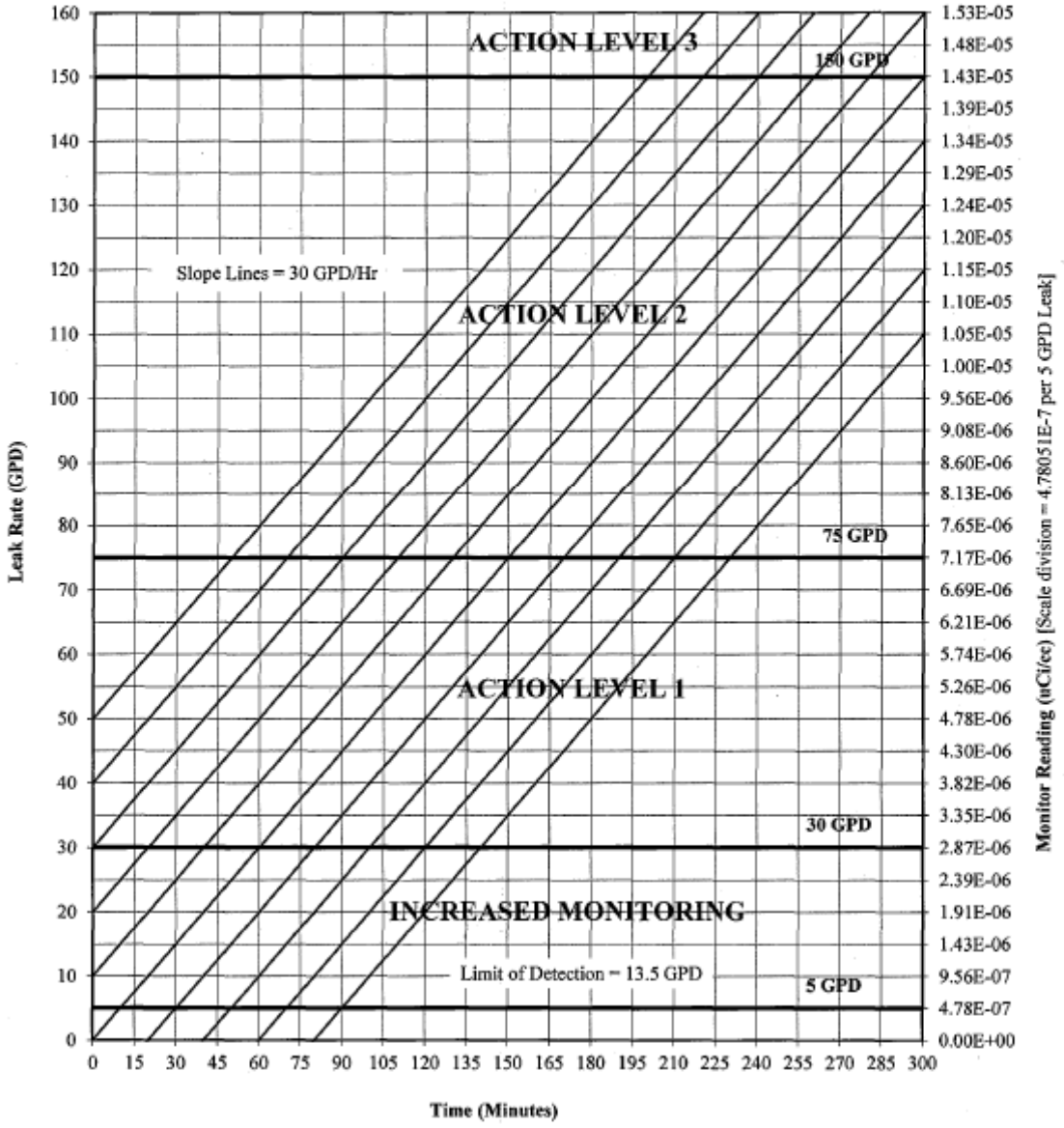


Graph prepared using Unit 2 average RCS gas activity data following unit startup from U2C22 refueling outage. Page 1 of 1

TDB-2-Figure 19-19c

Responsible Dept.: Chemistry
Initiated By: T.E. Robert Reviewed by: 6-9-15
Approved For Use:
Issue Date: 6/18/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 20 SCFM)

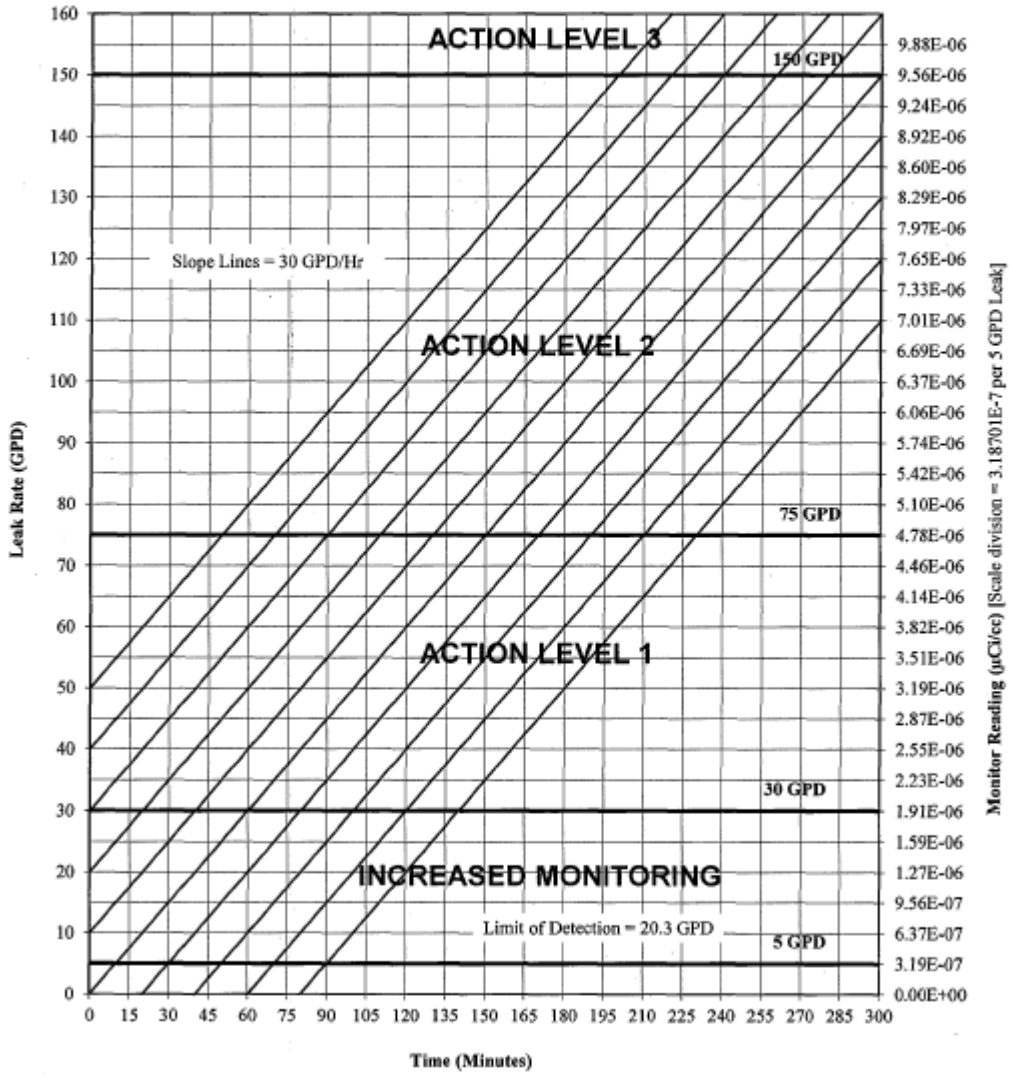


Graph prepared using Unit 2 averaged RCS gas activity data following unit startup from U2C22 refueling outage.

