FINAL AS-ADMINISTERED ADMINISTRATIVE JPMS

FOR THE D. C. COOK EXAMINATION - NOV/DEC 2002

N02-A1a

TITLE	**Determine Ultimate Heat Sink Temperature**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/23/2002**
	Signature:	S Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02-A1a Determine Ultimate Heat Sink Temperature	REVISION: 0

References

02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 pages 81 & 82
OP-2-5119A, Flow Diagram Circulating Water, Priming System & Screen Wash (P&ID)

Task: STP0390201 Perform Shiftly Surveillance Checks for Modes 5 & 6

K/A CROSS REFERENCE: 2.1.7

K/A IMPORTANCE: RO 3.7 SRO 4.4

Evaluation Setting

Simulator

Handouts

Task Briefing for N02-A1a
02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 pages 81 & 82
If requested then provide candidate with OP-2-5119A, CW System (P&ID)

Attachments

None

Simulator Setup

Reset to Mode 6 IC 998
Close CW Condenser Inlet and Outlet valves:

- A Condenser South 2-WMO-103 & 104
- C Condenser North 2-WMO-301 & 302

Shutdown #21 & #22 CW Pumps (2 CW Pumps left running)

COURSE NUMBER AND TITLE:	N02-A1a Determine Ultimate Heat Sink Temperature	REVISION: 0

Task Objectives/Standards

The Candidate correctly identifies that the South Waterbox for "A" condenser and the North Waterbox for the "C" condenser are Isolated and does not use the associated temperatures. The Candidate Identifies that CW Temperature is > 76.8 F And Fuel Movement must be stopped until the reactor has been shutdown for >148 hours.

Task Briefing

Given the following:

- Unit 2 is in Mode 6.
- The reactor was shutdown 130 hours ago.
- Fuel Movement is in Progress.

MTI reports CW temperature transmitters are not functioning properly, due to a power supply problem, therefore SG-21, Circ Water Temp Recorder and PPC address U0200 are Out Of Service (OOS).

The Unit Supervisor directs you to perform step 14.2 of 02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 (pages 81 & 82) and to ensure all Acceptance Criteria are met for the current Circulating Water System configuration.

An AEO has already recorded the following temperature readings from the Unit 2 CW Inlets:

Condenser A	Condenser B	Condenser C
WTX-106 = 71.8	WTX-206 = 77.2	WTX-306 = 77.1
WTX-107 = 71.8	WTX-207 = 77.1	WTX-307 = 77.0
WTX-108 = 72.2	WTX-208 = 77.3	WTX-308 = 77.0
WTX-102 = 77.1	WTX-202 = 76.9	WTX-302 = 71.2
WTX-103 = 77.4	WTX-203 = 76.9	WTX-303 = 70.9
WTX-104 = 76.8	WTX-204 = 77.0	WTX-304 = 71.3

Temperature readings were obtained using Instrument ID CNP-147, Make/Model FLUKE/2175 with Calibration Current (Last Cal. Performed on 05/07/2002)

COURSE NUMBER AND TITLE:	N02-A1a Determine Ultimate Heat Sink Temperature	REVISION: 0

Continuous	02-OHP-4030-STP-030	Rev. 39	Page 81 of 145
DAILY AND SHIFTLY SURVEILLANCE CHECKS			
Data Sheet 5	Shift Surveillance Checks Modes 5, 6 and Defueled		Pages: 70 - 83

	Instrument Title & No.	00-08 Value	08-16 Value	16-24 Value	Acceptance Criterion

NOTE: **The temperature monitoring in Step 14.0 is N/A when TS 3.9.3 does not apply, i.e., after the 148 hour decay time has been met or when not moving irradiated fuel in the reactor vessel. This monitoring is to validate temperature limits in TS Bases.

Decay Times – at least 100 hours from September 15 through June 8*, or at least 148 hours from June 9* through September 14. (TS 3.9.3)

*The June dates were changed to be more conservative than the TS applicability to support the TS 3/4.9.3 Bases discussion to ensure sufficient decay time for June outages.

+Circulating Water Temperature from either unit may be used, indicate unit used.

14.0 14.1 Circ Wtr Temp*:

- Take reading from SG-21 Point 1, Circ Water Temp Recorder.
- IF recorder is energized and the printer is inoperable, THEN take readings from the PPC, U0200.

U1 ☐ U2 ☐

°F	°F	°F

- OR -

14.2 IF Circ Water Temp is greater than or equal to 72°F OR measurement cannot be obtained in Step 14.1 OR a more accurate value is desired, THEN obtain an M&TE calibrated temperature measurement instrument and perform the following:

Record instrument ID _____

Instrument make/model: _____

Current calibration Y/N _____

Take one inlet temperature measurement of each Condenser in service using the M&TE calibrated instrument with ±1°F uncertainty and calculate the average.

U1 ☐ U2 ☐

Condenser A Circ Water Inlet:*

Check box for inlet measured:

- ☐ WTX-106 or
- ☐ WTX-107 or
- ☐ WTX-108 or
- ☐ WTX-102 or
- ☐ WTX-103 or
- ☐ WTX-104

°F	°F	°F

TS 3.9.3** for Decay Time: C4

Step 14.1 - Less than or equal to ~~74.6°F on SG-21~~ Point 1, (i.e., 77.8 ± 3.2°F instrument uncertainty)

-OR-

Step 14.2 – less than or equal to 76.8°F (i.e., 77.8 ± 1°F instrument uncertainty for M&TE calibrated Fluke-52 with a 12" probe, or equivalent). C8

IF the Unit is in MODE 6 with movement of irradiated fuel in the vessel in progress between September 15 and June 8* with: C8

- Decay Time from ~~100 hrs to 148 hrs~~

-AND-

- Circ Wtr Temp ~~>74.6°F~~ (using Step 14.1) OR >76.8°F (using Step 14.2)

THEN STOP movement of irradiated fuel until either of the following conditions are met:

- Circ Wtr Temp is ~~≤74.6°F (using~~ Step 14.1) OR ~~≤76.8°F~~ (using ~~Step 14.2~~) C4

-OR-

- Decay Time is greater than 148 hrs.

General CUES:

If requested then provide OP-2-5119A, CW System (P&ID)

Step is N/A due to Temperature Indicator Problems

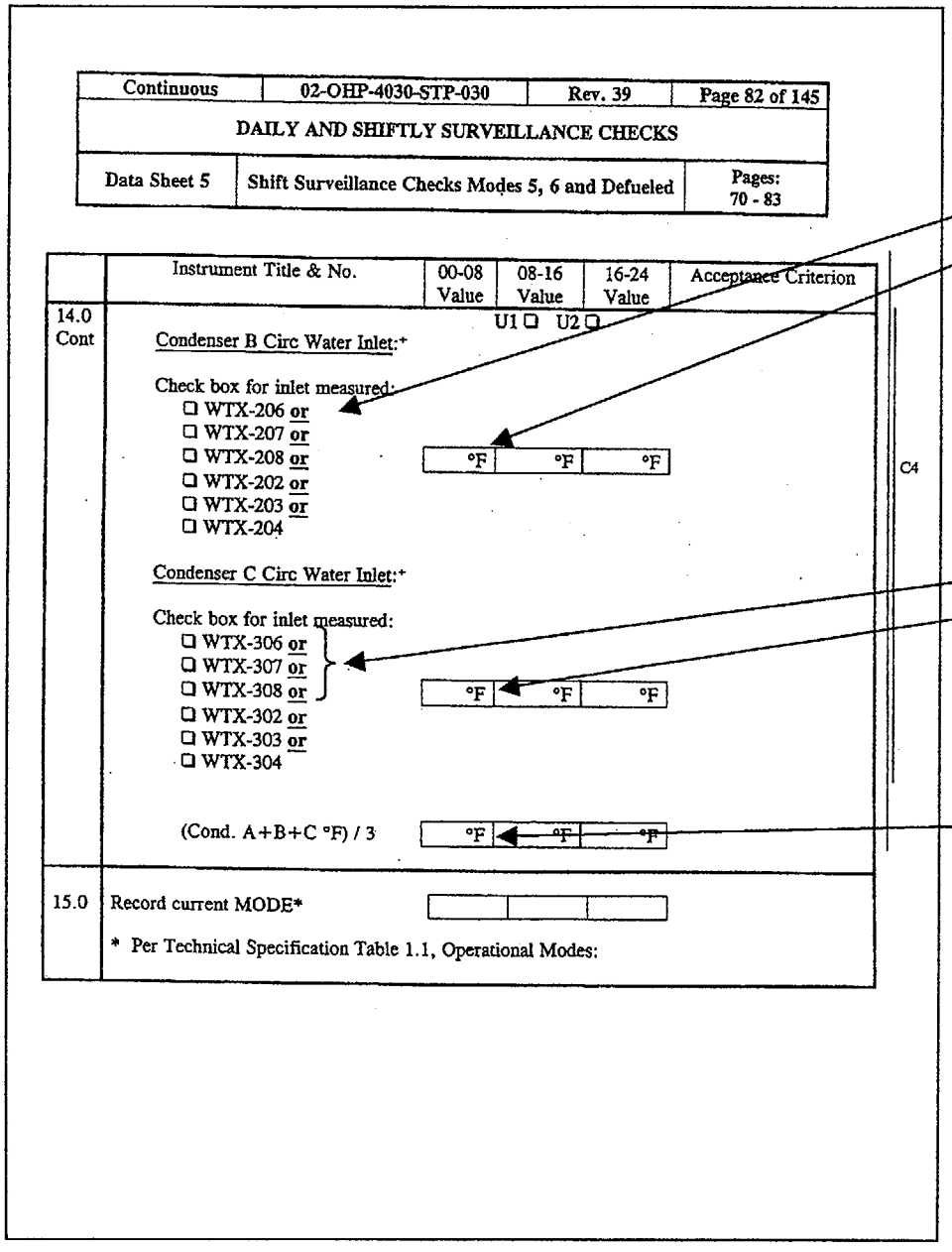
Enters Instrument ID & Make/Model from briefing Sheet

Marks "Y" for Calibration is Current

Checks "U2" Box

CT:Checks one of these boxes and enters corresponding temperature.

WTX-102 = 77.1
WTX-103 = 77.4
WTX-104 = 76.8



Continuous	02-OHP-4030-STP-030	Rev. 39	Page 82 of 145
DAILY AND SHIFTLY SURVEILLANCE CHECKS			
Data Sheet 5	Shift Surveillance Checks Modes 5, 6 and Defueled		Pages: 70 - 83

	Instrument Title & No.	00-08 Value	08-16 Value	16-24 Value	Acceptance Criterion
14.0 Cont			U1 ☐ U2 ☐		
	Condenser B Circ Water Inlet:+				
	Check box for inlet measured: ☐ WTX-206 or ☐ WTX-207 or ☐ WTX-208 or ☐ WTX-202 or ☐ WTX-203 or ☐ WTX-204		°F	°F	°F
	Condenser C Circ Water Inlet:+				
	Check box for inlet measured: ☐ WTX-306 or ☐ WTX-307 or ☐ WTX-308 or ☐ WTX-302 or ☐ WTX-303 or ☐ WTX-304		°F	°F	°F
	(Cond. A+B+C °F) / 3		°F	°F	°F
15.0	Record current MODE*				
	* Per Technical Specification Table 1.1, Operational Modes:				

C4

CT: Checks one of these boxes and enters corresponding temperature.

WTX-206 = 77.2
WTX-207 = 77.1
WTX-208 = 77.3
WTX-202 = 76.9
WTX-203 = 76.9
WTX-204 = 77.0

CT: Checks one of these boxes and enters corresponding temperature.

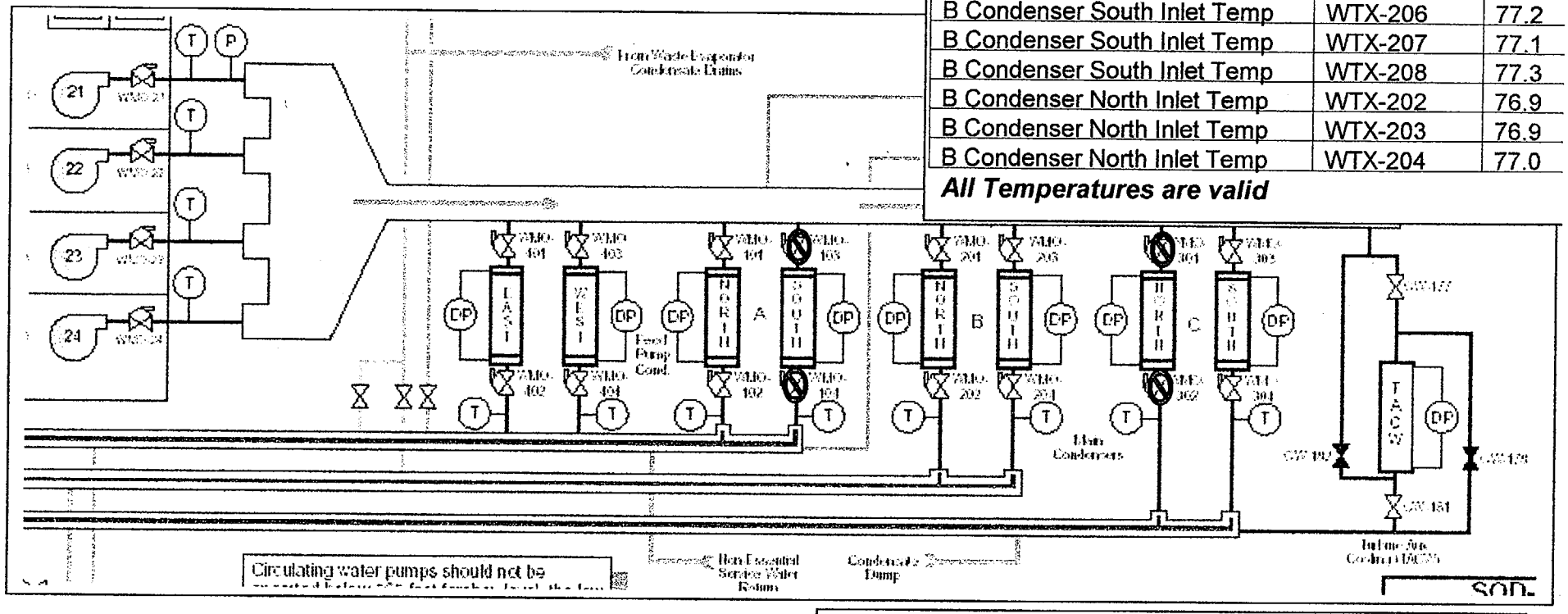
WTX-306 = 77.1
WTX-307 = 77.0
WTX-308 = 77.0

CT: Enters average of the three temperatures entered in boxes above in first Box (value should be between 76.9 °F – 77.3 °F)

CT: Operator Informs SRO that the Temperature is greater than 76.8 °F and fuel movement must be stopped since the reactor has been shutdown less than 148 hours. Per Tech Spec 3.9.3 Reports task completed.

JPM IS COMPLETE.

COURSE NUMBER AND TITLE:	N02-A1a Determine Ultimate Heat Sink Temperature	REVISION: 0



B Condenser South Inlet Temp	WTX-206	77.2
B Condenser South Inlet Temp	WTX-207	77.1
B Condenser South Inlet Temp	WTX-208	77.3
B Condenser North Inlet Temp	WTX-202	76.9
B Condenser North Inlet Temp	WTX-203	76.9
B Condenser North Inlet Temp	WTX-204	77.0

All Temperatures are valid

A Condenser South Inlet Temp	WTX-106	71.8
A Condenser South Inlet Temp	WTX-107	71.8
A Condenser South Inlet Temp	WTX-108	72.2
A Condenser North Inlet Temp	WTX-102	77.1
A Condenser North Inlet Temp	WTX-103	77.4
A Condenser North Inlet Temp	WTX-104	76.8

North Temperatures are valid

C Condenser South Inlet Temp	WTX-306	77.1
C Condenser South Inlet Temp	WTX-307	77.0
C Condenser South Inlet Temp	WTX-308	77.0
C Condenser North Inlet Temp	WTX-302	71.2
C Condenser North Inlet Temp	WTX-303	70.9
C Condenser North Inlet Temp	WTX-304	71.3

South Temperatures are valid

Task Briefing

Given the following:

- Unit 2 is in Mode 6.
- The reactor was shutdown 130 hours ago.
- Fuel Movement is in Progress.

MTI reports CW temperature transmitters are not functioning properly, due to a power supply problem, therefore SG-21, Circ Water Temp Recorder and PPC address U0200 are Out Of Service (OOS).

The Unit Supervisor directs you to perform step 14.2 of 02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 (pages 81 & 82) and to ensure all Acceptance Criteria are met for the current Circulating Water System configuration.