TDB-2-Figure 19-19e

Responsible Dept.: Chemistry
Initiated By: [signature] Reviewed by: [signature]
Approved For Use: WRA 6-9-15
Issue Date: 6/16/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 30 SCFM)



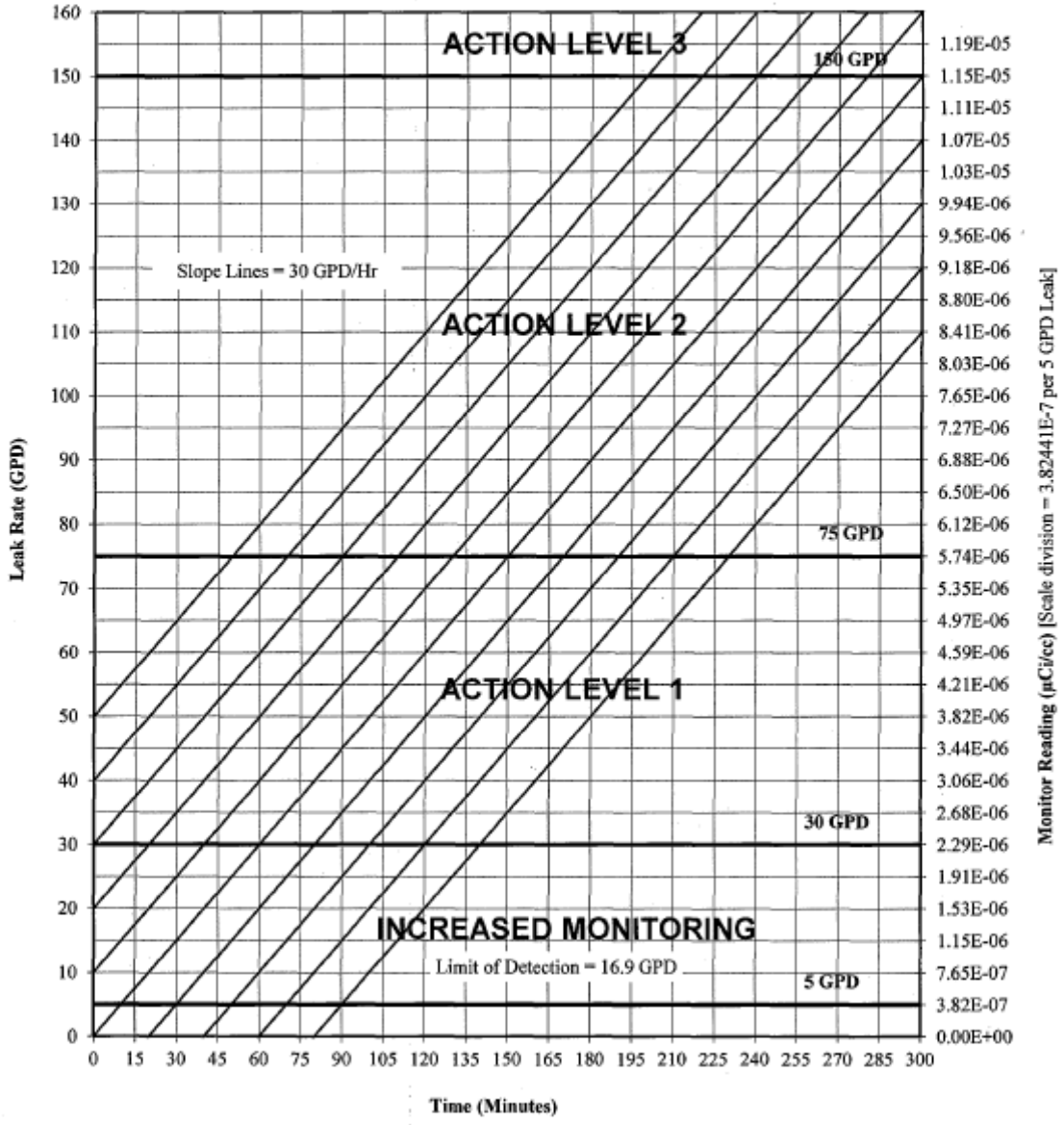
Graph prepared using Unit 2 averaged RCS gas activity data following unit startup from U2C22 refueling outage.

Page 1 of 1

TDB-2-Figure 19-19f

Responsible Dept.: Chemistry
Initiated By: [signature] Reviewed by: [signature]
Approved For Use: [signature] 6-9-15
Issue Date: 6/18/15 Expiration Date: N/A

Primary to Secondary Leak Rate
(Unit 2 at 25 SCFM)



Graph prepared using Unit 2 averaged RCS gas activity data following unit startup from U2C22 refueling outage.

Page 1 of 1

TDB-2-Figure 19-19g

AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

TRAINING PROGRAM TITLE	LOR/ILT	**TIME:**	15 MINUTES
NUMBER AND TITLE:	NRC Exam 2016-A4-RO Perform the Initial Offsite Notification	**REVISION:**	0

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES

Procedures:	
PMP-2080-EPP-100	EMERGENCY RESPONSE

NRC KA

P2.4.39	Knowledge of the RO's responsibilities in emergency plan implementation. (CFR: 45.11)
RO/SRO Importance	3.8/3.9

TASKS

EPP0030701	Perform the Initial Offsite Notification

OBJECTIVES*

JPM-RO-O-ADM11	Perform the Initial Offsite Notification

HANDOUTS:
Task Briefing
EMD-32a Nuclear Plant Event Notification (blank form)
PMP-2080-EPP-100, Emergency Response Sections:

- Attachment 9 MSP Notification
- Attachment 12 Manual Completion of EMD Forms

MIDAS Summary as part of the handout (attached)

ATTACHMENTS:
None

EVALUATION SETTINGS: Classroom

EVALUATION METHOD:	**PERFORM:** ☒	**SIMULATE:** ☐

EVALUATOR INSTRUCTIONS

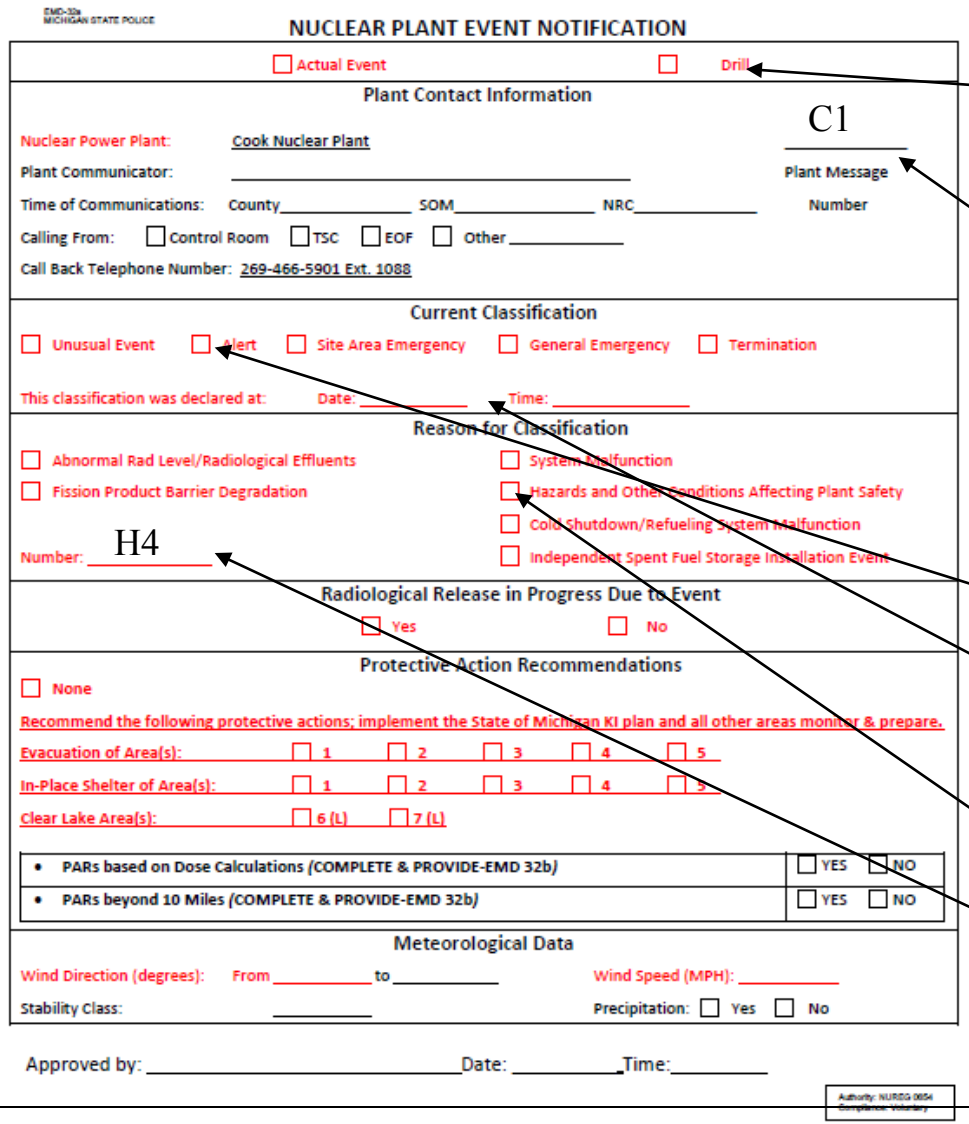
Give copy of Task Briefing to examinee.
TASK BRIEFING:

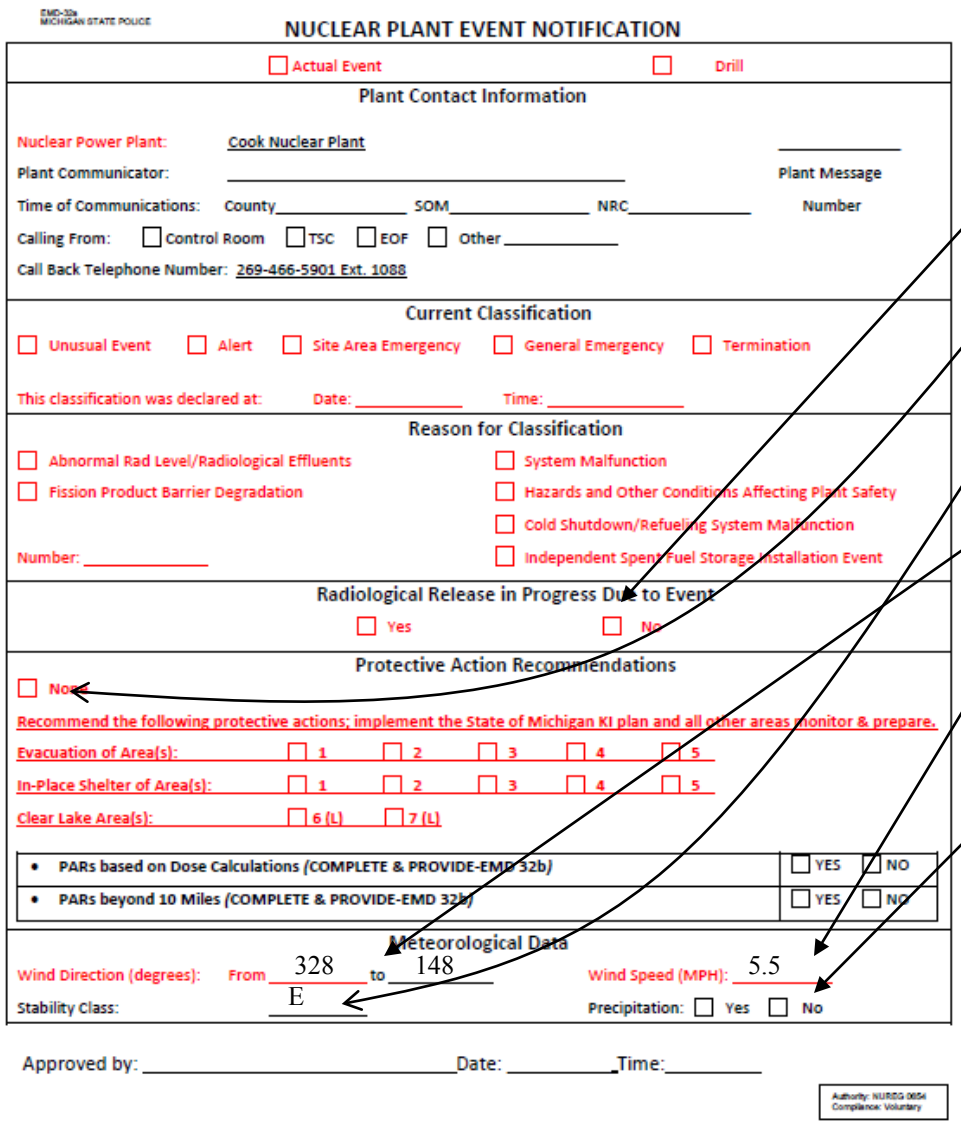
- You are an extra Control Room Operator on Unit 2.
- Both units are operating at 100% with DG2CD OOS.
- Multiple indications and reports were received indicating a fire in the DG2AB room
- The Shift Manager has just declared an **ALERT** per Initiating Condition H-4, Fire or Explosion affecting plant operations.
- No radiological release is in progress.
- There are no protective action recommendations.
- Classification Time is _____ (Current Time)
- The Shift Manager directs you as the Plant Communicator to complete EMD-32a, Nuclear Plant Event Notification form for approval, obtain approval from the Shift Manager, and then make notifications to the Michigan State Police per Attachment 9 of PMP-2080-EPP-100, Emergency Response.
- Meteorological Data – Use the MIDAS Summary provided.