An AEO has already recorded the following temperature readings from the Unit 2 CW Inlets:

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WTX-108 = 72.2	WTX-208 = 77.3	WTX-308 = 77.0
WTX-102 = 77.1	WTX-202 = 76.9	WTX-302 = 71.2
WTX-103 = 77.4	WTX-203 = 76.9	WTX-303 = 70.9
WTX-104 = 76.8	WTX-204 = 77.0	WTX-304 = 71.3

Temperature readings were obtained using Instrument ID CNP-147, Make/Model FLUKE/2175 with Calibration Current (Last Cal. Performed on 05/07/2002)

N02-A1b

TITLE	**Setup SR & Audio Count Rate for Fuel Movement**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/23/2002**
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:	T. Werk	

COURSE NUMBER AND TITLE:	N02-A1b - Setup SR & Audio Count Rate for Fuel Movement	REVISION: 0

References

02-OHP-4021-013-005, Visual Audio Count Rate Channel

Task: 0130030101: Setup the Audio Count Rate Channel for Mode 6 operation
0130040101: Set up the Scaler Timer for 1/M plotting.

K/A CROSS REFERENCE: 2.2.30
K/A IMPORTANCE: RO 3.5

Evaluation Setting

Simulator

Handouts

Task Briefing for N02-A1b
Field Copy of 02-OHP-4021-013-005, Visual Audio Count Rate Channel

Attachments

None

Simulator Setup

Mode 6 conditions with snap # IC 998
Set Channel selector to OFF
Set Sampling Selector to SEC on Display Side and COUNT on the Preset side
Set thumbwheels to 03000
Set Audio Multiplier to 1000

COURSE NUMBER AND TITLE:	N02-A1b - Setup SR & Audio Count Rate for Fuel Movement	REVISION: 0

Task Objectives/Standards

When directed by the Unit Supervisor, Setup SR & Audio Count Rate for Fuel Movement observing all applicable precautions and limitations and procedure steps.

Task Briefing

MTI has just finished repairs on the Scaler Timer & Audio Count Rate Channel.

The US directs you to setup SR & Audio Count Rate for Fuel Movement.

- Source Range Channel N32 should be the selected channel for audio indication.
- The Audio Count rate should be setup to beep approximately once every 5 seconds.

Reference	02-OHP-4021-013-005	Rev. 6	Page 4 of 16
VISUAL AUDIO COUNT RATE CHANNEL (NIS)			
Attachment 1	Setup of Audio Count Rate Channel		Pages: 4 - 5

1 PURPOSE AND SCOPE

1.1 This attachment provides direction for setting up Audio Count Rate Channel. Upon completion there will be visual/audible indication in the control room and audible indication in containment.

2 PREREQUISITES

2.1 None.

3 PRECAUTIONS AND LIMITATIONS

3.1 Source assembly movement during core alterations may reduce audible count rate suddenly. Adjustment of audio multiplier setting may be needed to maintain audio count rate signal.

4 DETAILS

4.1 Place scaler timer POWER switch in ON position.

4.2 Check the following lights are lit on AUDIO COUNT RATE CHANNEL drawer:

- AUDIO POWER ON
- SCALER POWER ON

4.3 Place CHANNEL SELECTOR switch to desired source range channel.

4.4 Place SAMPLING MODE selector switch in the following positions:

- COUNT position on DISPLAY side
- SEC position on PRESET side

4.5 Volume control may be adjusted during sampling to any position that results in a comfortable volume for the audible count rate.

General CUES:

Operator checks the scaler timer "POWER" toggle switch in the "UP" position

Operator checks lights lit

CT: Operator places Channel Selector switch in "SRN32" position

CT: Operator places sampling mode switch in "COUNT/SEC" position

Operator checks "VOLUME" switch in any position

Reference	02-OHP-4021-013-005	Rev. 6	Page 5 of 16
VISUAL AUDIO COUNT RATE CHANNEL (NIS)			
Attachment 1	Setup of Audio Count Rate Channel		Pages: 4 - 5

NOTE
In the current configuration, the thumbwheels enter time values to the nearest tenth of a second.

4.6 Position thumbwheels to 00600 or other value as desired.

4.7 Place SAMPLING MODE toggle switch in AUTO.

4.8 Press the following pushbuttons:

4.8.1 STOP

4.8.2 RESET

4.8.3 START

4.9 Check GATE light is lit.

- **IF** GATE light is NOT lit, **THEN** notify I&C.

4.10 Place AUDIO MULTIPLIER switch in a position that results in a distinguishable gap between counts. (This step N/A if source range detectors are deenergized)

4.11 Verify count rate indication is audible in the following **[Ref. 7.2.1a]**:

- Control Room (This step N/A if source range detectors are deenergized)
- Containment (Mode 6 only)

CUE: If asked, as US request time value of 60 seconds.

CT: Operator sets thumbwheels to 00600

Operator checks sampling mode toggle switch in "AUTO" position

Operator depresses the pushbuttons

CT: the "START" is the critical portion of this step

Operator checks gate light lit

Operator adjusts audio multiplier switch to produce a distinguishable gap in audio output of about 5 seconds

Operator determines Containment Counts are audible by requesting report from operator in Containment.

CUE : A Beeping sound is heard in Containment.

Reports task completed.

JPM IS COMPLETE.

Task Briefing

MTI has just finished repairs on the Scaler Timer & Audio Count Rate Channel.

The US directs you to setup SR & Audio Count Rate for Fuel Movement.

- Source Range Channel N32 should be the selected channel for audio indication.
- The Audio Count rate should be setup to beep approximately once every 5 seconds.

N02-A2

TITLE	**Determine the Requirements for Isolating a PAC Cooler NESW Leak**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S.Pettinger	**10/23/2002**
	Signature:	S Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02—A2 - Determine the Requirements for Isolating a PAC Cooler NESW Leak	REVISION: 0

References

OP-1-5114-84 NESW Flow Diagram (P&ID)

K/A CROSS REFERENCE: 2.1.24
K/A IMPORTANCE: SRO 3.1 RO 2.8

Evaluation Setting

Classroom / Simulator

Handouts

Task Briefing for NO2-A2
OP-1-5114-84 NESW Flow Diagram (P&ID)

Attachments

None

Simulator Setup

N/A

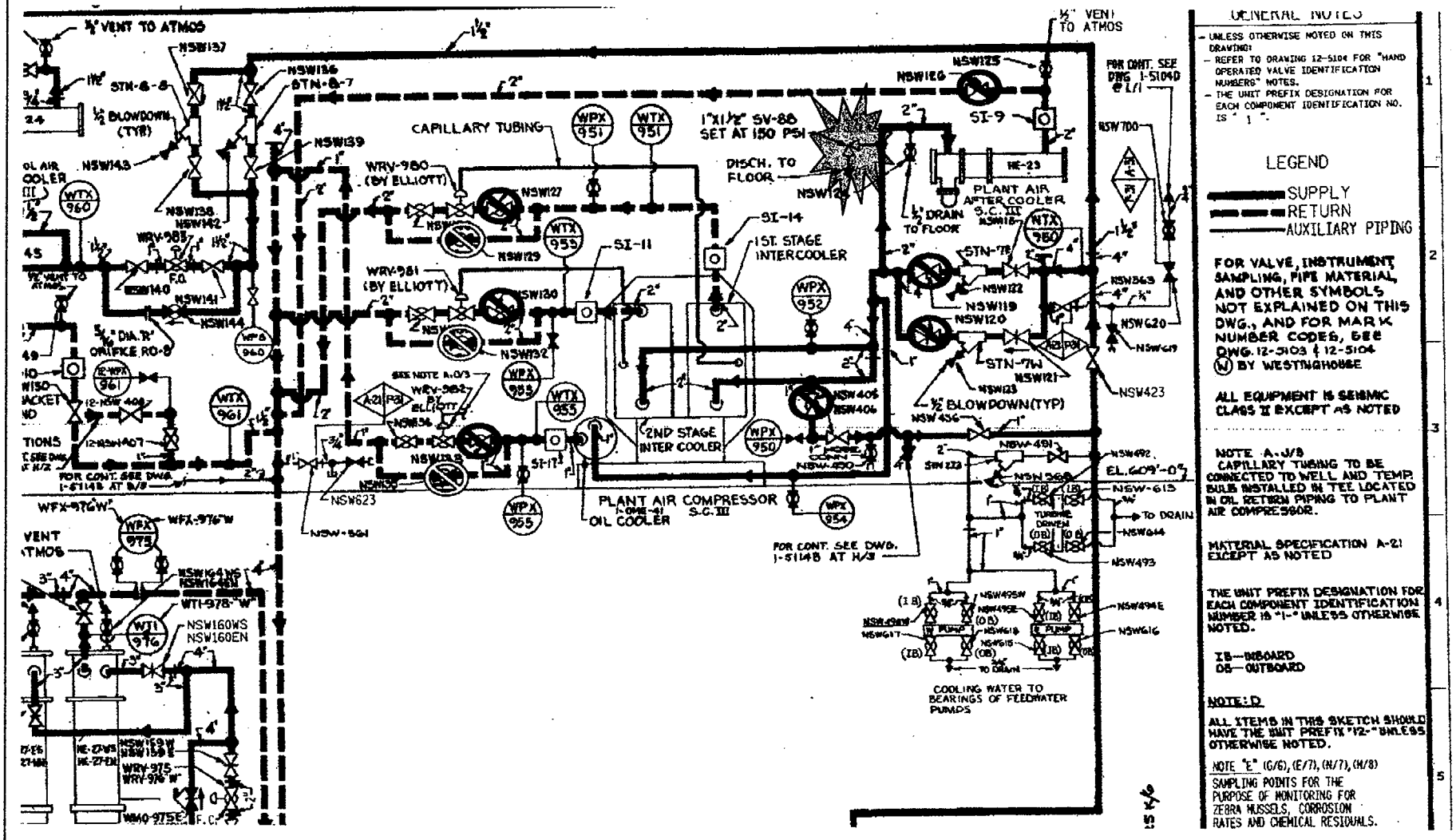
Task Objectives/Standards

The candidate identifies the valves that must be closed to isolate the safety valve SV-88.

Task Briefing

The Unit AEO reports that the Unit 1 NESW Supply to the Plant Air Compressor (PAC) Aftercooler Safety Valve SV-88 has been broken off and NESW water is spraying out. The Unit Supervisor directs you to identify the valves closest to the leak that will isolate the safety valve (leak) from the rest of the NESW system.

COURSE NUMBER AND TITLE:	N02—A2 - Determine the Requirements for Isolating a PAC Cooler NESW Leak	REVISION: 0



The candidate should locate OP-1-5114-84 Flow Diagram for Non Essential Service Water Unit No. 1

CUE: Provide copy of OP-1-5114-84 when candidate correctly locates micro fiche.

Locates SV-88 (@L-1)

Determines that the AEO must isolate the following Valves :

- **CT:** NSW-119 - Strainer Isolation Valve
- **CT:** NSW-120 - Strainer Isolation Valve
- **CT:** NSW-405 – NESW from PAC Strainer to Chem Room A/C
- **CT:** NSW-126 – Air After Cooler outlet
- **CT:** NSW-127 - 1st Stage Cooler Outlet Isolation
- NSW-129 - 1st Stage Cooler Outlet Bypass
- **CT:** NSW-130 - 2nd Stage Cooler Outlet Isolation
- NSW-132 - 2nd Stage Cooler Outlet Bypass
- **CT:** NSW-133 - Oil Cooler Outlet Isolation
- NSW-135 - Oil Cooler Outlet Bypass

Reports task completed.

JPM IS COMPLETE

Task Briefing

The Unit AEO reports that the Unit 1 NESW Supply to the Plant Air Compressor (PAC) Aftercooler Safety Valve SV-88 has been broken off and NESW water is spraying out.

The Unit Supervisor directs you to identify the valves closest to the leak that will isolate the safety valve (leak) from the rest of the NESW system.

N02-A3

TITLE	**Terminate a Liquid Release**
PROGRAM	**NRC License Exam**

REVISION	**0**
TIME	**25 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/23/2002**
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02-A3 - Terminate a Liquid Release	REVISION: 0

References

12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks
12-OHP-4024.139 #16 Annunciator Response

Task: 0060230104 Respond to an automatic termination of a liquid release.
0060170104 Release a Monitor Tank to the Circulating Water System.

K/A CROSS REFERENCE: 2.3.11
K/A IMPORTANCE: SRO 3.2 RO 2.7

Evaluation Setting

In-Plant (RCA) 581' Elevation Auxiliary Building

Handouts

Task Briefing
Pages 52 & 53 of 12-OHP-4024.139 #16 Annunciator Response
Evaluator - Enter Release Start TIME (1 hour ago) on:

- **Page 24 (Step 4.12) of 12-OHP-4021-006-004, Attachment 3**
- **Page 39 (Record Release Start time) of 12-OHP-4021-006-004, Data Sheet 1**

Prepared Release Package:

- 12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks:
- Attachment 3, Monitor Tank Release To The Circ. Water System
- Data Sheets 1, Monitor Tank Release Permit
- Lineup Sheet 3, Monitor Tank No. 3 Recirc Valve Lineup
- Line up Sheet 7, Monitor Tank No. 3 Release Valve Lineup
- Liquid Release Worksheet (1)

Attachments

None

Simulator Setup

N/A

COURSE NUMBER AND TITLE:	N02-A3 - Terminate a Liquid Release	REVISION: 0

Task Objectives/Standards

Terminates liquid release in accordance with:

- 12-OHP-4024.139 #16 Annunciator Response
- 12-OHP-4021-006-004, Attachment 3

EVALUATOR SETUP

Enter Release Start TIME (1 hour ago) on:

- **Page 24 (Step 4.12) of 12-OHP-4021-006-004, Attachment 3**
- **Page 39 (Record Release Start time) of 12-OHP-4021-006-004, Data Sheet 1**

Task Briefing

A Liquid release from Monitor Tank # 3 is in progress. The release is being directed to U2 Circ Water Discharge using the South Monitor Tank Pump. You have been given a turnover and the associated release package for completion once the release is completed. The current level in Monitor Tank # 3 is 43% and lowering.

The Control Room informs you that RRS-1001 has just went into High Radiation alarm. They request that you verify/perform actions per 12-OHP-4024.139 #16 Annunciator Response procedure.

12-OHP-4024-139

Level of Use: REFERENCE #16

ANNUNCIATOR #139 RESPONSE: RADIATION

RADIOACTIVE LIQUID EFFLUENT

AEP	INITIATING DEVICE(S) Alias		NOMINAL SETPOINT
	CHANNEL ID:		
RRS-1000 Monitor Alarm	RRS-1001 (Channel 1 Monitor)	High Radiation Channel Failure	Set by RP
	RRR-1002 (Channel 2 Monitor)	Low sample or effluent flow (If initialized)	
	RRA-1003 (Area Monitor)	Channel Failure High Radiation	
	RFS-1010 (Sample Flow)	High flow (90% increasing) Low Flow (20% decreasing)	

1 PROBABLE CAUSE(S):

1.1 RED:

- Movement of radioactive material in specified area.
- Low effluent flow.
- High/low sample flow.
- Channel failure.

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 CT.
- Any channel is in Fail External, Fail High, or Fail Low status.
- Any monitor fails communications program or Unit's CT is Off-Line.
- Sample flow is out of normal range by flow fail sensor.