THIS IS A TIME CRITICAL JPM

JPM OVERVIEW

Given plant conditions, the operator will complete the EMD-32a, Nuclear Plant Event Notification form, obtain approval, and the MSP within 15 minutes.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
	All items should be completed on the form prior to submitting to the Site Emergency Coordinator for approval. STANDARD: "Drill" box marked (for purposes of this JPM "Actual Event" is also acceptable) SAT: ☐ UNSAT: ☐ STANDARD: • "C1" entered as Plant Message Number since this is the initial notification (1, CR1, or equivalent are also acceptable) • Candidate enters name as Plant Communicator • "Control Room" box marked • **CUE:** If asked, Time of Communication is current time. SAT: ☐ UNSAT: ☐ STANDARD: **CS** • "ALERT" box MUST be marked • Date and Time of Classification (given during the briefing) MUST be filled in SAT: ☐ UNSAT: ☐ STANDARD: **CS** " • "Hazards and Other Conditions affecting plant safety" box marked • "H-4" MUST be filled in SAT: ☐ UNSAT: ☐ **CONTINUED ON NEXT PAGE.**

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
	NOTE: The operator should determine from the briefing that no radiological release is in progress and that no PAR is required. If clarification is requested, the evaluator should provide the cues that a release is not in progress and no PAR applies. STANDARD: **CS** "NO" box MUST be marked SAT: ☐ UNSAT: ☐ STANDARD: **CS** "None" box MUST be marked SAT: ☐ UNSAT: ☐ STANDARD: Stability Class "E" filled in SAT: ☐ UNSAT: ☐ STANDARD: **CS** Wind from "328" to "148" filled in SAT: ☐ UNSAT: ☐ STANDARD: **CS** Wind speed "5.5" mph filled in (may round up to 6 mph SAT: ☐ UNSAT: ☐ STANDARD: Precipitation "No" box marked SAT: ☐ UNSAT: ☐ STANDARD: **CS** Candidate reports complete and ready for SEC/SM approval. Completion Time _____ SAT: ☐ UNSAT: ☐ **EVALUATOR:** Sign, date, and fill in time on EMD-32a. Return the form and direct the operator to make notifications to the Michigan State Police per Attachment 9 of PMP-2080-EPP-100, Emergency Response.

EMD-32a
MICHIGAN STATE POLICE

NUCLEAR PLANT EVENT NOTIFICATION

☐ Actual Event ☐ Drill

Plant Contact Information

Nuclear Power Plant: Cook Nuclear Plant _____

Plant Communicator: _____ Plant Message

Time of Communications: County_____ SOM_____ NRC_____ Number

Calling From: ☐ Control Room ☐ TSC ☐ EOF ☐ Other _____

Call Back Telephone Number: 269-466-5901 Ext. 1088

Current Classification

☐ Unusual Event ☐ Alert ☐ Site Area Emergency ☐ General Emergency ☐ Termination

This classification was declared at: Date: _____ Time: _____

Reason for Classification

☐ Abnormal Rad Level/Radiological Effluents
☐ Fission Product Barrier Degradation
☐ System Malfunction
☐ Hazards and Other Conditions Affecting Plant Safety
☐ Cold Shutdown/Refueling System Malfunction
☐ Independent Spent Fuel Storage Installation Event

Number: _____

Radiological Release in Progress Due to Event

☐ Yes ☐ No

Protective Action Recommendations

☐ None

Recommend the following protective actions; implement the State of Michigan KI plan and all other areas monitor & prepare.

Evacuation of Area(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

In-Place Shelter of Area(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Clear Lake Area(s): ☐ 6 (L) ☐ 7 (L)

• PARs based on Dose Calculations (COMPLETE & PROVIDE-EMD 32b)	☐ YES ☐ NO
• PARs beyond 10 Miles (COMPLETE & PROVIDE-EMD 32b)	☐ YES ☐ NO

Meteorological Data

Wind Direction (degrees): From 328 to 148 Wind Speed (MPH): 5.5

Stability Class: E Precipitation: ☐ Yes ☐ No

Approved by: _____ Date: _____ Time: _____

Authority: NUREG 0654
Compliance: Voluntary

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	PMP-2080-EPP-100	Rev.33	Page 40 of 61
Emergency Response			
Attachment 9	MSP Notification		Pages: 40 - 42

NOTE: Telephone communications should be simulated.

NOTE:
- Declaration of an emergency requires the notification of the Michigan State Police within 15 minutes.
- Offsite agencies may wish to maintain constant communications with the Control Room until the EOF is activated.

STANDARD: **CS** Operator identifies correct phone number for the MSP.
SAT: ☐ UNSAT: ☐

1 Contact:

- MSP at 8-1-517-241-8000. (Alternate number 8-1-517-334-6223) using the MSP bridge phone (ext 1088) in the back of the Control Room. _____

CUE: "This is Officer Smith of the Michigan State Police."

NOTE: The phone is the primary means for communicating the EMD-32 information.

NOTE: An EMD-32a is required within 15 minutes of:
- The initial classification, or
- A change of classification, or
- A change of PAR

An EMD-32b is required within 30 minutes of the previous EMD-32b.

An EMD-32b is required to accompany an EMD-32a:
- if the declaration of a General Emergency is due to dose, or
- if a PAR change is due to dose

STANDARD: **CS** Operator provides correct information of all items marked as critical on the EMD-32a within 15 minutes of classification time.
SAT: ☐ UNSAT: ☐

2 Provide the following to the MSP: _____

- Provide the information from the EMD-32 form.
- Obtain the officers/dispatcher's name and record on table.
- Inform the agency that the EMD-32 will be faxed.
- Request a callback (for authentication) and then hang up.

EVALUATOR: Repeat back information given by the operator

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	PMP-2080-EPP-100	Rev.33	Page 41 of 61
Emergency Response			
Attachment 9	MSP Notification		Pages: 40 - 42

- For callback: MSP will callback to ext 1088 phone bridge. Phone will ring in the Control Room. Pick up phone when it rings.

OFF-SITE NOTIFICATION	PHONE NUMBER	CONTACT ESTABLISHED	EVENT CLOSEOUT
Michigan State Police	8-1-517-241-8000	_____/_____ Initials Time	_____/_____ Initials Time
Person Contacted	MSP Person Contacted:_____		
Call Back	Call Back / Bridge established:_____ Time		

- IF the MSP has additional questions THEN fill out Data Sheet 4, Request For Additional Information.
  - Write the question
  - Obtain the response and get approval
  - Provide the response to the MSP. ____

NOTE:	Faxing the EMD-32 form(s) can be performed by either the MSP or BCSD communicator or other personnel as necessary.