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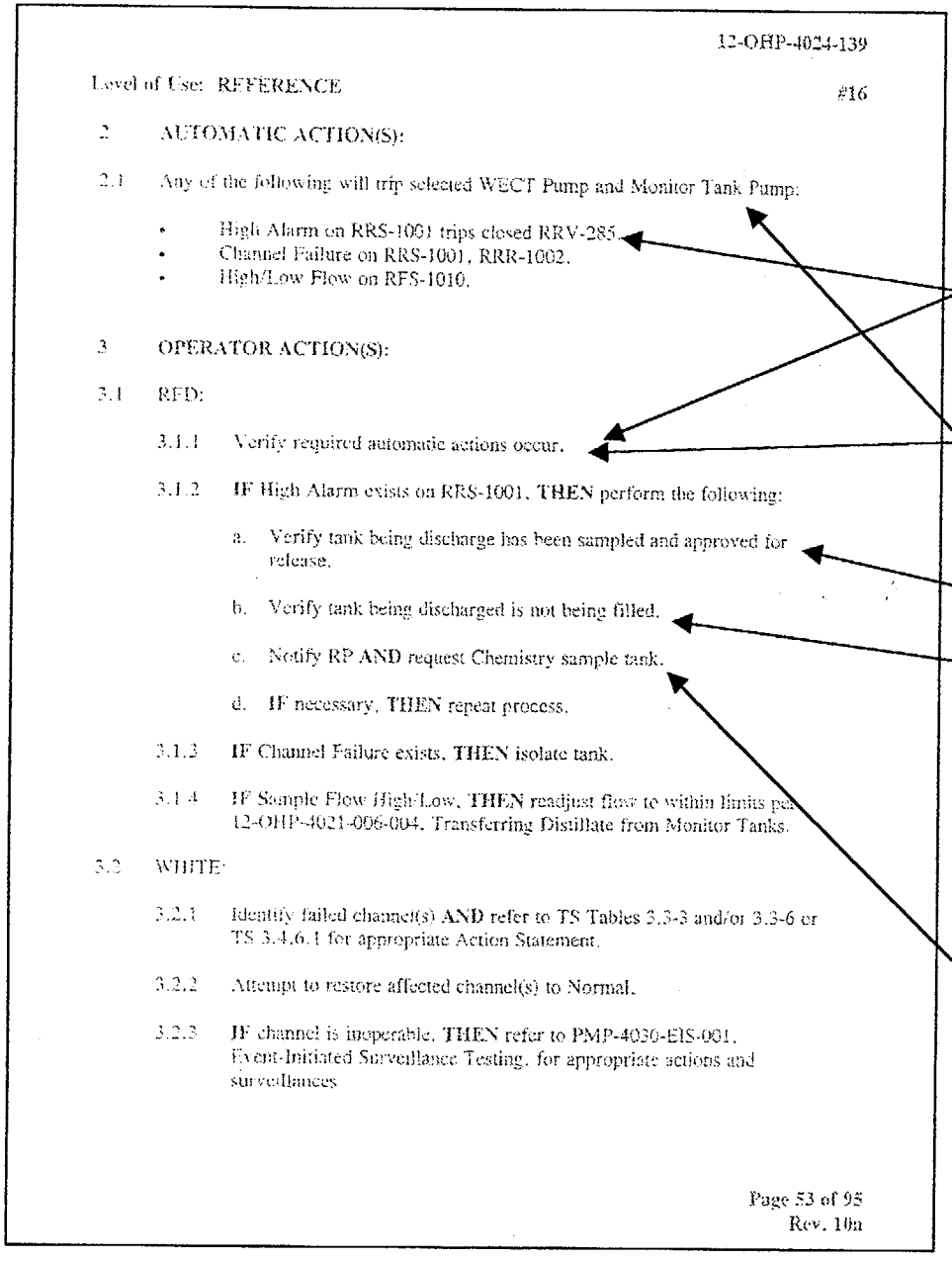
General CUES:

No cues on this page - operator actions start on next page.



12-OHP-4024-139

Level of Use: REFERENCE #16

2 AUTOMATIC ACTION(S):

2.1 Any of the following will trip selected WECT Pump and Monitor Tank Pump:

- High Alarm on RRS-1001 trips closed RRV-285.
- Channel Failure on RRS-1001, RRR-1002.
- High/Low Flow on RFS-1010.

3 OPERATOR ACTION(S):

3.1 RFD:

3.1.1 Verify required automatic actions occur.

3.1.2 IF High Alarm exists on RRS-1001, THEN perform the following:

a. Verify tank being discharge has been sampled and approved for release.

b. Verify tank being discharged is not being filled.

c. Notify RP AND request Chemistry sample tank.

d. IF necessary, THEN repeat process.

3.1.3 IF Channel Failure exists, THEN isolate tank.

3.1.4 IF Sample Flow High/Low, THEN readjust flow to within limits per 12-OHP-4021-006-004, Transferring Distillate from Monitor Tanks.

3.2 WHITE

3.2.1 Identify failed channel(s) AND refer to TS Tables 3.3-3 and/or 3.3-6 or TS 3.4.6.1 for appropriate Action Statement.

3.2.2 Attempt to restore affected channel(s) to Normal.

3.2.3 IF channel is inoperable, THEN refer to PMP-4030-EIS-001, Event-Initiated Surveillance Testing, for appropriate actions and surveillances

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Candidate may approach DAM and verify that the Red Light on top is flashing.

CUE: 12-RRV-285, red light lit and green light is dark

CT Student should simulate taking switch for 12-RRV-285 to the Close position.
CUE: "Switch clicks into place, red light is dark and green light is lit'

Candidate should place Control Switch for South Monitor Tank Pump in Trip
CUE: "Switch clicks into place, red light is dark and green light is lit

Checks Data Sheet 1 for Correct Tank Number and Approvals.

Reviews Lineup Sheet 7 to ensure tank is not being filled.
CUE: "Valves are in positions as indicated by lineup sheet 7"
(Evaluator Note: Candidate may want to physically check 12-CS-267-3 CVCS Monitor Tank 12-TK-14-3 Inlet Valve instead of Lineup Sheet 7. This valve is a CHAIN operated valve located by the #3 Monitor Tank.)
CUE: (If Required) 12-CS-267-3 is closed

Notify RP & request another tank sample from Chemistry.
CUE: "Control Room has notified Radiation Protection and Chemistry. The Unit Supervisor requests that you close out release paperwork Attachment 3, Steps 4.13 through 4.16."

Reference	12-OHP-4021-006-004	Rev. 25	Page 25 of 58
Transferring Distillate From Monitor Tanks			
Attachment 3	Monitor Tank Release To The Circ Water System		Pages: 14 - 28

MONITOR TANK NO. _____ RELEASE NO. _____

4.13 **IF** release monitor trips off due to external failure, **THEN** perform the following:

4.13.1 Press ALM ACK button on front of RRS-1000 DAM to enable start of release with low sample flow. ____ ____

4.13.2 Verify amber FAILURE light on RRS-1000 DAM - NOT LIT. ____ ____

4.13.3 Open 12-RRV-284, Liquid Waste Disposal Effluent Header Control Valve. ____ ____

4.13.4 Restart Monitor Tank Pump. ____ ____

4.13.5 Perform Steps 4.10.6, 4.10.7, 4.11.3 through 4.12. ____ ____

NOTE: In order to open 12-RRV-285 after high alarm on RRS-1001, monitor must be flushed to reduce radioactivity below alarm point.

4.14 **IF** 12-RRV-285 closes because of high radiation detected by RRS-1001, **THEN** perform the following:

4.14.1 Notify Radiation Protection. ____

4.14.2 Close AND seal 12-WD-166, Rad Liquid Waste Disposal Effluent Control Valve 12-RRV-285 Inlet Valve. ____ ____

4.14.3 Close the applicable valve:

a. 1-RRV-287 ____

b. 2-RRV-286 ____

4.14.4 N/A step 4.15 of this attachment. ____

4.15 **IF** desired, **THEN** request Control Room perform the following **WHEN** at approximately 5% prior to expected release termination level:

4.15.1 Print release history of RFS-1010 and RFA-1011. ____

4.15.2 Place RFS-1010 and RFA-1011 in POLL OFF at RMS-CT. ____

This section is N/A

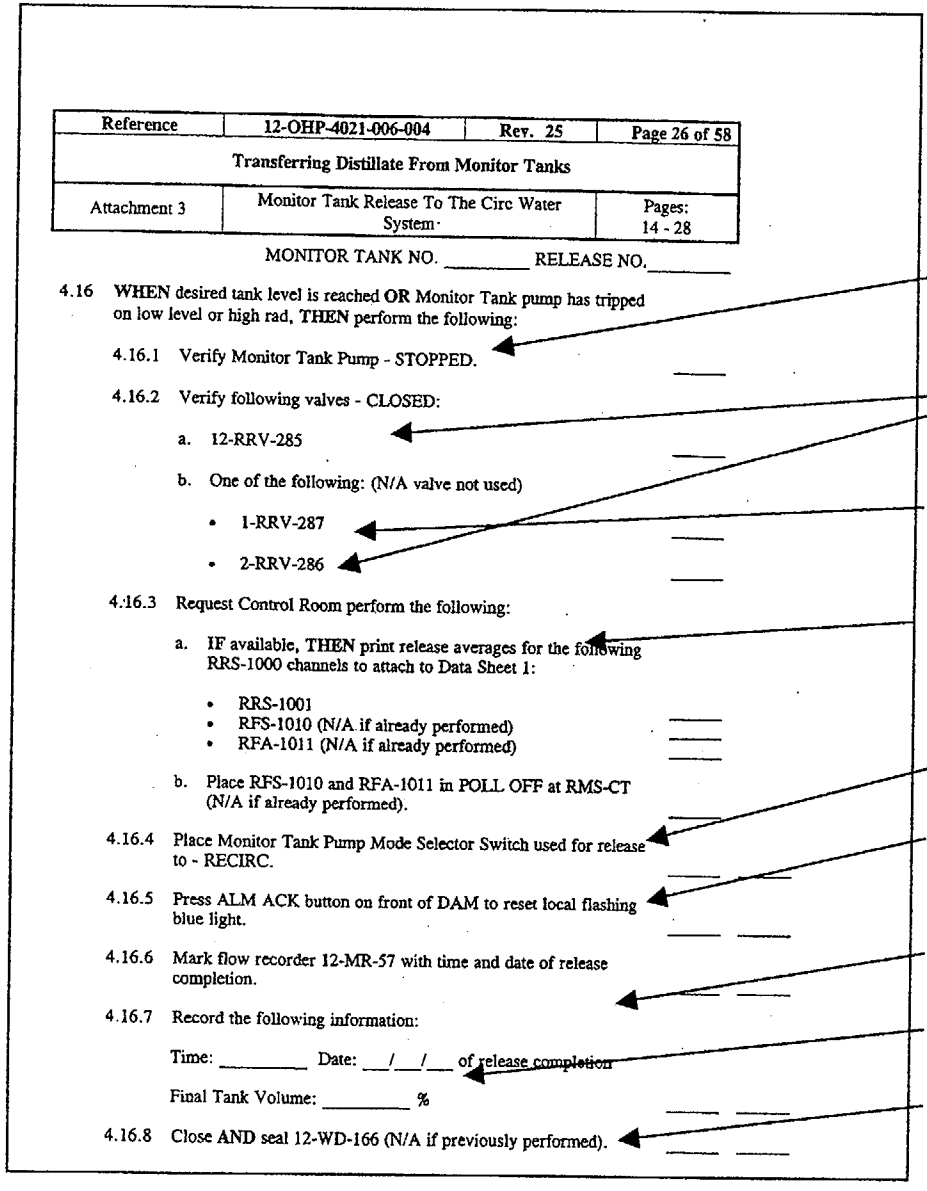
Notifies Radiation Protection
CUE: "Radiation Protection has been notified"

Obtains seal and closes 12-WD-166. Places seal on the valve.

CUE: Handwheel has stopped moving.
CUE: Independent Verification is complete

CT Student should simulate taking switch for 2-RRV-286 to the Close position.
CUE: "Switch clicks into place, red light is dark and green light is lit"

N/A - This will be performed in step 4.16.3



Reference	12-OHP-4021-006-004	Rev. 25	Page 26 of 58
Transferring Distillate From Monitor Tanks			
Attachment 3	Monitor Tank Release To The Circ Water System		Pages: 14 - 28

MONITOR TANK NO. _____ RELEASE NO._____

4.16 WHEN desired tank level is reached OR Monitor Tank pump has tripped on low level or high rad, THEN perform the following:

4.16.1 Verify Monitor Tank Pump - STOPPED. ____

4.16.2 Verify following valves - CLOSED:

a. 12-RRV-285 ____

b. One of the following: (N/A valve not used)

- 1-RRV-287 ____
- 2-RRV-286 ____

4.16.3 Request Control Room perform the following:

a. IF available, THEN print release averages for the following RRS-1000 channels to attach to Data Sheet 1:

- RRS-1001 ____
- RFS-1010 (N/A if already performed) ____
- RFA-1011 (N/A if already performed) ____

b. Place RFS-1010 and RFA-1011 in POLL OFF at RMS-CT (N/A if already performed). ____

4.16.4 Place Monitor Tank Pump Mode Selector Switch used for release to - RECIRC. ____ ____

4.16.5 Press ALM ACK button on front of DAM to reset local flashing blue light. ____ ____

4.16.6 Mark flow recorder 12-MR-57 with time and date of release completion. ____ ____

4.16.7 Record the following information:

Time: _____ Date: __/__/__ of release completion

Final Tank Volume: _____ % ____ ____

4.16.8 Close AND seal 12-WD-166 (N/A if previously performed). ____ ____

Monitor tank pump should have been stopped earlier, if not:
CUE: "Red light goes out and green light illuminates"
When Candidate places South Monitor Tank Pump switch to Stop.

12-RRV-285 and 2-RRV-286 should already be closed with green lights illuminated and red lights out.

Student may check 1-RRV-287 closed.
CUE: "Red light out and green light lit."

Candidate should have Control Room perform steps 4.16.3
CUE: "The Control room has printed the release history. RFS-1010 & RFA-1011 have been placed in POLL OFF at RMS-CT."

Places South Monitor Tank Pump Mode Selector Switch to Recirc
CUE: "Switch is in Recirc and Independent Verification is complete."
Presses ALM ACK button on DAM
CUE: "Blue Light has stopped flashing and Independent Verification is complete.
Marks Flow Recorder – **CUE:** Recorder is marked and Independent Verification is complete.
Enters Time & Date & Level – **CUE:** "Monitor Tank 3 level is 42% - Independent Verification is complete."
N/A – Already Performed
Reports task completed.

JPM IS COMPLETE.

Task Briefing

A Liquid release from Monitor Tank # 3 is in progress. The release is being directed to U2 Circ Water Discharge using the South Monitor Tank Pump. You have been given a turnover and the associated release package for completion once the release is completed. The current level in Monitor Tank # 3 is 43% and lowering.

The Control Room informs you that RRS-1001 has just went into High Radiation alarm. They request that you verify/perform actions per 12-OHP-4024.139 #16 Annunciator Response procedure.

N02-A4

TITLE	**Complete EMD-32a Nuclear Plant Notification Form**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**10 Minutes**

Revision 0: Initial Issue

			DATE:
DEVELOPING INSTRUCTOR:	Name:	Dale Tidwell	**10/23/2002**
	Signature:	S Kelly for D. T.	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02-A4 Complete EMD-32a Nuclear Plant Event Notification	REVISION: 0

References

Procedure: PMP-2080-EPP-107 revision 16, Notification

Task: EPP 0030701 Perform Initial Offsite Notification

K/A CROSS REFERENCE: 2.4.39

K/A IMPORTANCE: SRO 3.1 RO 3.3

Evaluation Setting

Classroom

Handouts

Task Briefing & MIDAS Summary
EMD-32a Nuclear Plant Event Notification (blank form)

Attachments

None

Simulator Setup

None

COURSE NUMBER AND TITLE:	N02-A4 Complete EMD-32a Nuclear Plant Event Notification	REVISION: 0

Task Objectives/Standards

Complete the EMD-32a, Nuclear Plant Event Notification for notification of state agencies.

Task Briefing

You are an extra Control Room Operator on Unit 1. At the beginning of your shift, Unit 1 is operating at 100% rated power with the turbine-driven auxiliary feed water pump tagged out for maintenance.

During your shift, a severe electrical storm causes a total loss of offsite power when lightning strikes the 345 KV Switchyard.

Although both emergency diesel generators start, a total loss of AC power occurs on Unit 1 when neither emergency diesel generator successfully energizes their associated busses.

The crew successfully restores power to the T11C and T11D safety related busses from the 1CD Diesel within 8 minutes of the loss of AC power.

Although the plant is stable, efforts to restore power from the 1AB Diesel as well as offsite power have not been successful and are expected to take at least one hour.

The Shift Manager has just declared an Alert per initiating condition S-2, Loss of AC. Classification Time is (Use Current Time _____ & have candidate enter on briefing handout)

THIS IS A TIME CRITICAL JPM

After classifying the Alert condition The Shift Manager appoints you as the Plant Communicator and instructs you to complete EMD-32a, Nuclear Plant Event Notification form for approval.

All radiation monitors are indicating normal activity / expected levels. There are NO radiation alarms.

Meteorological Data – MIDAS Summary is provided.

Reference	PMP-2080-EPP-107	Rev. 16	Page 4 of 13
Notification			

FOR AN ALERT:

"Attention all personnel. Attention all personnel. An Alert has been declared due to _____(brief description)____. Activate the Operations Support Center, Technical Support Center, Emergency Operations Facility and the Emergency News Center. All other personnel stand by for further announcement."

FOR A SITE AREA EMERGENCY OR GENERAL EMERGENCY:

Sound the Nuclear Emergency Alarm from the Control Room and broadcast the following:

"Attention all personnel. Attention all personnel. A __(Site Area Emergency or General Emergency)__ has been declared due to ___(brief description)___. Activate the Technical Support Center, Operations Support Center, Emergency Operations Facility, and Joint Public Information Center. All other personnel report for accountability."

3.2.4 On any touch-tone telephone, dial 1646 to access the Training Center and Buchanan Office Building PA and repeat the announcement that was made in step 3.2.3 twice.

3.2.5 Within 15 minutes of the classification of any emergency perform the following:

a. Complete Nuclear Plant Accident Notification form, EMD-32a, (from Emergency Kit or DAP printout).

b. Contact:

- Michigan State Police (MSP) at 8-1-517-336-6250 using the MSP bridge phone (extension 1088) in the back of the Control Room.
- Berrien County Sheriff's Department at 8-1-616-983-3911.

c. Document phone calls on Data Sheet 1, Shift Manager Initial Notification List.