3 Fax the signed EMD-32 form(s): _____

- Make sure that the form is signed by the Shift Manager. _____
- Orient the form(s), as shown on the fax machine, in either Control Room _____
- IF the EMD-32 have not already been faxed, THEN Push red Blast button to broadcast the form(s) to the State, County and ERFs. _____

STANDARD: Operator fills in appropriate information on the attachment and requests a callback.
SAT: ☐ UNSAT: ☐

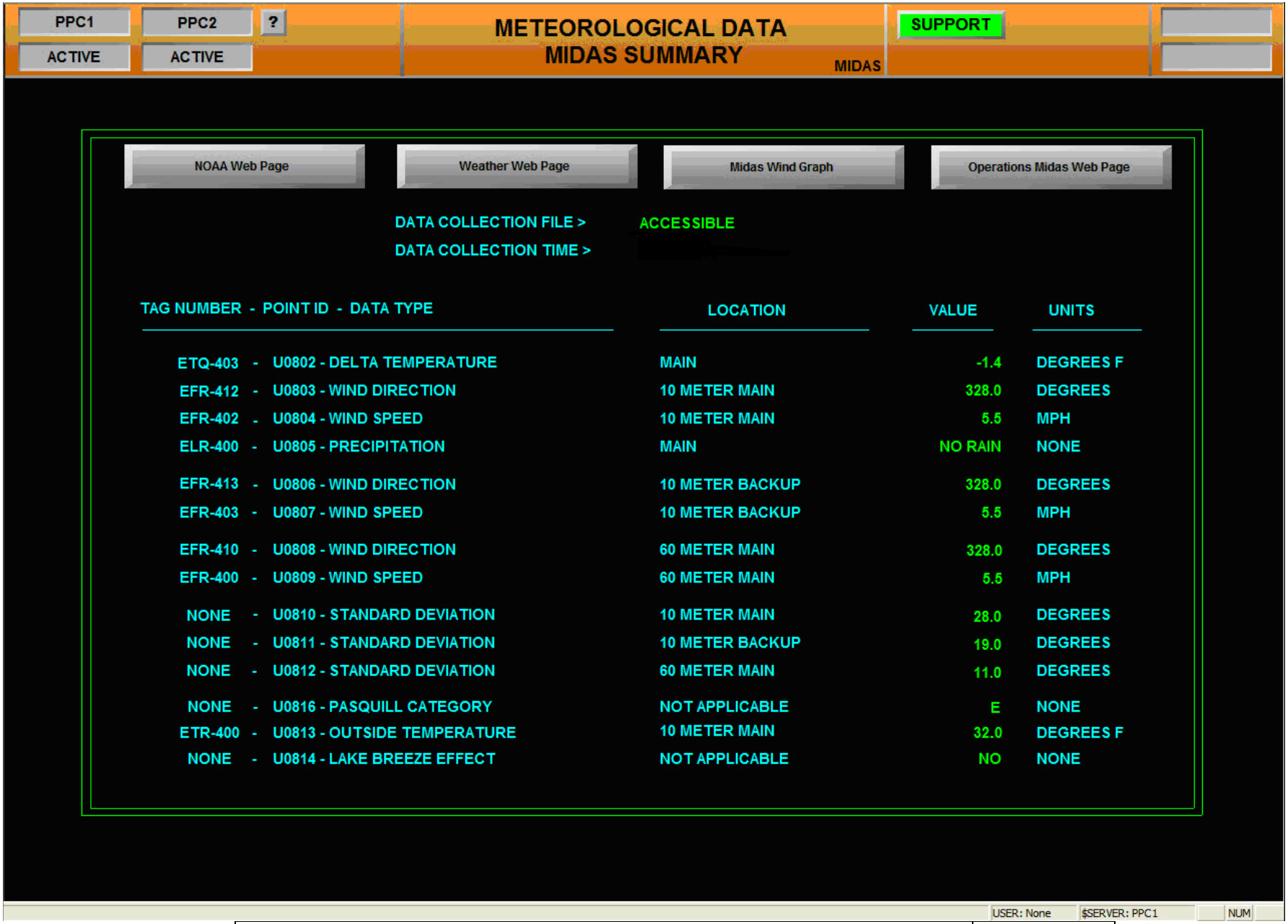
JPM TERMINATION: When a callback has been requested and the phone call has been ended, inform the operator that the JPM is complete.

Termination Cue: Complete the EMD-32a, Nuclear Plant Event Notification form and notify of MSP within 15 minutes.

TASK BRIEFING:

- You are an extra Control Room Operator on Unit 2.
- Both units are operating at 100% with DG2CD OOS.
- Multiple indications and reports were received indicating a fire in the DG2AB room
- The Shift Manager has just declared an **ALERT** per Initiating Condition H-4, Fire or Explosion affecting plant operations.
- No radiological release is in progress.
- There are no protective action recommendations.
- Classification Time is _____ (Current Time)
- The Shift Manager directs you as the Plant Communicator to complete EMD-32a, Nuclear Plant Event Notification form for approval, obtain approval from the Shift Manager, and then make notifications to the Michigan State Police per Attachment 9 of PMP-2080-EPP-100, Emergency Response.
- Meteorological Data – Use the MIDAS Summary provided.

THIS IS A TIME CRITICAL JPM


PPC1
ACTIVE
PPC2
ACTIVE
?
METEOROLOGICAL DATA
MIDAS SUMMARY
MIDAS
SUPPORT
NOAA Web Page
Weather Web Page
Midas Wind Graph
Operations Midas Web Page
DATA COLLECTION FILE > ACCESSIBLE
DATA COLLECTION TIME >
TAG NUMBER - POINT ID - DATA TYPE
LOCATION
VALUE
UNITS
ETQ-403 - U0802 - DELTA TEMPERATURE MAIN -1.4 DEGREES F
EFR-412 - U0803 - WIND DIRECTION 10 METER MAIN 328.0 DEGREES
EFR-402 - U0804 - WIND SPEED 10 METER MAIN 5.5 MPH
ELR-400 - U0805 - PRECIPITATION MAIN NO RAIN NONE
EFR-413 - U0806 - WIND DIRECTION 10 METER BACKUP 328.0 DEGREES
EFR-403 - U0807 - WIND SPEED 10 METER BACKUP 5.5 MPH
EFR-410 - U0808 - WIND DIRECTION 60 METER MAIN 328.0 DEGREES
EFR-400 - U0809 - WIND SPEED 60 METER MAIN 5.5 MPH
NONE - U0810 - STANDARD DEVIATION 10 METER MAIN 28.0 DEGREES
NONE - U0811 - STANDARD DEVIATION 10 METER BACKUP 19.0 DEGREES
NONE - U0812 - STANDARD DEVIATION 60 METER MAIN 11.0 DEGREES
NONE - U0816 - PASQUILL CATEGORY NOT APPLICABLE E NONE
ETR-400 - U0813 - OUTSIDE TEMPERATURE 10 METER MAIN 32.0 DEGREES F
NONE - U0814 - LAKE BREEZE EFFECT NOT APPLICABLE NO NONE
USER: None
$SERVER: PPC1
NUM

AMERICAN ELECTRIC POWER

COOK NUCLEAR PLANT TRAINING CENTER

Bridgman, Michigan

OPERATIONS JPM

TRAINING PROGRAM TITLE	ILT	**TIME:**	20 MINUTES
NUMBER AND TITLE:	NRC 2016-A4-SRO Perform the duties of the Site Emergency Coordinator	**REVISION:**	1

SRO-ONLY	Approved for SRO Only JPM
JPM-SRO-ADMIN	SRO Administrative JPM from SR-O-E015
JPM-TIME-CRITICAL	Time Critical JPM

Examinee's Name: _____ _____

Evaluator's Name: : _____

Date Performed: : _____

Result (Circle One): SAT / UNSAT

Number of Attempts: : _____

Time to Complete: : _____

Comments:_____
_____
_____

REFERENCES

Procedures:

PMP-2080-EPP-101	Emergency Classification, Rev. 18
PMP-2080-EPP-100	EMERGENCY RESPONSE, REV. 33

Miscellaneous References:

TRAINING AIDS/TOOLS/EQUIPMENT

NRC KA

P2.4.40	Knowledge of the SRO's responsibilities in emergency plan implementation. (CFR: 45.11)
RO/SRO Importance	2.7/4.5
P2.4.41	Knowledge of the emergency action level thresholds and classifications. (CFR: 43.5 / 45.11)
RO/SRO Importance	2.3/4.1

TASKS

EPP0020703	Classify an Emergency Condition.
EPP0160703	Perform the duties of the Site Emergency Coordinator.

OBJECTIVES*

JPM-SR-O-E015	Perform the duties of the Site Emergency Coordinator

.

HANDOUTS:

Copy of current revisions of the following:
PMP-2080-EPP-100, Emergency Response Attachments 1 & 8
EMD-32a
PMP-2080-EPP-101, Emergency Classification

ATTACHMENTS:

None

EVALUATION SETTINGS:
Administrative JPM, may be evaluated in classroom setting

EVALUATOR INSTRUCTIONS

Give copy of Task Briefing to examinee.
TASK BRIEFING:
You are the Shift Manager

Unit 1 experienced a secondary side break due to a failed open SG Safety valve on #21 SG. The Crew tripped the reactor, initiated Safety Injection, and performed actions of E-0, Reactor Trip or Safety Injection. A transition was made to E-2, Faulted SG Isolation. Actions of E-2 were completed for 21 SG. The safety valve remained open and could not be reseated. After completion of E-2, the crew transitioned to ES-1.1, SI Termination, stopped one CCP, isolated BIT injection flow, and stopped both SI pumps. Several minutes after terminating SI, RCS pressure and pressurizer level suddenly started lowering rapidly, along with a rapid increase in 21 SG level. The crew started both CCPs and SI pumps and reinitiated BIT flow based on inability to maintain pressurizer level >21% and transitioned to E-1, Loss of Reactor or Secondary Coolant, and then to E-3, Steam Generator Tube Rupture, based on uncontrolled level increase in 21 SG. The Emergency Plan has not yet been entered during the event.

You are to determine if an Emergency Classification is applicable and perform duties of the SEC as applicable.

THIS JPM IS TIME CRITICAL

JPM OVERVIEW
Operator will perform an Emergency Classification of the event based on plant conditions and complete the initial portion of the SEC checklist.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

FISSION PRODUCT BARRIER MATRIX – Mode 1- 4

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of TWO Fission Product Barriers AND Potential Loss of Third Barrier.	Any TWO of the Following: 1. Loss or Potential Loss of Fuel Clad. 2. Loss or Potential Loss of RCS. 3. Loss of Containment Barrier.	Loss or Potential Loss of Either Fuel Clad or RCS Barrier.	Loss or Potential Loss of Containment Barrier.

1. FUEL CLAD BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 Core Cooling CSFST	Core Cooling CSFST - RED	Core Exit Thermocouples > 757° OR RVLIS Level < 46% (Narrow Range) OR Heat Sink CSFST – RED
.2 Containment Radiation	> 200 R/hr.	None
.3 Primary Coolant Activity	>300 uCi/cc I-131 dose equivalent OR Core Damage > 5.0% clad failure	None
.4 SEC Judgment **(p.28)**	Any condition in the opinion of the SEC that indicates loss of the Fuel Clad barrier. Σ	Any condition in the opinion of the SEC that indicates potential loss of the Fuel Clad barrier. Σ

2. RCS BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 RCS Leak Rate (unisolable)	> available makeup capacity as indicated by complete loss of RCS subcooling.	> capacity of one centrifugal charging pump in normal charging line up.
.2 Steam Generator Leakage	Entry into OHP 4023.E-3, SGTR AND A Non-isolable secondary line break or a prolonged release (>30 minutes) of contaminated secondary coolant resulting in a radioactive release to the environment from the affected SG. [1]	Ruptured SG with leak > capacity of one charging pump in normal charging line up.
.3 Containment Radiation	> 10 R/hr	None
.4 RCS Integrity CSFST	None	RCS Integrity CSFST - RED
.5 Heat Sink CSFST	None	Heat Sink CSFST - RED
.6 SEC Judgment **(p.34)**	Any condition in the opinion of the SEC that indicates loss of the RCS barrier. Σ	Any condition in the opinion of the SEC that indicates potential loss of the RCS barrier. Σ

[1] Does not include a release through the condenser air ejectors or the gland steam condenser vents for the purpose of declaration of a SITE AREA EMERGENCY.
Σ EAL's in these tables are NOT complete. Refer to referenced basis page (Attachment 3) for complete description.

STANDARD:
CS: Identify a Site Area Emergency based on a combination of (EAL 2.2P OR 2.2L) AND 3.3L applies and declare a Site Area Emergency within 15 minutes
SAT: ☐
UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

FISSION PRODUCT BARRIER MATRIX – Mode 1 -4

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of TWO Fission Product Barriers AND Potential Loss of Third Barrier.	Any TWO of the Following: 1. Loss or Potential Loss of Fuel Clad. 2. Loss or Potential Loss of RCS. 3. Loss of Containment Barrier.	Loss or Potential Loss of Either Fuel Clad or RCS Barrier.	Loss or Potential Loss of Containment Barrier.

3. CONTAINMENT BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 Containment Radiation	None	>1000 R/hr. **OR** Core damage > 20% clad failure.
.2 Containment Integrity	Unisolable breach of containment. **OR** Rapid unexplained containment pressure or sump level drop following pressure rise caused by a LOCA. **OR** Containment pressure/sump level NOT performing as expected for conditions. **OR** Entry into ECA-1.2, LOCA Outside Containment.	None
.3 SG Secondary Side Release	Primary to secondary leakage rate greater than technical specification limit. **AND** Release of secondary coolant from the associated steam generator to the environment is occurring. [1]	None
.4 Containment CSFST	None	Containment CSFST - RED
.5 Containment Hydrogen	None	>4.0% **OR** Containment Hydrogen >0.5% AND any Hydrogen Control equipment inoperable.
.6 Containment Pressure Control	None	BOTH CTS trains OR BOTH containment air recirc fans inoperable OR fail to auto start on their containment pressure setpoint OR containment pressure > 12 psig.
.7 Core Exit Thermocouples	None	Core Cooling CSFST – RED **AND** Restoration procedures not effective within 15 minutes.
.8 SEC Judgment **(p.43)**	Any condition in the opinion of the SEC that indicates loss of the Containment barrier. Σ	Any condition in the opinion of the SEC that indicates potential loss of the Containment barrier. Σ

[1] Does not include a release through the condenser air ejectors or the gland steam condenser vents for the purpose of declaration of a SITE AREA EMERGENCY.