EMD-32a must be completed and the state and county notifications made within 15 minutes of the Alert classification.

d. Provide the information from Nuclear Plant Accident Notification form, verbally to the MSP and the Berrien County Sheriff's Department.

e. Request a call back from the MSP and Berrien County Sheriff's Department.

f. Inform the MSP that Nuclear Plant Accident Notification form will be faxed.

3.2.6 Fax Nuclear Plant Accident Notification form, to the MSP: Fax number 8-1-517-336-6257.

NOTE: If BROADCAST is pushed on the fax machine all of the locations listed in step 3.2.7 will receive the fax. If BROADCAST is NOT used then each of the locations will have to be individually faxed at the numbers listed in step 3.2.7.

3.2.7 IF an Alert, Site Area Emergency or General Emergency exists, THEN make follow-up notifications to the below listed facilities by faxing:

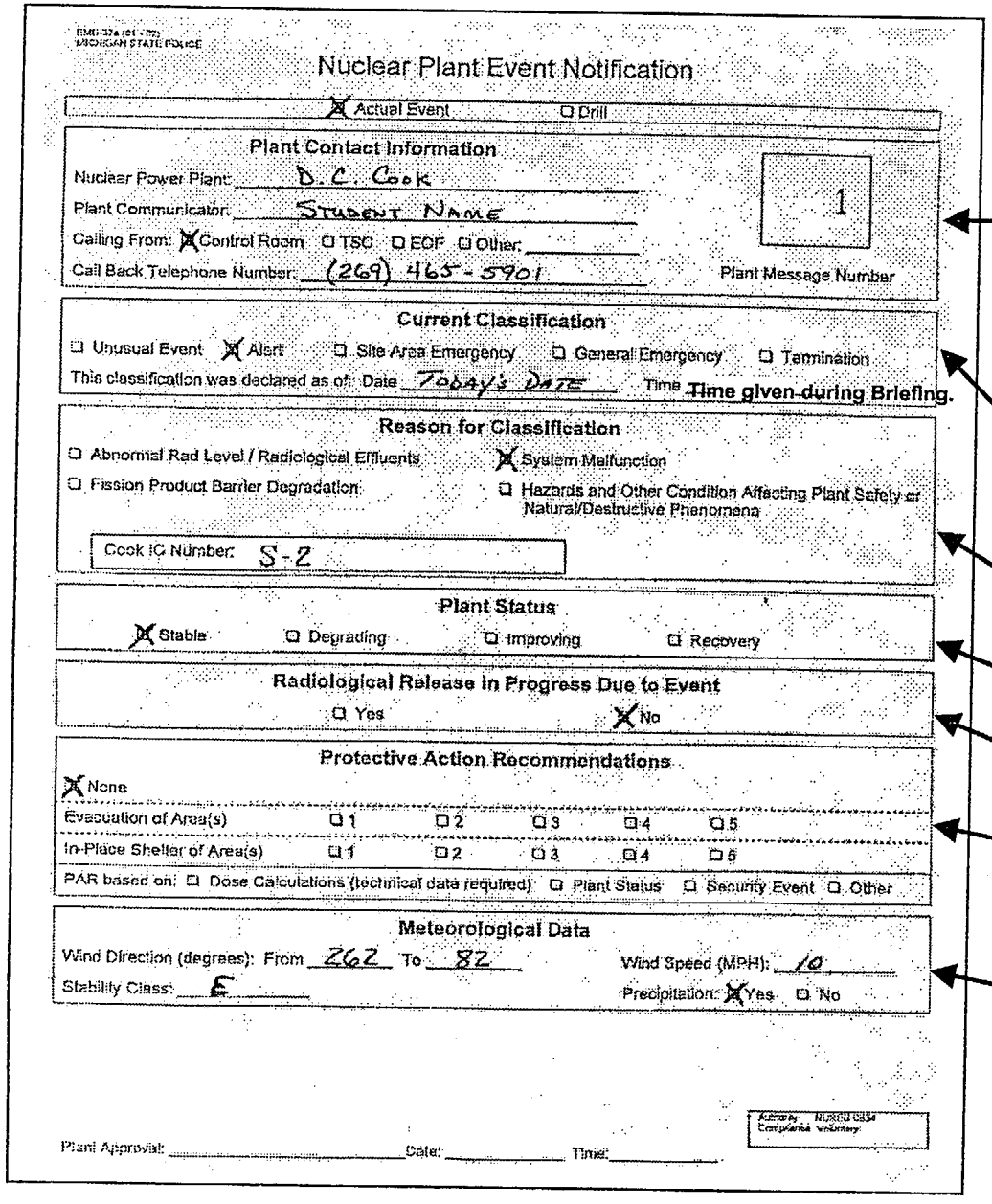
- EMD-32a, Nuclear Plant Accident Notification, within 15 minutes of a change of classification or Protective Action Recommendation
- EMD-32b, Nuclear Plant Event Technical Data, every 30 minutes there after until relieved by the EOF.

Michigan State Police	8-1-517-336-6257
State Emergency Operations Center	8-1-517-333-4987
Emergency Operations Facility	8-284-2942
Emergency News Center/JPIC	8-284-5892
Visitors' Center	2906 or 2907

3.2.8 For all classifications, including classification upgrades, the Shift Manager or designee shall:

a. Provide the information on Data Sheet 2, Plant Status, to the NRC as soon as possible after the State and County have been notified, and within one hour of classification.

- Make the notification in accordance with the instructions in PMP-7030-001-001, Prompt NRC Notification.



EMD-32a (01-02)
MICHIGAN STATE POLICE

Nuclear Plant Event Notification

☒ Actual Event ☐ Drill

Plant Contact Information

Nuclear Power Plant: D. C. Cook

Plant Communicator: Student Name

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

Call Back Telephone Number: (269) 465-5901

Plant Message Number: 1

Current Classification

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

This classification was declared as of: Date Today's Date Time Time given during Briefing.

Reason for Classification

☐ Abnormal Rad Level / Radiological Effluents ☒ System Malfunction

☐ Fission Product Barrier Degradation ☐ Hazards and Other Condition Affecting Plant Safety or Natural/Destructive Phenomena

Cook IC Number: S-2

Plant Status

☒ Stable ☐ Degrading ☐ Improving ☐ Recovery

Radiological Release in Progress Due to Event

☐ Yes ☒ No

Protective Action Recommendations

☒ None

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

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

PAR based on: ☐ Dose Calculations (technical data required) ☐ Plant Status ☐ Security Event ☐ Other

Meteorological Data

Wind Direction (degrees): From 262 To 82 Wind Speed (MPH): 10

Stability Class: E Precipitation: ☒ Yes ☐ No

Plant Approval: _____ Date: _____ Time: _____

Authority: NUREG 0654
Compliance Voluntary

All items should be completed on the form prior to submitting to the Site Emergency Coordinator for approval.

"Actual Event" box marked (for purposes of this JPM "Drill" is also acceptable)
CT: - "D. C. Cook" the plant MUST be identified
"1" entered since this is the initial notification (CR1 is also acceptable)
"Control Room" box marked
Plant number given, however other control room telephone numbers are acceptable

CT: - "Alert" box MUST be marked
CT: - Today's date and time of Classification (Given during the briefing) MUST be filled in

"System Malfunction" box marked
CT: - "S-2" MUST be filled in

CT: - "Stable" box MUST be marked

CT: - "No" box MUST be marked

CT: - "None" box MUST be marked

Wind from "262°" to "82°" filled in
Wind speed "10" mph filled in
Stability Class "E" filled in
Precipitation "Yes" box marked

Student reports form complete and ready for SEC approval.
JPM IS COMPLETE.

Task Briefing

You are an extra Control Room Operator on Unit 1. At the beginning of your shift, Unit 1 is operating at 100% rated power with the turbine-driven auxiliary feed water pump tagged out for maintenance.

During your shift, a severe electrical storm causes a total loss of offsite power when lightning strikes the 345 KV Switchyard.

Although both emergency diesel generators start, a total loss of AC power occurs on Unit 1 when neither emergency diesel generator successfully energizes their associated busses.

The crew successfully restores power to the T11C and T11D safety related busses from the 1CD Diesel within 8 minutes of the loss of AC power.

Although the plant is stable, efforts to restore power from the 1AB Diesel as well as offsite power have not been successful and are expected to take at least one hour.

The Shift Manager has just declared an Alert per initiating condition S-2, Loss of AC. Classification Time is _____

After classifying the Alert condition The Shift Manager appoints you as the Plant Communicator and instructs you to complete EMD-32a, Nuclear Plant Event Notification form for approval.

All radiation monitors are indicating normal activity / expected levels. There are NO radiation alarms.

Meteorological Data – MIDAS Summary is provided.

Meteorological Data – MIDAS Summary

Delta Temperature – Main Tower	-0.3°F
Wind Direction 10M – Main Tower	262°
Wind Speed 10M – Main Tower	10 mph
Precipitation – Main Tower	Rain
Wind Direction 10M – Backup Tower	268°
Wind Speed 10M – Backup Tower	12 mph
Wind Direction 60M – Main Tower	271°
Wind Speed 60M – Main Tower	13 mph
Standard Deviation 10M Main	0°
Standard Deviation 10M Backup	0°
Standard Deviation 10M Main	0°
Pasquill Category	E
Outside Temperature	60.8°F
Lake Breeze	NA

N02-A5a

TITLE	**Verify Ultimate Heat Sink Temperature Determination (SRO review)**
PROGRAM	**NRC License Exam**

REVISION	**0**
TIME	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/23/2002**
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:	T. Werk	

COURSE NUMBER AND TITLE:	N02-A5a - Verify Ultimate Heat Sink Temperature Determination	REVISION: 0

References

02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 pages 81 & 82
OP-2-5119A, Flow Diagram Circulating Water, Priming System & Screen Wash (P&ID)

Task: STP0390201 Perform Shiftly Surveillance Checks for Modes 5 & 6

K/A CROSS REFERENCE: 2.1.7
K/A IMPORTANCE: RO 3.7 SRO 4.4

Evaluation Setting

Simulator

Handouts

Task Briefing of N02-A5a
Completed Data Sheet 5, step 14.0
If requested then provide candidate with OP-2-5119A, CW System (P&ID)

Attachments

None

Simulator Setup

Reset to Mode 6 IC 998
Close CW Condenser Inlet and Outlet valves:

- A Condenser South 2-WMO-103 & 104
- C Condenser North 2-WMO-301 & 302

Shutdown #21 & #22 CW Pumps (2 CW Pumps left running)

COURSE NUMBER AND TITLE:	N02-A5a - Verify Ultimate Heat Sink Temperature Determination	REVISION: 0

Task Objectives/Standards

The Candidate performs a review of a complete surveillance, identifies that the South Waterbox for "A" condenser and the North Waterbox for the "C" condenser are Isolated and the associated temperatures are not used for the calculations. The Candidate identifies that CW Temperature is > 76.8 F And Fuel Movement must be stopped until the reactor has been shutdown for >148 hours.

Task Briefing

Given the following:

- You are the Unit 2 Unit Supervisor
- Unit 2 is currently in MODE 6.
- The reactor was shutdown 130 hours ago.
- Fuel Movement is currently in progress.

MTI reports CW temperature transmitters are not functioning properly, due to a power supply problem, therefore SG-21, Circ Water Temp Recorder and PPC address U0200 are Out Of Service (OOS).

The RO has just performed step 14.2 of 02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 (pages 81 & 82) based on the following local circ. Water inlet temperature readings obtained by the AEO:

Condenser A	Condenser B	Condenser C
WTX-106 = 71.8	WTX-206 = 77.2	WTX-306 = 77.1
WTX-107 = 71.8	WTX-207 = 77.1	WTX-307 = 77.0
WTX-108 = 72.2	WTX-208 = 77.3	WTX-308 = 77.0
WTX-102 = 77.1	WTX-202 = 76.9	WTX-302 = 71.2
WTX-103 = 77.4	WTX-203 = 76.9	WTX-303 = 70.9
WTX-104 = 76.8	WTX-204 = 77.0	WTX-304 = 71.3

Temperature readings were obtained using Instrument ID CNP-147, Make/Model FLUKE/2175 with Calibration Current (Last Cal. Performed on 05/07/2002)

Review step 14.2 of 02-OHP-4030-STP-030 (pages 81 & 82) for accuracy and to ensure all Acceptance Criteria are met for the current Circulating Water System configuration. Be sure to mark any and all errors identified

COURSE NUMBER AND TITLE:	N02-A5a - Verify Ultimate Heat Sink Temperature Determination	REVISION: 0

Continuous	02-OHP-4030-STP-030	Rev. 39	Page 81 of 145
DAILY AND SHIFTLY SURVEILLANCE CHECKS			
Data Sheet 5	Shift Surveillance Checks Modes 5, 6 and Defueled		Pages: 70 - 83

	Instrument Title & No.	00-08 Value	08-16 Value	16-24 Value	Acceptance Criterion

NOTE: **The temperature monitoring in Step 14.0 is N/A when TS 3.9.3 does not apply, i.e., after the 148 hour decay time has been met or when not moving irradiated fuel in the reactor vessel. This monitoring is to validate temperature limits in TS Bases.
Decay Times – at least 100 hours from September 15 through June 8*, or at least 148 hours from June 9* through September 14. (TS 3.9.3)
*The June dates were changed to be more conservative than the TS applicability to support the TS 3/4.9.3 Bases discussion to ensure sufficient decay time for June outages.
+Circulating Water Temperature from either unit may be used, indicate unit used.

14.0 14.1 Circ Wtr Temp+:

- Take reading from SG-21 Point 1, Circ Water Temp Recorder. U1 ☐ U2 ☑

N/A °F	°F	°F

- IF recorder is energized and the printer is inoperable, THEN take readings from the PPC, U0200. OOS PPC INOPERABLE

- OR -

14.2 IF Circ Water Temp is greater than or equal to 72°F OR measurement cannot be obtained in Step 14.1 OR a more accurate value is desired, THEN obtain an M&TE calibrated temperature measurement instrument and perform the following:

Record instrument ID CNP-147
Instrument make/model: FLUKE/2175
Current calibration Y/N Yes

Take one inlet temperature measurement of each Condenser in service using the M&TE calibrated instrument with ±1°F uncertainty and calculate the average.

U1 ☐ U2 ☐

Condenser A Circ Water Inlet:+

Check box for inlet measured:
- ☐ WTX-106 or
- ☐ WTX-107 or
- ☐ WTX-108 or
- ☐ WTX-102 or
- ☐ WTX-103 or
- ☐ WTX-104

74.5 °F	°F	°F

TS 3.9.3** for Decay Time:

Step 14.1 - Less than or equal to 74.6°F on SG-21 Point 1, (i.e., 77.8 ± 3.2°F instrument uncertainty)
-OR-
Step 14.2 – less than or equal to 76.8°F (i.e., 77.8 ± 1°F instrument uncertainty for M&TE calibrated Fluke-52 with a 12" probe, or equivalent).

IF the Unit is in MODE 6 with movement of irradiated fuel in the vessel in progress between September 15 and June 8* with:
- Decay Time from 100 hrs to 148 hrs
-AND-
- Circ Wtr Temp >74.6°F (using Step 14.1) OR >76.8°F (using Step 14.2)

THEN STOP movement of irradiated fuel until either of the following conditions are met:
- Circ Wtr Temp is ≤74.6°F (using Step 14.1) OR ≤76.8°F (using Step 14.2)
-OR-
- Decay Time is greater than 148 hrs.