STANDARD:
CS: Identify a Site Area Emergency based on a combination of (EAL 2.2P OR 2.2L) AND 3.3L applies and declare a Site Area Emergency within 15 minutes
SAT: ☐
UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
3 DETAILS **NOTE:** • Steps in this procedure that do not apply to the current classification may be marked N/A. • The steps in this procedure are listed in the preferred order of performance. Steps may be performed in a different sequence. 3.1 General Information 3.1.1 SM-SEC implements this procedure until relieved of SEC duties. 3.1.2 Notification duties, under the direction of the SM-SEC remain with the CR until relieved of the duties by the EOF. 3.1.3 The following actions shall not be delegated by the SEC (Command & Control Function): • Classification of the emergency. • Directing the notification of offsite officials. • Approval of PAR to offsite emergency management agencies. 3.1.4 Declaration of an emergency requires the notification of the MSP and BCSD within 15 minutes. Notification of the NRC follows state and county notification and in all cases must be completed within one hour. 3.1.5 The OSC, TSC, and the EOF are required to be activated at an ALERT classification or higher. The TSC and OSC will not be activated on site if the security event pager code is used. 3.1.6 PA announcements for protective measures implemented during security events may be modified or omitted as conditions warrant (e.g., omitting announcement for accountability, if dismissal of non-essential personnel has already taken place.) 3.1.7 Once phone communications are established with off-site agencies, it is probable that the agencies contacted may request continuous communications. This should be supported, as resources become available. The use of Operations Department staff is recommended.	STANDARD: Operator directs Unit 1 Operator to complete form EMD-32a for the emergency classification. SAT: ☐ UNSAT: ☐ COMMENT: NOTE: If required, ask for the information below to complete EMD-32a The Operator should provide the following information to complete the EMD-32a: • Current classification, Date, and Time • Reason for classification (Fission Product Barrier Degradation) • IC Number ((EAL 2.2P OR 2.2L) AND 3.3L) • Radiological Release in Progress • No Protective Action Recommendations The remainder of the information can be filled out by the evaluator. CUE: Provide the completed EMD-32a and Meteorological Summary printout to the Operator for approval. STANDARD: **CS:** Operator signs the completed EMD-32a and directs notification of offsite agencies. EMD-32a must be complete and accurate to satisfy the Critical Step. SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	PMP-2080-EPP-100	Rev.33	Page 7 of 61
Emergency Response			

3.2 SM-SEC Checklist

NOTE:
- The following steps are repeated for each classification upgrade.
- A new EMD-32A is required within 15 minutes of each subsequent classification upgrade.

3.2.1 Inform Unit 1 and Unit 2 CR personnel of the event classification and that the SM has assumed the position of SEC. ____

3.2.2 Direct the Unaffected Unit (or Unit 1 if a dual unit event) to perform Step 3.3 of this procedure. ____

3.2.3 **IF** the emergency response facilities have been activated **THEN** establish communications with emergency response facilities using the Managers' Bridge. ____

NOTE: Actions already taken in SPP-2060-SFI-216, Plant Response to a Security Threat, need not be repeated in this procedure (e.g., protective measures such as evacuation).

Activation of the ERONS includes activating the Emergency Response Facilities.

3.2.4 **IF** at Alert or higher, (**OR** UE at SEC discretion), **THEN** direct the Unaffected Unit (or Unit 1 if a dual unit event) to activate the Emergency Response Organization Notification System (ERONS) per Attachment 2, Activation of ERONS. (Performed only once per event). ____

NOTE: Accountability and subsequent evacuation are required at a SAE or higher for non-essential personnel. SEC discretion should be used for these activities when taking these actions would jeopardize the safety of personnel (e.g., hostile force, radiation release, toxic spill, etc.).

3.2.5 **IF** at UE or Alert and degrading/hazardous conditions warrant, **THEN** use SEC discretion to Dismiss Non-Essential Personnel from the site per Attachment 3, Dismissal of Non-Essential Personnel (performed only once per event). ____

STANDARD: Operator simulates communication to Unit 1 and Unit 2 CR personnel that SM has assumed the position of SEC
CUE: Acknowledge communication as given
SAT: ☐ UNSAT: ☐
COMMENT:

CUE: Unit 1 will perform step 3.3 Unaffected Unit Duties. If Required, request information needed to perform attachment 8 and completion of EMD-32a.

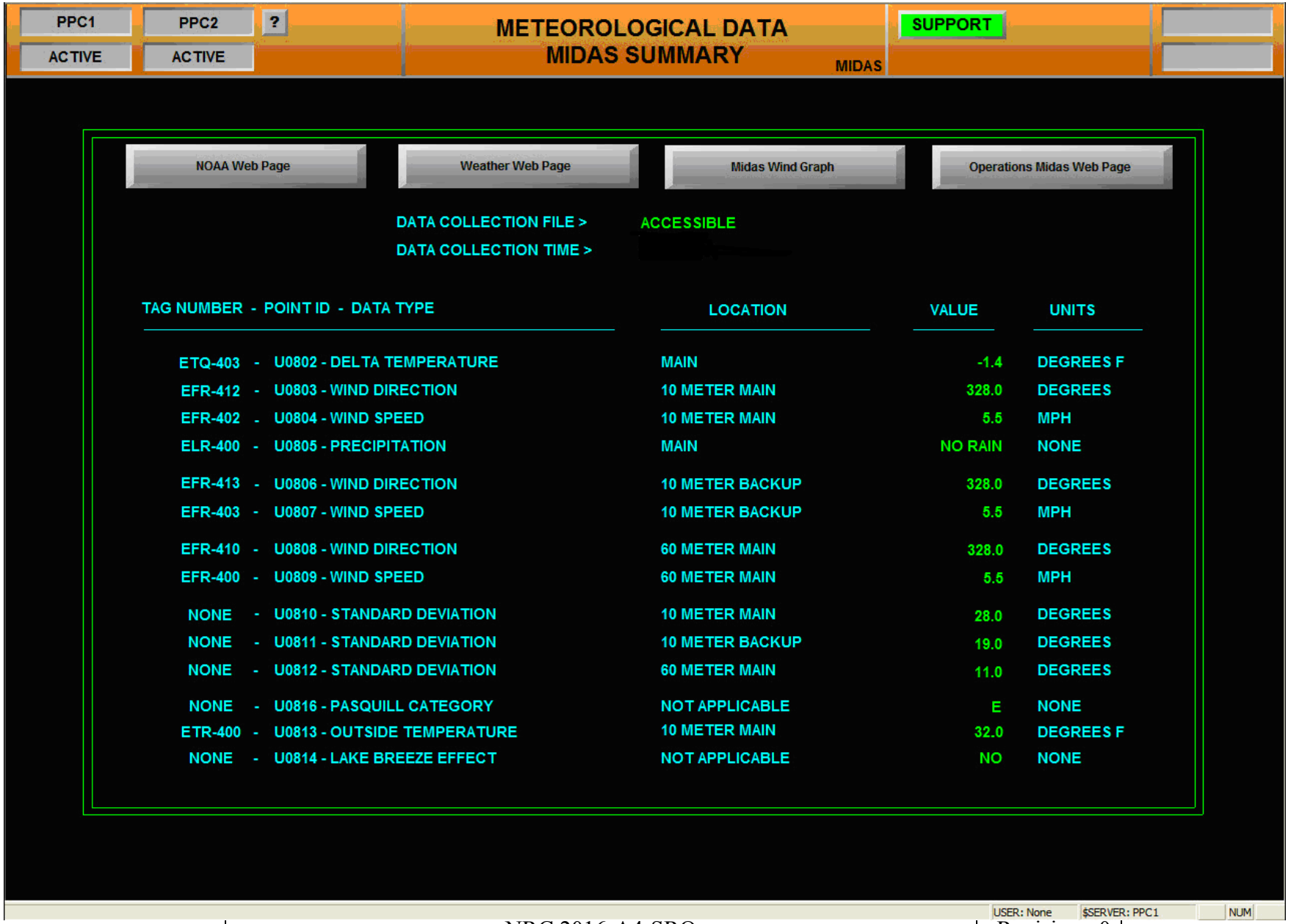
CUE: Emergency Response Facilities are NOT yet activated.