C4 C8 C8 C4

General CUES:

If requested then provide OP-2-5119A, CW System (P&ID)

The SRO review of the data should identify the following errors:
1. Temperature readings were averaged vice specific temperature selected and recorder
2. Temperature readings for isolated waterboxes should be excluded (WTX-106, 107,108, 302, 303 and 304)

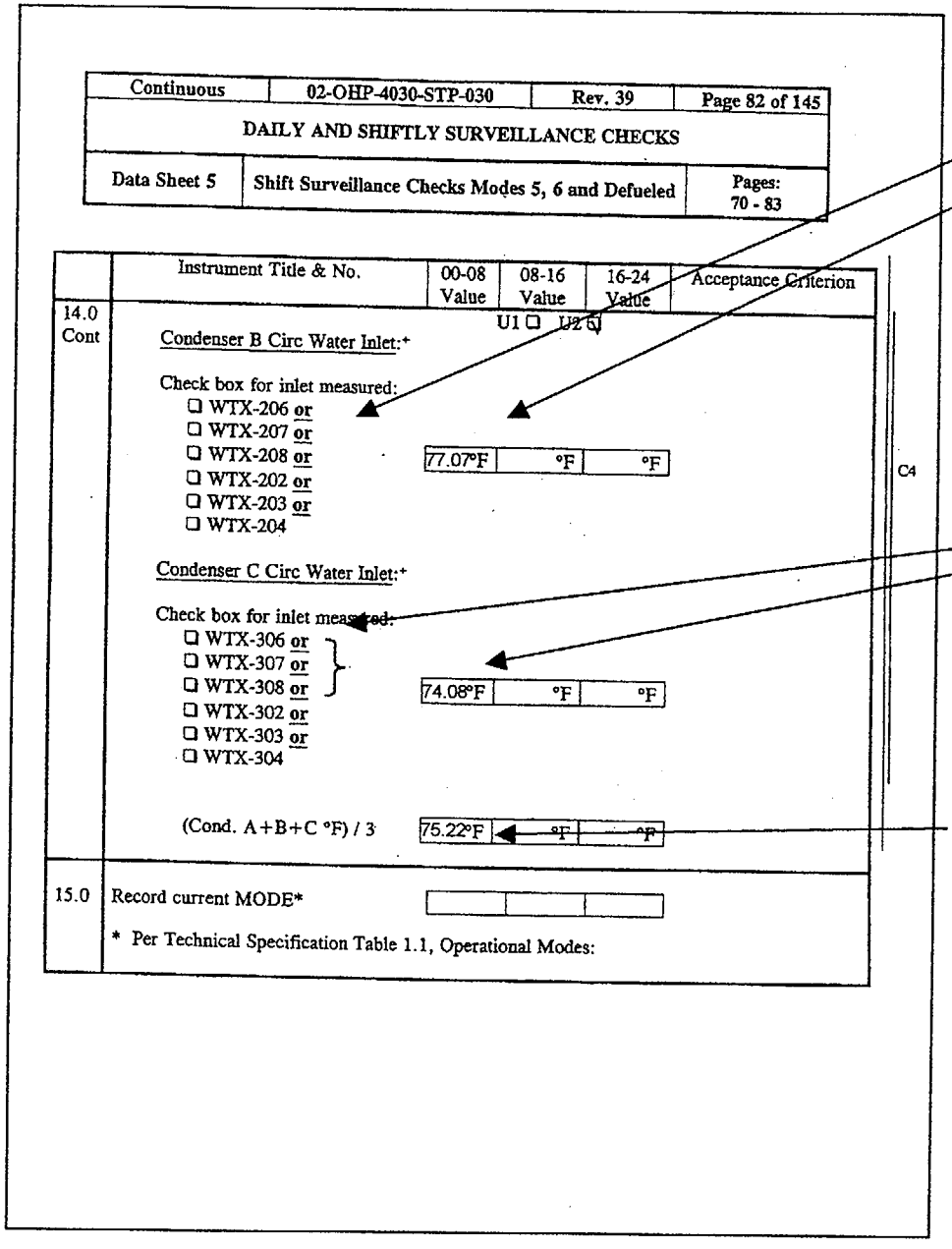
Step is N/A due to Temperature Indicator Problems

Reviews instrument data for accuracy.

Identifies that "U2" Box is not checked.

CT: Determines a box is not checked and that the temperature logged (74.5°F, averaged temperature was used instead of 1 temperature) is in error and should be one of the following:

WTX-102 = 77.1
WTX-103 = 77.4
WTX-104 = 76.8



Continuous	02-OHP-4030-STP-030	Rev. 39	Page 82 of 145
DAILY AND SHIFTLY SURVEILLANCE CHECKS			
Data Sheet 5	Shift Surveillance Checks Modes 5, 6 and Defueled		Pages: 70 - 83

	Instrument Title & No.	00-08 Value	08-16 Value	16-24 Value	Acceptance Criterion
14.0 Cont	U1 ☐ U2 ☐				
	Condenser B Circ Water Inlet:+				
	Check box for inlet measured: ☐ WTX-206 or ☐ WTX-207 or ☐ WTX-208 or ☐ WTX-202 or ☐ WTX-203 or ☐ WTX-204	77.07°F	°F	°F	C4
	Condenser C Circ Water Inlet:+				
	Check box for inlet measured: ☐ WTX-306 or ☐ WTX-307 or ☐ WTX-308 or ☐ WTX-302 or ☐ WTX-303 or ☐ WTX-304	74.08°F	°F	°F	
	(Cond. A+B+C °F) / 3	75.22°F	°F	°F	
15.0	Record current MODE*				
	* Per Technical Specification Table 1.1, Operational Modes:				

CT: Determines a box is not checked and that the temperature logged (77.07°F, averaged temperature was used instead of 1 temperature) is in error and should be one of the following:

WTX-206 = 77.2
WTX-207 = 77.1
WTX-208 = 77.3
WTX-202 = 76.9
WTX-203 = 76.9
WTX-204 = 77.0

CT: Determines a box is not checked and that the temperature logged (74.08°F, averaged temperature was used instead of 1 temperature) is in error and should be one of the following:

WTX-306 = 77.1
WTX-307 = 77.0
WTX-308 = 77.0

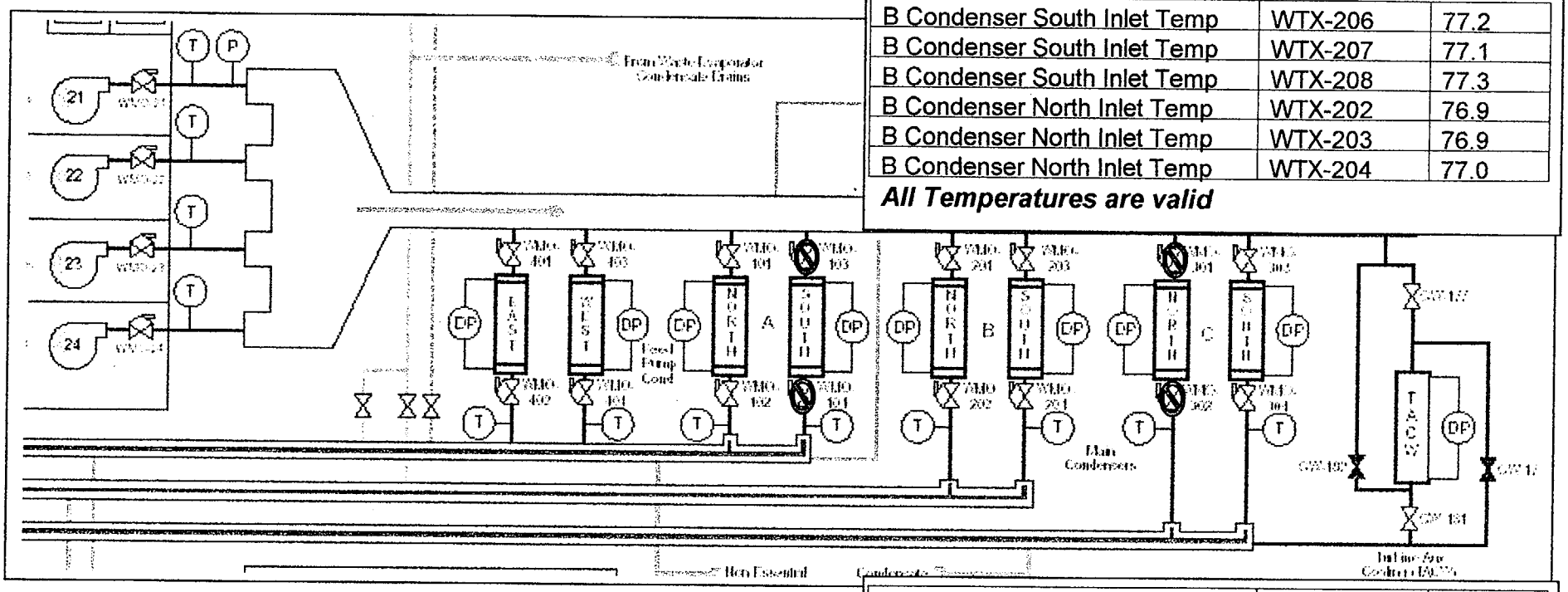
CT: Determines average temperature logged (75.22 °F) is in error (should be between 76.9 °F – 77.3 °F).

CT: SRO review of Acceptance Criteria has identified that the average temperature is greater than 76.8 °F and fuel movement must be stopped since the reactor has been shutdown less than 148 hours. Per Tech Spec 3.9.3

Reports task completed.

JPM IS COMPLETE.

COURSE NUMBER AND TITLE:	N02-A5a - Verify Ultimate Heat Sink Temperature Determination	REVISION: 0



B Condenser South Inlet Temp	WTX-206	77.2
B Condenser South Inlet Temp	WTX-207	77.1
B Condenser South Inlet Temp	WTX-208	77.3
B Condenser North Inlet Temp	WTX-202	76.9
B Condenser North Inlet Temp	WTX-203	76.9
B Condenser North Inlet Temp	WTX-204	77.0

All Temperatures are valid

A Condenser South Inlet Temp	WTX-106	71.8
A Condenser South Inlet Temp	WTX-107	71.8
A Condenser South Inlet Temp	WTX-108	72.2
A Condenser North Inlet Temp	WTX-102	77.1
A Condenser North Inlet Temp	WTX-103	77.4
A Condenser North Inlet Temp	WTX-104	76.8

North Temperatures are valid

C Condenser South Inlet Temp	WTX-306	77.1
C Condenser South Inlet Temp	WTX-307	77.0
C Condenser South Inlet Temp	WTX-308	77.0
C Condenser North Inlet Temp	WTX-302	71.2
C Condenser North Inlet Temp	WTX-303	70.9
C Condenser North Inlet Temp	WTX-304	71.3

South Temperatures are valid

Task Briefing

Given the following:

- You are the Unit 2 Unit Supervisor
- Unit 2 is currently in MODE 6.
- The reactor was shutdown 130 hours ago.
- Fuel Movement is currently in progress.

MTI reports CW temperature transmitters are not functioning properly, due to a power supply problem, therefore SG-21, Circ Water Temp Recorder and PPC address U0200 are Out Of Service (OOS).

The RO has just performed step 14.2 of 02-OHP-4030-STP-030 Daily and Shiftly Surveillance Checks Data Sheet 5 (pages 81 & 82) based on the following local circ. Water inlet temperature readings obtained by the AEO:

Condenser A	Condenser B	Condenser C
WTX-106 = 71.8	WTX-206 = 77.2	WTX-306 = 77.1
WTX-107 = 71.8	WTX-207 = 77.1	WTX-307 = 77.0
WTX-108 = 72.2	WTX-208 = 77.3	WTX-308 = 77.0
WTX-102 = 77.1	WTX-202 = 76.9	WTX-302 = 71.2
WTX-103 = 77.4	WTX-203 = 76.9	WTX-303 = 70.9
WTX-104 = 76.8	WTX-204 = 77.0	WTX-304 = 71.3

Temperature readings were obtained using Instrument ID CNP-147, Make/Model FLUKE/2175 with Calibration Current (Last Cal. Performed on 05/07/2002)

Review step 14.2 of 02-OHP-4030-STP-030 (pages 81 & 82) for accuracy and to ensure all Acceptance Criteria are met for the current Circulating Water System configuration. Be sure to mark any and all errors identified

N02-A5b

TITLE	Perform Control Room actions for Fuel Handling Accident in Containment	REVISION	0
PROGRAM	NRC License Exam	TIME	15 Minutes

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	10/23/2002
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	10/23/2002
	Signature:		

COURSE NUMBER AND TITLE:	N02-A5b Perform Control Room actions for Fuel Handling Accident in Containment	REVISION: 0

References

12-OHP-4022-018-004, Irradiated Fuel Handling Accident in Containment Building-CR Actions

Task: AOP0640414 Respond to a Fuel Handling Accident in the Containment

K/A CROSS REFERENCE: 2.2.29
K/A IMPORTANCE: RO 1.6 SRO 3.8

Evaluation Setting

Simulator

Handouts

Task Briefing
Copy of 12-OHP-4022-018-004, Irradiated Fuel Handling Accident in Cont. Building-CR Actions

Attachments

None

Simulator Setup

Simulator in Mode 5/6 IC with Containment Purge Supply and Exhaust System operating:

- RMS CT reset and all RMS status lights green
- Operable RMS with Trip Block switches in NORMAL: 2-VRS-2101, 2201 2-ERS-2300, 2400
- OPEN Cntmt Purge valves: 2-VCR-105, 205, 103, 104, 106, 203, 204, 206
- START Cntmt Purge Supply and exhaust Fans: 2-HV-CPX-1 & 2, 2-HV-CPS-1 & 2
- Verify Instrument Room Purge Supply And Exhaust fans are STOPPED and Dampers are CLOSED
- Verify Containment Pressure Relief Dampers are CLOSED and Fan is STOPPED
- Verify Control Room Ventilation Fans 2-HV-ACRF-1 & 2 STOPPED, Dampers 2-HV-ACR-DA-1, DA-1A, & DA-3 are OPEN, Dampers 2-HV-ACR-DA-2 & DA-2A are CLOSED (Normal Lineup)

COURSE NUMBER AND TITLE:	N02-A5b Perform Control Room actions for Fuel Handling Accident in Containment	REVISION: 0

Task Objectives/Standards

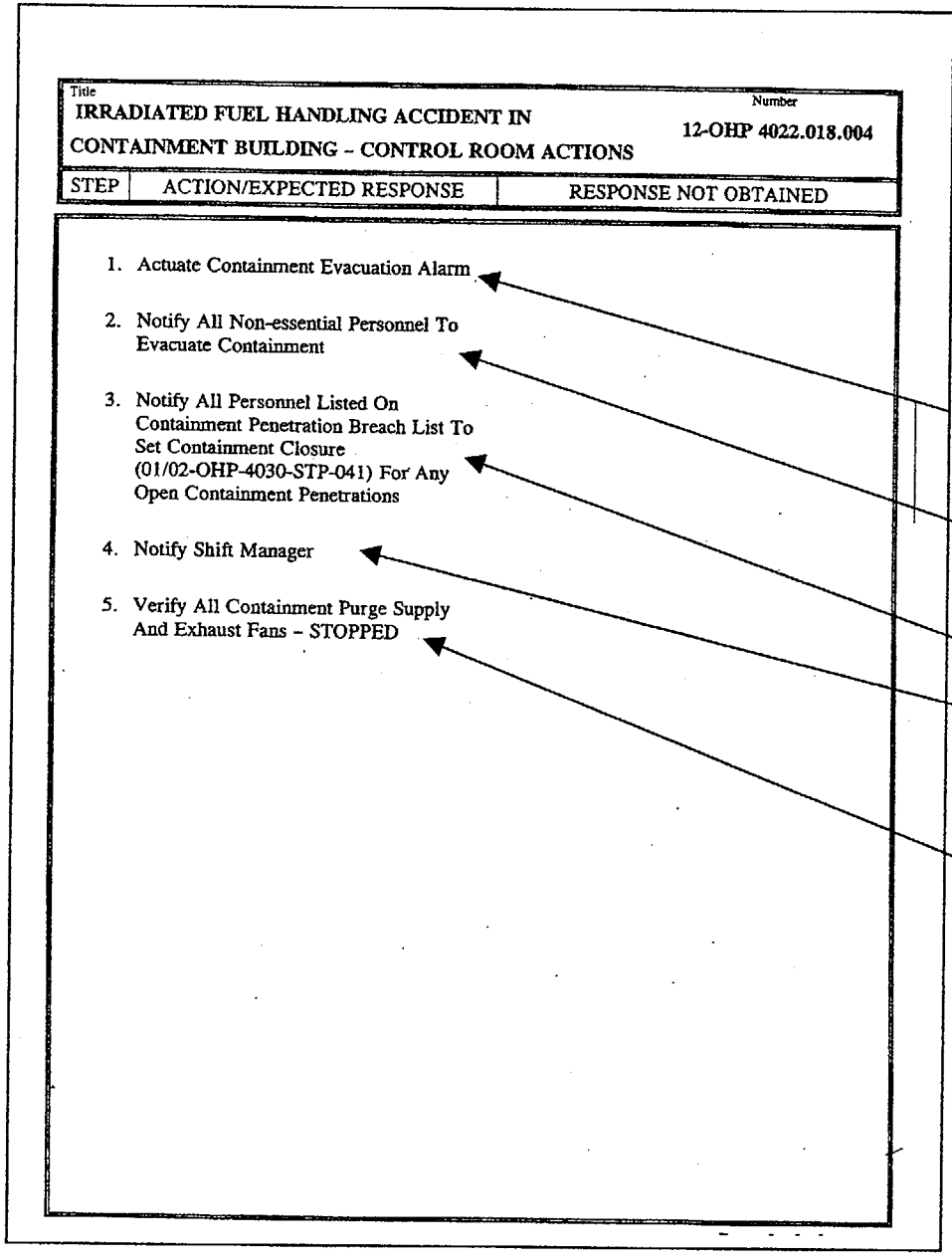
Respond to an Irradiated Fuel Handling Accident in the Containment per 12-OHP-4022-018-004, observing applicable precautions and limitations and procedural steps.

Task Briefing

The SRO-CA reports to the Control Room that during fuel movements on Unit 2, a top nozzle has failed on an irradiated fuel assembly while moving the manipulator Crane. The fuel assembly has fallen to the bottom of the Reactor Cavity.

Several fuel pins have ruptured, bubbles have been observed floating to the top of the water.

The US directs you to implement 12-OHP-4022-018-004, Irradiated Fuel Handling Accident in the Containment Building-Control Room Actions.



Title
IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING - CONTROL ROOM ACTIONS

Number
12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

1. Actuate Containment Evacuation Alarm
2. Notify All Non-essential Personnel To Evacuate Containment
3. Notify All Personnel Listed On Containment Penetration Breach List To Set Containment Closure (01/02-OHP-4030-STP-041) For Any Open Containment Penetrations
4. Notify Shift Manager
5. Verify All Containment Purge Supply And Exhaust Fans - STOPPED

General CUES:
The SRO-CA reports that the top nozzle on an irradiated fuel assembly has failed during movement of the manipulator crane and the fuel assembly fell to the bottom of the reactor cavity. Bubbles are rising from several ruptured pins.

Another SRO is performing the Emergency Classification as per Section C of this procedure.

CT: Operator actuates the containment evacuation alarm on the Flux Panel

CT: Operator notifies evacuation of non-essential personnel from containment using the paging system

CUE: "There are NO open containment penetrations"

Operator notifies SM
CUE: "Shift Manager acknowledges notification of fuel handling accident."

Operator STOPS the following fans:
- **CT:** Containment Purge Supply 2-HV-CPS-1 - STOPPED
- **CT:** Containment Purge Supply 2-HV-CPS-2 - STOPPED
- **CT:** Containment Purge Exhaust 2-HV-CPX-1 - STOPPED
- **CT:** Containment Purge Exhaust 2-HV-CPX-2 - STOPPED

Title: IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING – CONTROL ROOM ACTIONS

Number: 12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

6. Verify Containment Purge in the affected Unit – ISOLATED:

Unit 1:

- Supply Air Valves – CLOSED.
  - 1-VCR-103
  - 1-VCR-203
  - 1-VCR-105
  - 1-VCR-205
- Exhaust Air Valves – CLOSED.
  - 1-VCR-104
  - 1-VCR-204
  - 1-VCR-106
  - 1-VCR-206

OR

Unit 2:

- Supply Air Valves – CLOSED.
  - 2-VCR-103
  - 2-VCR-203
  - 2-VCR-105
  - 2-VCR-205
- Exhaust Air Valves – CLOSED.
  - 2-VCR-104
  - 2-VCR-204
  - 2-VCR-106
  - 2-VCR-206

Operator Closes Unit 2 supply air valves (at least 1 per penetration):

CT: Lower Cntmt Supply Air 2-VCR-103
Lower Cntmt Supply Air 2-VCR-203

CT: Upper Cntmt Supply Air 2-VCR-105
Upper Cntmt Supply Air 2-VCR-205

Operator Closes Unit 2 exhaust air valves (at least 1 per penetration):

CT: Lower Cntmt Exhaust Air 2-VCR-104
Lower Cntmt Exhaust Air 2-VCR-204

CT: Upper Cntmt Exhaust Air 2-VCR-106
Upper Cntmt Exhaust Air 2-VCR-206

Title
IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING - CONTROL ROOM ACTIONS

Number
12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

7. Verify Instrument Room Purge in the affected Unit - ISOLATED.

Unit 1:

- Supply Air Valves - CLOSED.
  - 1-VCR-101
  - 1-VCR-201
- Exhaust Air Valves - CLOSED
  - 1-VCR-102
  - 1-VCR-202

OR

Unit 2:

- Supply Air Valves - CLOSED.
  - 2-VCR-101
  - 2-VCR-201
- Exhaust Air Valves - CLOSED
  - 2-VCR-102
  - 2-VCR-202

Operator verifies Unit 2 supply (2) and exhaust (2) valves closed

Title
IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING – CONTROL ROOM ACTIONS

Number
12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

8. Verify Containment Pressure Relief Fan in the affected Unit – STOPPED.

   Unit 1:

   - 1-HV-CPR-1

   OR

   Unit 2:

   - 2-HV-CPR-1

9. Verify Containment Pressure Relief Valves in the affected Unit– CLOSED:

   Unit 1:

   - 1-VCR-107
   - 1-VCR-207

   OR

   Unit 2:

   - 2-VCR-107
   - 2-VCR-207

Operator verifies Unit 2 Containment Pressure Relief fan stopped

Operator verifies Unit 2 Containment Pressure Relief Valves (2) closed

Title: IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING - CONTROL ROOM ACTIONS

Number: 12-OHP 4022.018.004

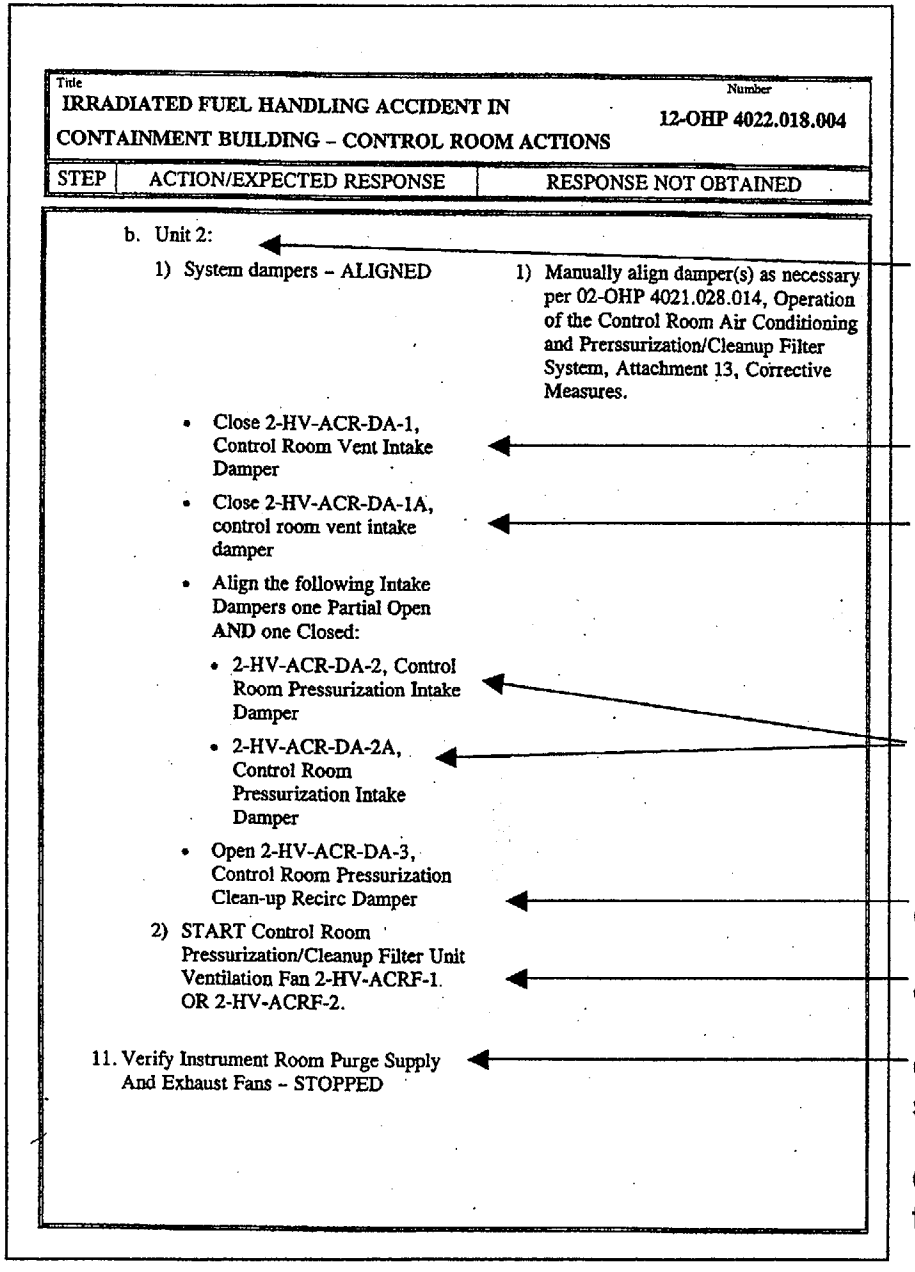
STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	Isolate Control Room Ventilation To BOTH Units:	
a.	Unit 1:	

1)	System dampers - ALIGNED:
	• Close 1-HV-ACR-DA-1, Control Room Vent Intake Damper
	• Close 1-HV-ACR-DA-1A, control room vent intake damper
	• Align the following Intake Dampers one Partial Open AND one Closed:
	  • 1-HV-ACR-DA-2, Control Room Pressurization Intake Damper
	  • 1-HV-ACR-DA-2A, Control Room Pressurization Intake Damper
	• Open 1-HV-ACR-DA-3, Control Room Pressurization Clean-up Recirc Damper
		1) Manually align damper(s) as necessary per 01-OHP 4021.028.014, Operation of the Control Room Air Conditioning and Prerssurization/Cleanup Filter System, Attachment 12, Corrective Measures.

2)	START Control Room Pressurization/Cleanup Filter Unit Ventilation Fan 1-HV-ACRF-1 OR 1-HV-ACRF-2.	

CT: Operator notifies Unit 1 to isolate Unit 1 CR Ventilation due to Unit 2 fuel handling accident

CUE : "A Unit 1 Operator will align Unit 1 Control Room Ventilation per 12-OHP-4022-018-004 Step 10a"



Title: IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING – CONTROL ROOM ACTIONS

Number: 12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	b. Unit 2:	
	1) System dampers – ALIGNED	1) Manually align damper(s) as necessary per 02-OHP 4021.028.014, Operation of the Control Room Air Conditioning and Prerssurization/Cleanup Filter System, Attachment 13, Corrective Measures.
	• Close 2-HV-ACR-DA-1, Control Room Vent Intake Damper	
	• Close 2-HV-ACR-DA-1A, control room vent intake damper	
	• Align the following Intake Dampers one Partial Open AND one Closed:	
	• 2-HV-ACR-DA-2, Control Room Pressurization Intake Damper	
	• 2-HV-ACR-DA-2A, Control Room Pressurization Intake Damper	
	• Open 2-HV-ACR-DA-3, Control Room Pressurization Clean-up Recirc Damper	
	2) START Control Room Pressurization/Cleanup Filter Unit Ventilation Fan 2-HV-ACRF-1. OR 2-HV-ACRF-2.	
	11. Verify Instrument Room Purge Supply And Exhaust Fans – STOPPED	

Operator performs Unit 2 CR Ventilation line up

CT: Operator closes DA-1

CT: Operator closes DA-1A

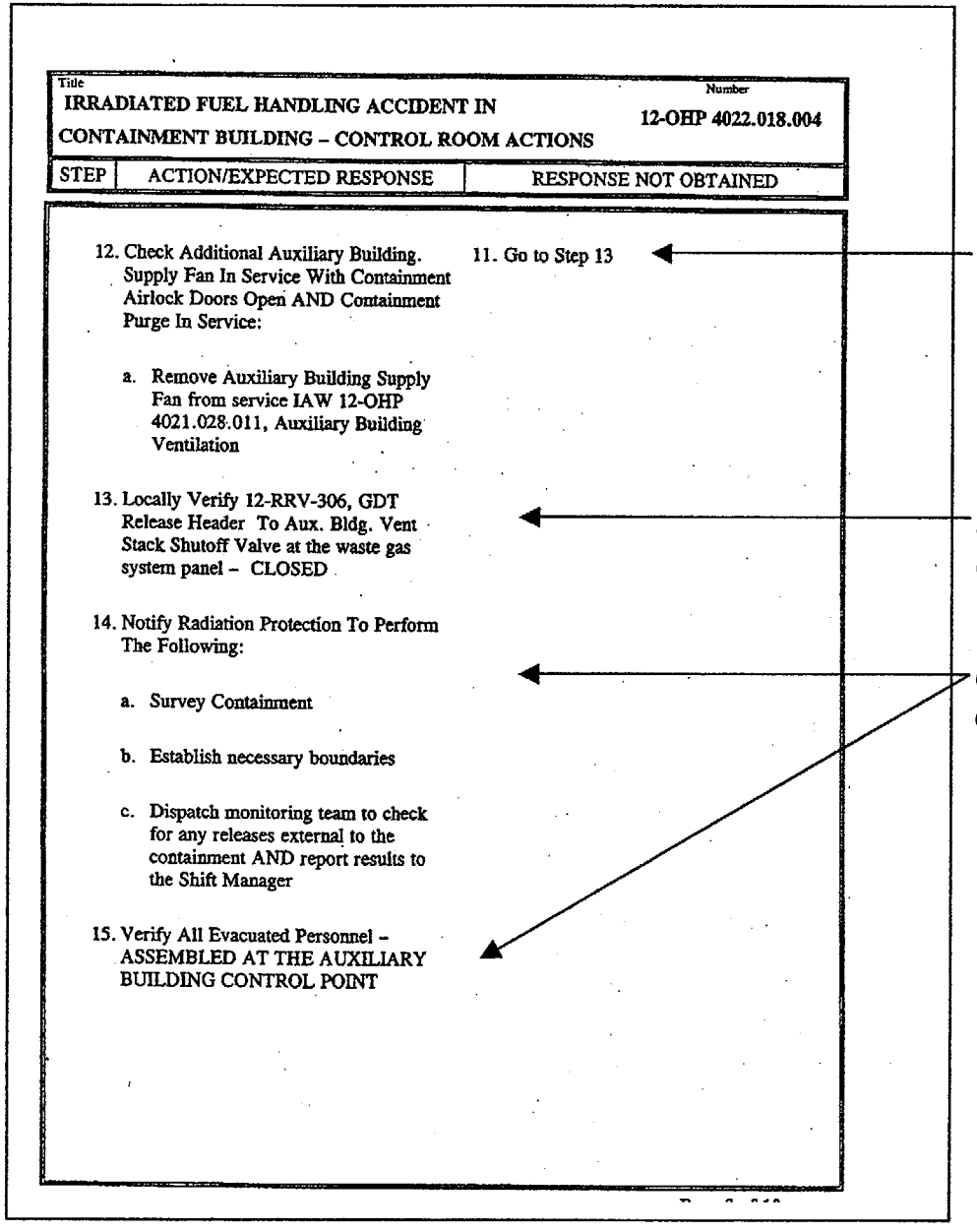
CT: Operator places one damper to partial open
Operator verifies other damper is closed

Operator verifies open DA-3

CT: Operator starts 1 fan

Operator directs AEO to verify Inst. RM Purge supply and exhaust fans stopped

CUE: "AEO reports that Instrument Room Purge Supply and Exhaust fans are STOPPED."



Title
IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING – CONTROL ROOM ACTIONS

Number
12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Check Additional Auxiliary Building Supply Fan In Service With Containment Airlock Doors Open AND Containment Purge In Service: a. Remove Auxiliary Building Supply Fan from service IAW 12-OHP 4021.028.011, Auxiliary Building Ventilation	11. Go to Step 13
13	Locally Verify 12-RRV-306, GDT Release Header To Aux. Bldg. Vent Stack Shutoff Valve at the waste gas system panel – CLOSED	
14	Notify Radiation Protection To Perform The Following: a. Survey Containment b. Establish necessary boundaries c. Dispatch monitoring team to check for any releases external to the containment AND report results to the Shift Manager	
15	Verify All Evacuated Personnel – ASSEMBLED AT THE AUXILIARY BUILDING CONTROL POINT	

CUE : If requested, "Containment Airlock Doors are closed"

Operator determines airlock doors are closed and containment purge is off, goes to RNO and proceeds to step 13

Operator directs AEO to verify 12-RRV-306 is closed
CUE: 12-RRV-306 has been verified closed locally

CUE: US will notify RP to perform surveys and verify all evacuated personnel are assembled at the control point

Title
IRRADIATED FUEL HANDLING ACCIDENT IN CONTAINMENT BUILDING – CONTROL ROOM ACTIONS

Number
12-OHP 4022.018.004

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE: Recovery work will commence after an investigation has been conducted and a recovery procedure established.	
16.	Return to Procedure And Step In Effect.	

Reports task completed.

JPM IS COMPLETE.

Task Briefing

The SRO-CA reports to the Control Room that during fuel movements on Unit 2, a top nozzle has failed on an irradiated fuel assembly while moving the manipulator Crane. The fuel assembly has fallen to the bottom of the Reactor Cavity.

Several fuel pins have ruptured, bubbles have been observed floating to the top of the water.

The US directs you to implement 12-OHP-4022-018-004, Irradiated Fuel Handling Accident in the Containment Building-Control Room Actions.