STANDARD: **CS:** Operator directs activation of ERONS
SAT: ☐ UNSAT: ☐
COMMENT:

CUE: Unit 1 will activate ERONS

STANDARD: Operator recognizes this step as not applicable
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)
	STANDARD: Operator recognizes this step is not applicable. SAT: ☐ UNSAT: ☐ COMMENT:
Reference | **PMP-2080-EPP-100** | **Rev.33** | **Page 8 of 61** **Emergency Response**	
3.2.6 **IF** any H-2 ICs (Security EALs) were used to classify the current event, **THEN** implement actions in accordance with SPP-2060-SFI-216, Plant Response to a Security and continue in this procedure. ____	STANDARD: **CS:** Operator orders performance of Attachment 5 SAT: ☐ UNSAT: ☐ CUE: Attachment 5 will be performed COMMENT:
3.2.7 **IF** in a SAE or GE **AND** personnel have not been dismissed **THEN** order Site Evacuation using Attachment 5, Evacuation, (performed only once per event). ____	
3.2.8 **IF** in a SAE or GE, (or at SM-SEC discretion), **THEN** implement Accountability using Attachment 4, Accountability, (performed only once per event). ____	STANDARD: **CS:** Operator orders performance of Attachment 4 SAT: ☐ UNSAT: ☐ CUE: Attachment 4 will be performed COMMENT:
3.2.9 **IF** in a GE, **THEN** verify a Protective Action Recommendation is developed using Attachment 1, Protective Action Recommendations. ____	
3.2.10 Assign an individual to complete Data Sheet 3, Plant Status. ____	STANDARD: **CS:** Operator orders completion of Data Sheet 3 SAT: ☐ UNSAT: ☐ COMMENT:
3.2.11 **WHEN** the TSC-SEC or EOF-ED reports for duty, **THEN** conduct turnover and transfer Command and Control Function using Data Sheet 2, Emergency Turnover Checklist. ____	
3.2.12 Upon completion of turnover, inform both control rooms that the Command & Control Function has been transferred to the SEC (or ED, as applicable). ____	
3.2.13 **IF** in a UE and conditions warrant **AND** the SM-SEC has Command & Control Function, **THEN** terminate the UE using Attachment 6, Terminating a UE. ____	
3.2.14 **IF** in an Alert, or higher **AND** conditions warrant **AND** SM-SEC has Command & Control Function, **THEN** terminate the event using RMT-2080-EOF-002, Emergency Termination and Recovery. ____	
3.2.15 **WHEN** 10 CFR 50.54(x) or 10 CFR 72.32(d) are invoked, **THEN** ensure communications to the NRC are performed per PMP-7030-001-001, Prompt NRC Notification. ____	STANDARD: Operator recognizes these steps are not applicable. SAT: ☐ UNSAT: ☐ COMMENT:
Termination Cue: When actions of SEC checklist are complete up to SEC turnover.	


PPC1
ACTIVE
PPC2
ACTIVE
?
METEOROLOGICAL DATA
MIDAS SUMMARY
MIDAS
SUPPORT
NOAA Web Page
Weather Web Page
Midas Wind Graph
Operations Midas Web Page
DATA COLLECTION FILE > ACCESSIBLE
DATA COLLECTION TIME >
TAG NUMBER - POINT ID - DATA TYPE
LOCATION
VALUE
UNITS
ETQ-403 - U0802 - DELTA TEMPERATURE MAIN -1.4 DEGREES F
EFR-412 - U0803 - WIND DIRECTION 10 METER MAIN 328.0 DEGREES
EFR-402 - U0804 - WIND SPEED 10 METER MAIN 5.5 MPH
ELR-400 - U0805 - PRECIPITATION MAIN NO RAIN NONE
EFR-413 - U0806 - WIND DIRECTION 10 METER BACKUP 328.0 DEGREES
EFR-403 - U0807 - WIND SPEED 10 METER BACKUP 5.5 MPH
EFR-410 - U0808 - WIND DIRECTION 60 METER MAIN 328.0 DEGREES
EFR-400 - U0809 - WIND SPEED 60 METER MAIN 5.5 MPH
NONE - U0810 - STANDARD DEVIATION 10 METER MAIN 28.0 DEGREES
NONE - U0811 - STANDARD DEVIATION 10 METER BACKUP 19.0 DEGREES
NONE - U0812 - STANDARD DEVIATION 60 METER MAIN 11.0 DEGREES
NONE - U0816 - PASQUILL CATEGORY NOT APPLICABLE E NONE
ETR-400 - U0813 - OUTSIDE TEMPERATURE 10 METER MAIN 32.0 DEGREES F
NONE - U0814 - LAKE BREEZE EFFECT NOT APPLICABLE NO NONE
USER: None
$SERVER: PPC1
NUM

TASK BRIEFING:
You are the Shift Manager

Unit 1 experienced a secondary side break due to a failed open SG Safety valve on #21 SG. The Crew tripped the reactor, initiated Safety Injection, and performed actions of E-0, Reactor Trip or Safety Injection. A transition was made to E-2, Faulted SG Isolation. Actions of E-2 were completed for 21 SG. The safety valve remained open and could not be reseated. After completion of E-2, the crew transitioned to ES-1.1, SI Termination, stopped one CCP, isolated BIT injection flow, and stopped both SI pumps. Several minutes after terminating SI, RCS pressure and pressurizer level suddenly started lowering rapidly, along with a rapid increase in 21 SG level. The crew started both CCPs and SI pumps and reinitiated BIT flow based on inability to maintain pressurizer level >21% and transitioned to E-1, Loss of Reactor or Secondary Coolant, and then to E-3, Steam Generator Tube Rupture, based on uncontrolled level increase in 21 SG. The Emergency Plan has not yet been entered during the event.

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THIS JPM IS TIME CRITICAL