N02-A6

TITLE	Perform an Initial Dose Assessment
PROGRAM	NRC License Exam

REVISION	0
TIME	10 Minutes

Revision 0: Initial Issue

			DATE:
DEVELOPING INSTRUCTOR:	Name:	Dale Tidwell	**10/23/2002**
	Signature:	S. Bethurum for D.T.	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02-A6 Perform an Initial Dose Assessment	REVISION: 0

REFERENCES

Procedure: PMP-2080-EPP-108 revision 4, Initial Dose Assessment

Task: EPP0070701, Perform and Initial Dose Assessment

K/A CROSS REFERENCE: 2.4.38

K/A IMPORTANCE: SRO 4.0 RO 2.2

EVALUATION SETTING

Computer terminal with Dose Assessment Program (DAP) installed.

HANDOUTS

Task Briefing

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N02-A6 Perform an Initial Dose Assessment	REVISION: 0

TASK OBJECTIVES/STANDARDS

Terminal Objectives:

1. Perform an Initial Dose Assessment

Enabling Objectives

1. Given a scenario of plant conditions including specific instrumentation values, a computer with DAP installed and procedure PMP-2080-EPP-108, perform a dose assessment for the site boundary with protective action recommendations.

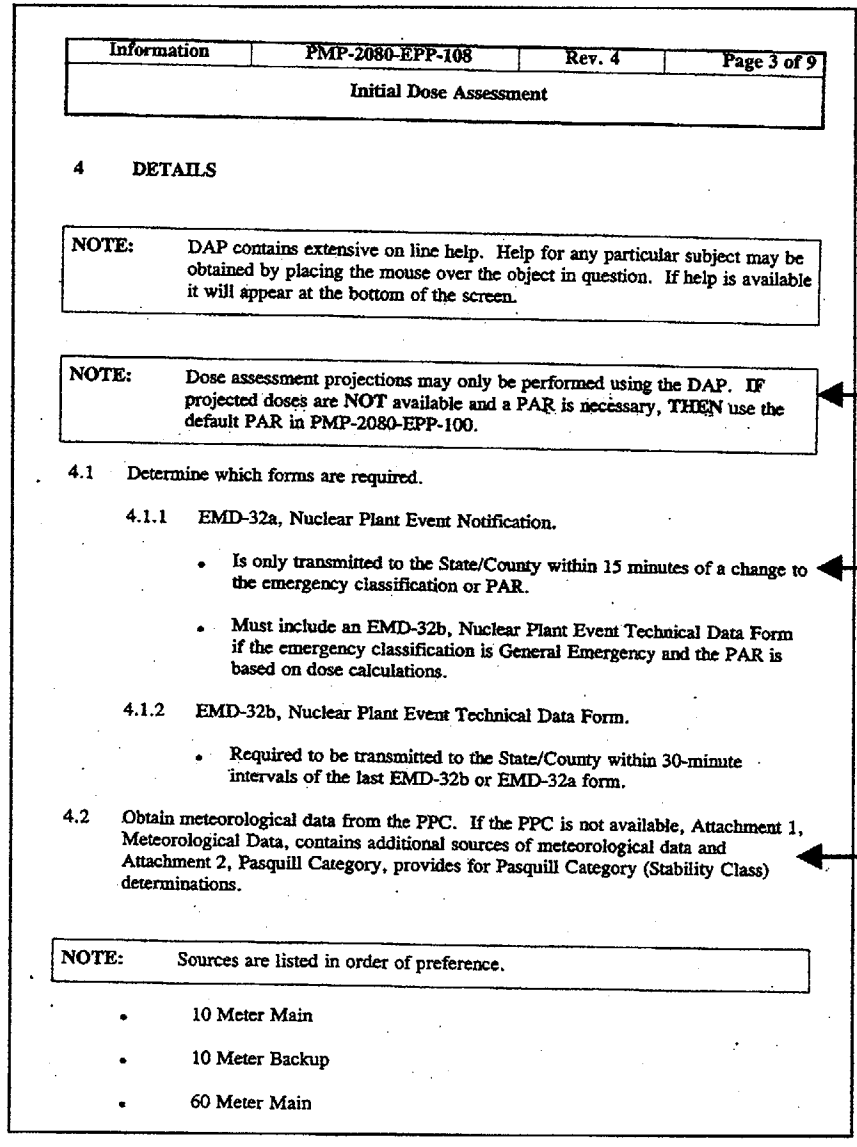
TASK BRIEFING

Given the following:

- At 06:50 Unit 2 tripped due to a large Steam Generator tube rupture on the Loop 1 Steam Generator.
- The break flow is estimated at 175 gpm.
- Due to problems immediately following the trip, all MSIV's were closed.
- At 06:55 the BOP operator reported that the PORV on the ruptured steam generator is 25% open and can not be closed.
- MRA-2601, Stm Gen Loop 1 PORV Discharge, has a High Alarm.
- At 07:00 the Shift Manager declares a Site Area Emergency and assumes the role of Site Emergency Coordinator.
- Current plant conditions are stable.

At 07:00 you are given a print out of the current PPC Dose Assessment Information screen (attached) and directed to perform an initial offsite dose assessment for the conditions described.

When you have completed the initial offsite dose assessment, report the calculated TEDE and Adult thyroid CDE Site Boundary dose rates to the examiner.



Information	PMP-2080-EPP-108	Rev. 4	Page 3 of 9
Initial Dose Assessment			

4 DETAILS

NOTE: DAP contains extensive on line help. Help for any particular subject may be obtained by placing the mouse over the object in question. If help is available it will appear at the bottom of the screen.

NOTE: Dose assessment projections may only be performed using the DAP. IF projected doses are NOT available and a PAR is necessary, THEN use the default PAR in PMP-2080-EPP-100.

4.1 Determine which forms are required.

4.1.1 EMD-32a, Nuclear Plant Event Notification.

- Is only transmitted to the State/County within 15 minutes of a change to the emergency classification or PAR.
- Must include an EMD-32b, Nuclear Plant Event Technical Data Form if the emergency classification is General Emergency and the PAR is based on dose calculations.

4.1.2 EMD-32b, Nuclear Plant Event Technical Data Form.

- Required to be transmitted to the State/County within 30-minute intervals of the last EMD-32b or EMD-32a form.

4.2 Obtain meteorological data from the PPC. If the PPC is not available, Attachment 1, Meteorological Data, contains additional sources of meteorological data and Attachment 2, Pasquill Category, provides for Pasquill Category (Stability Class) determinations.

NOTE: Sources are listed in order of preference.

- 10 Meter Main
- 10 Meter Backup
- 60 Meter Main

A computer terminal with the current version of the Dose Assessment Program (DAP version 7.0.20) is necessary for completion of this JPM.

For the conditions described in this JPM, an EMD-32a would be completed. Completion of the EMD-32a is NOT necessary for successful completion of this JPM.

PPC meteorological data is provided with the briefing.

Information	PMP-2080-EPP-108	Rev. 4	Page 4 of 9
Initial Dose Assessment			

4.3 Obtain RMS radiological data from one of the following sources:

NOTE: Sources are listed in order of preference.

- PPC
- RMS Display Terminals
- Direct readings from the Local Area Data Acquisition Modules

4.4 Determine the Unit 1 and Unit 2 reactor shutdown status and the date and time of shutdown as applicable.

4.5 Determine the Coolant Type.

Coolant Type	Containment High Radiation Monitoring Reading
Normal Coolant	< 10 R/hr
Cladding Damage	< 1000 R/hr
Fuel Melt	> = 1000 R/hr

4.6 Determine whether an actual or potential release is occurring.

4.6.1 An actual release is occurring when any of the following are true:

- Valid indication on release point radiation monitoring system channels are present that are associated with a classified event,

  - OR-

- Measured off-site radiation readings indicate a release is in progress,

  - OR-

- Indications exist that an unmonitored release may be occurring.

4.6.2 A potential release exists if calculated data is postulated based on present plant conditions (i.e., Containment Loss of Coolant Accident (LOCA)).

PPC Radiological data is provided with the briefing.

ONLY Unit 2 is applicable for this JPM. Unit 2 status is provided with the briefing.

Normal Coolant will be used in the calculation. Provided with briefing - both Containment High Radiation Monitors (VRA-2310 and VRA-2410) are less than 10 R/hr.

Actual release is in progress as provided with briefing.

4.7 Determine the Projected Duration of the Release.

- IF the projected duration of the release is unknown, THEN use 1 hour.
- IF releases are occurring from multiple points, THEN use the longest projected duration.

4.8 Enter the data into the Dose Assessment Program.

NOTE:	The classifications may change based on the results of the assessment being run and must be updated accordingly prior to submitting the EMD-32a or EMD-32b forms for transmittal to the state or county.

4.9 IF necessary, THEN update the current classification and Initiating Conditions on the EMD-32a and EMD-32b.

4.10 Submit the EMD-32a and/or EMD-32b to the SEC.

4.11 The SEC approves the EMD-32 form(s).

4.12 Transmit the EMD-32 form(s) to the Berrien County Sheriff's Department and the State of Michigan.

5 REFERENCES

5.1 Use References:

5.1.1 Dose Assessment (DAP) Computer Program

5.1.2 EMD-32a, Nuclear Plant Event Notification

5.1.3 EMD-32b, Nuclear Plant Event Technical Data Form

5.2 Writing References:

5.2.1 Source References

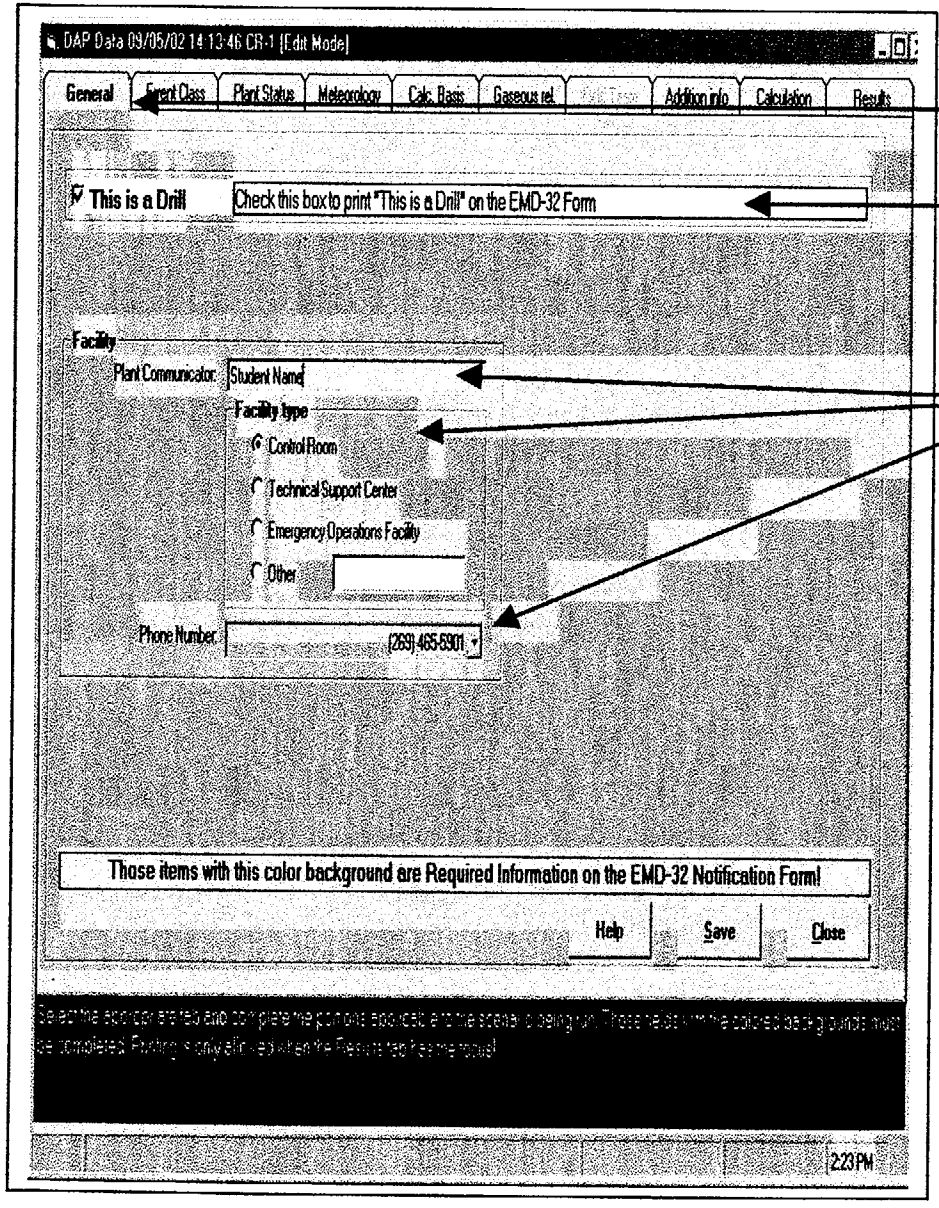
a. Donald C. Cook Nuclear Plant Emergency Plan

b. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

Projected duration of release is unknown. The 1 hour default will be used.

The following pages illustrate the Dose Assessment Program screens with the information entered. The "tabs" of the dose assessment may be completed in any order. However, the Calculation and Results tabs should be viewed last.

A completed EMD-32a is NOT necessary for successful completion of this JPM.

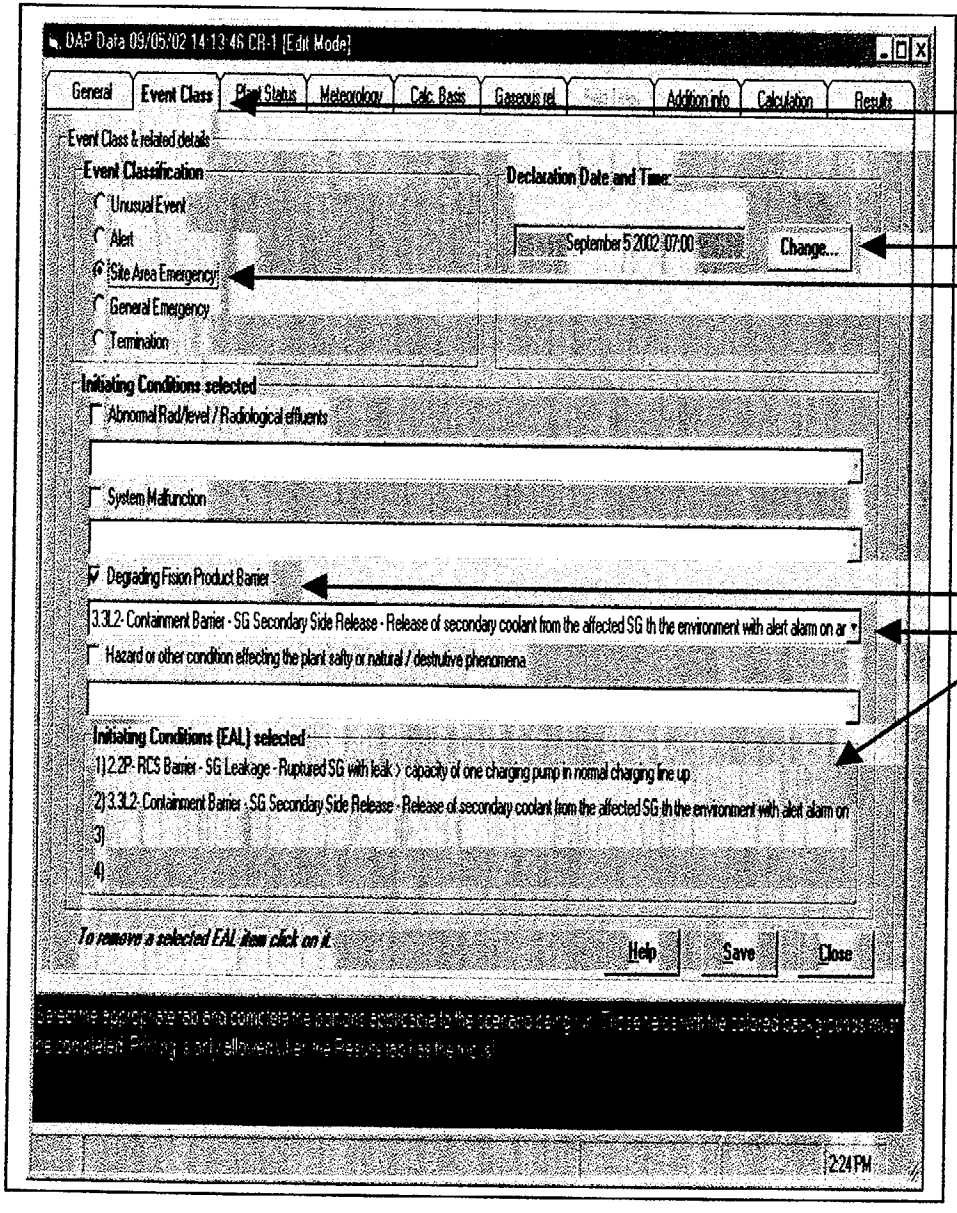


Under the General tab, the student should

Select "This is a drill".

The student's name, location, and phone number should be entered.

NOTE: Data entered on this tab is used ONLY to complete the EMD-32a and/or EMD-32b form and does NOT affect the dose assessment calculation.

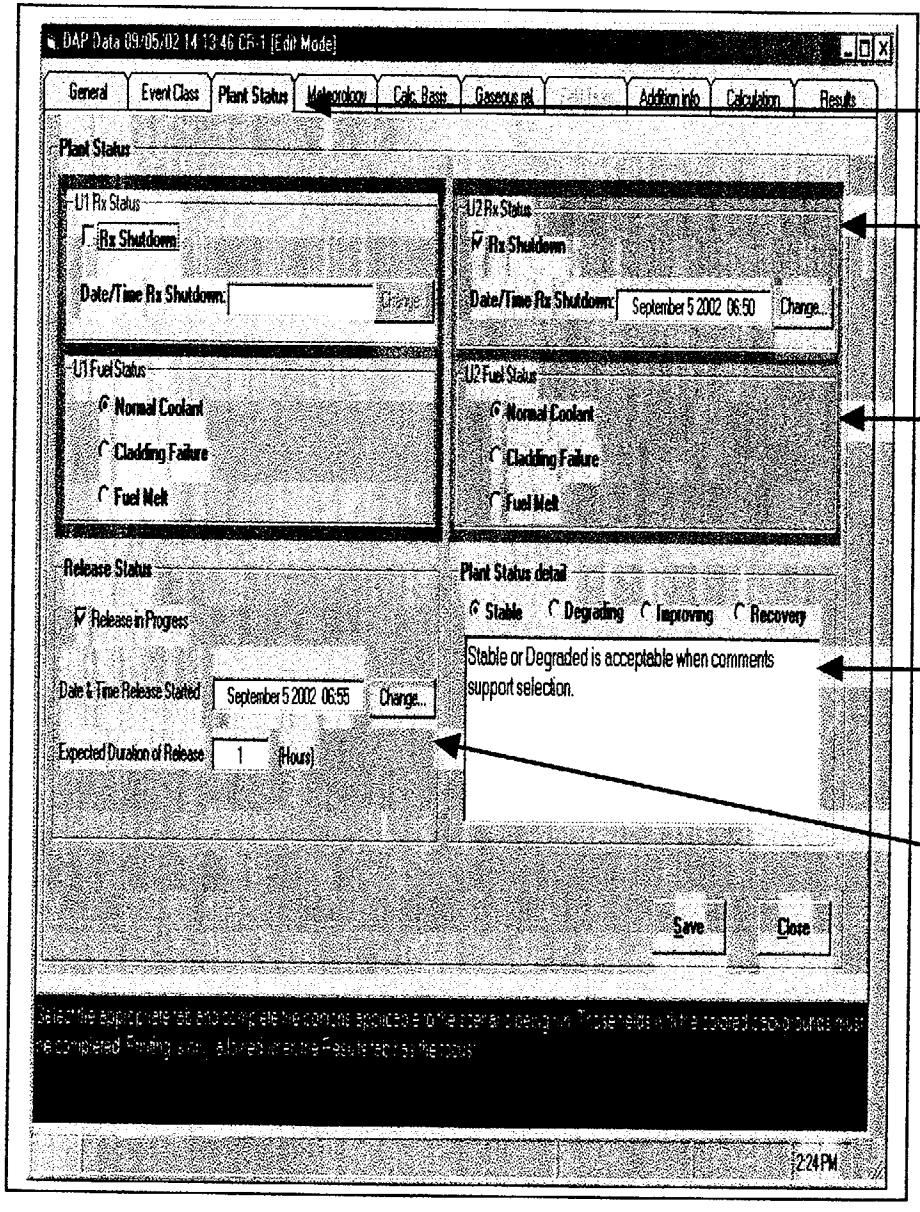


Under the Event Classification tab, the student should

Enter the current date and time.
Select Site Area Emergency.

Select Degrading Fission Product Barrier and using the drop down screens select at least one Initiating Condition (EAL) for the classification selected.

NOTE: Data entered on this tab is used ONLY to complete the EMD-32a and/or EMD-32b form and does NOT affect the dose assessment calculation.



Under the Plant Status tab, the student should

CT Complete the U2 Rx Status by selecting RX shutdown and entering the current date and time (per brief – 10 minutes prior to making classification.

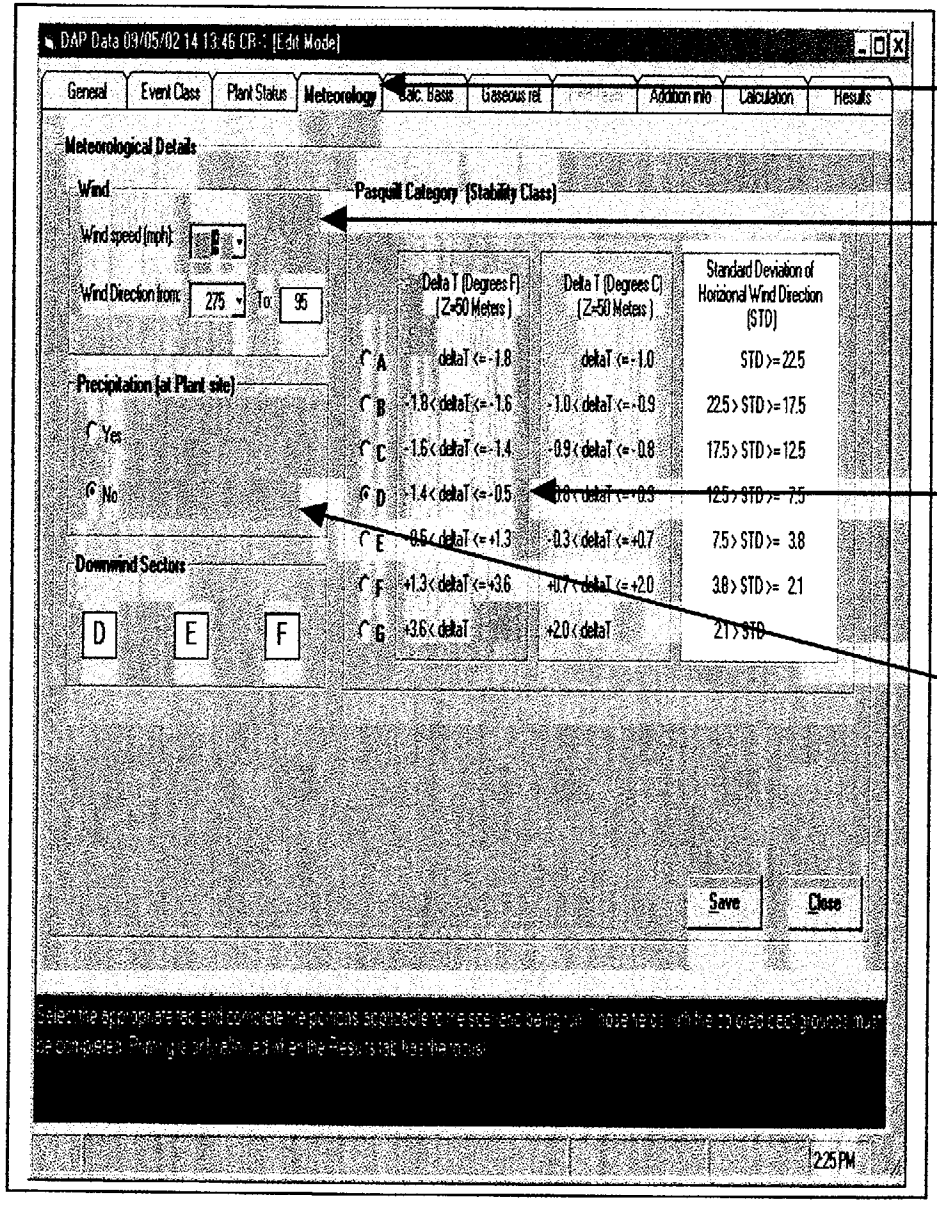
CT Complete U2 Fuel Status by selecting Normal Coolant per step 4.5 of PMP-2080-EPP-108.

U1 Rx Status is not applicable for the conditions of this JPM and therefore does not need to be completed per step 4.4 of PMP-2080-EPP-108.

Complete Plant Status detail by selecting Stable (or Degrading) and providing justification in the narrative box. Information here is used only to complete EMD form(s).

CT Complete Release Status by selecting Release in Progress and entering the date and time the release started (per brief - five minutes prior to making classification).

NOTE: Data entered for U2 RX Status, U2 Fuel Status, and Release Status affects the dose assessment calculation.



Under the Plant Status tab, the student should

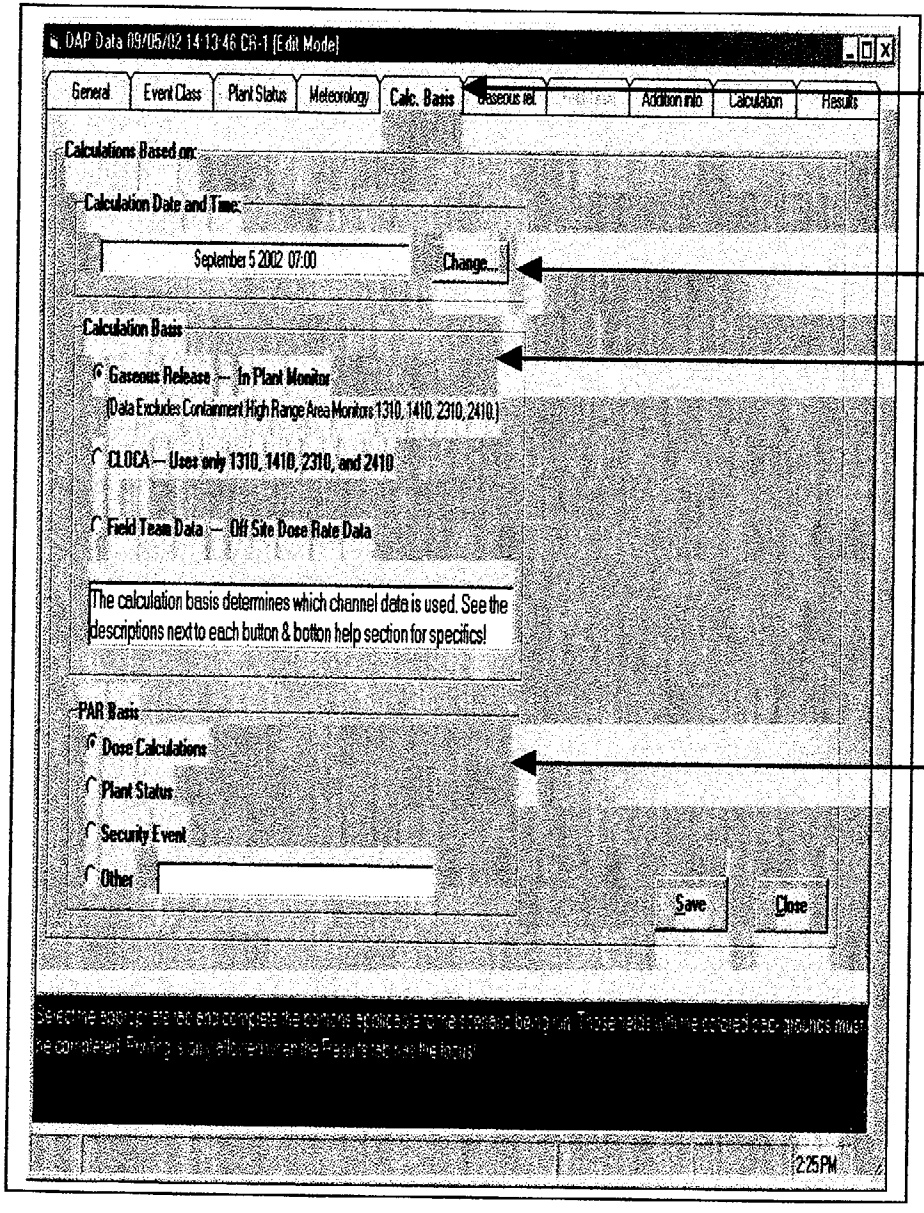
CT Complete Wind information by entering 10M Main wind speed (4 mph) and wind direction (275°) provided with the briefing.

CT Complete the Pasquill Category (Stability Class) by selecting the correct classification based on the Delta T (-1.0°F) provided with the briefing.

Complete the Precipitation information using the information provided with the briefing.

Downwind Sectors are selected automatically based on the wind direction entered.

NOTE: Wind and Pasquill Category affect the dose assessment calculation.



Under the Calc. Basis tab, the student should

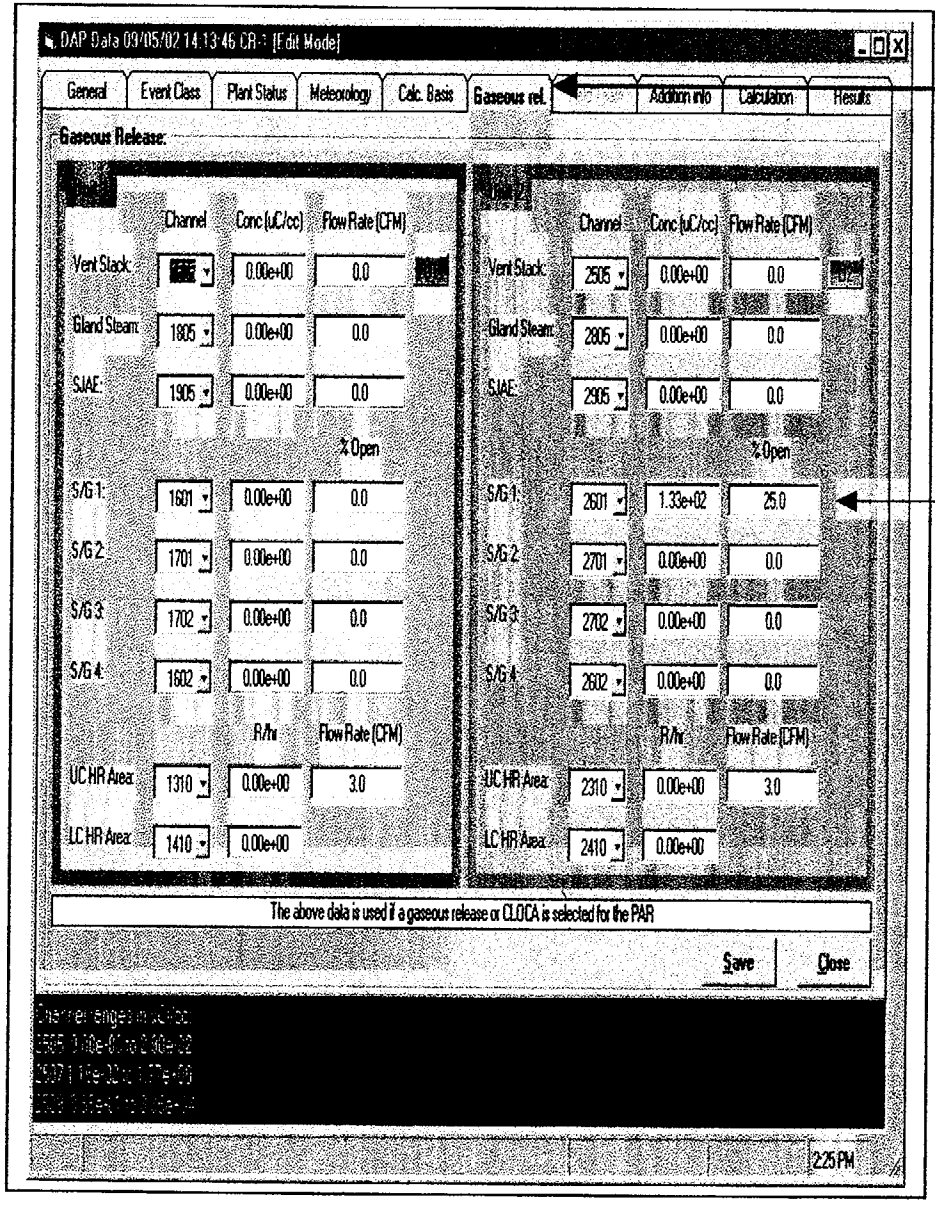
CT Enter the current date and time.

CT Complete Calculation Basis by verifying Gaseous Release – In Plant Monitor is selected. This enables the Gaseous Release tab to enter the applicable Radiation Monitor data given with the briefing. (NOTE: Gaseous Release – In Plant Monitor is the default selection.)

NOTE the Field Team tab will NOT be enabled for this JPM. Field Team Data must be selected to enable the Field Team tab.

Complete PAR Basis by verifying Dose Calculation is selected. This section is used to complete the EMD form(s). However, the Dose Assessment Program will ONLY generate PAR recommendations based on Dose Calculations. (NOTE: Dose Calculation is the default selection.)

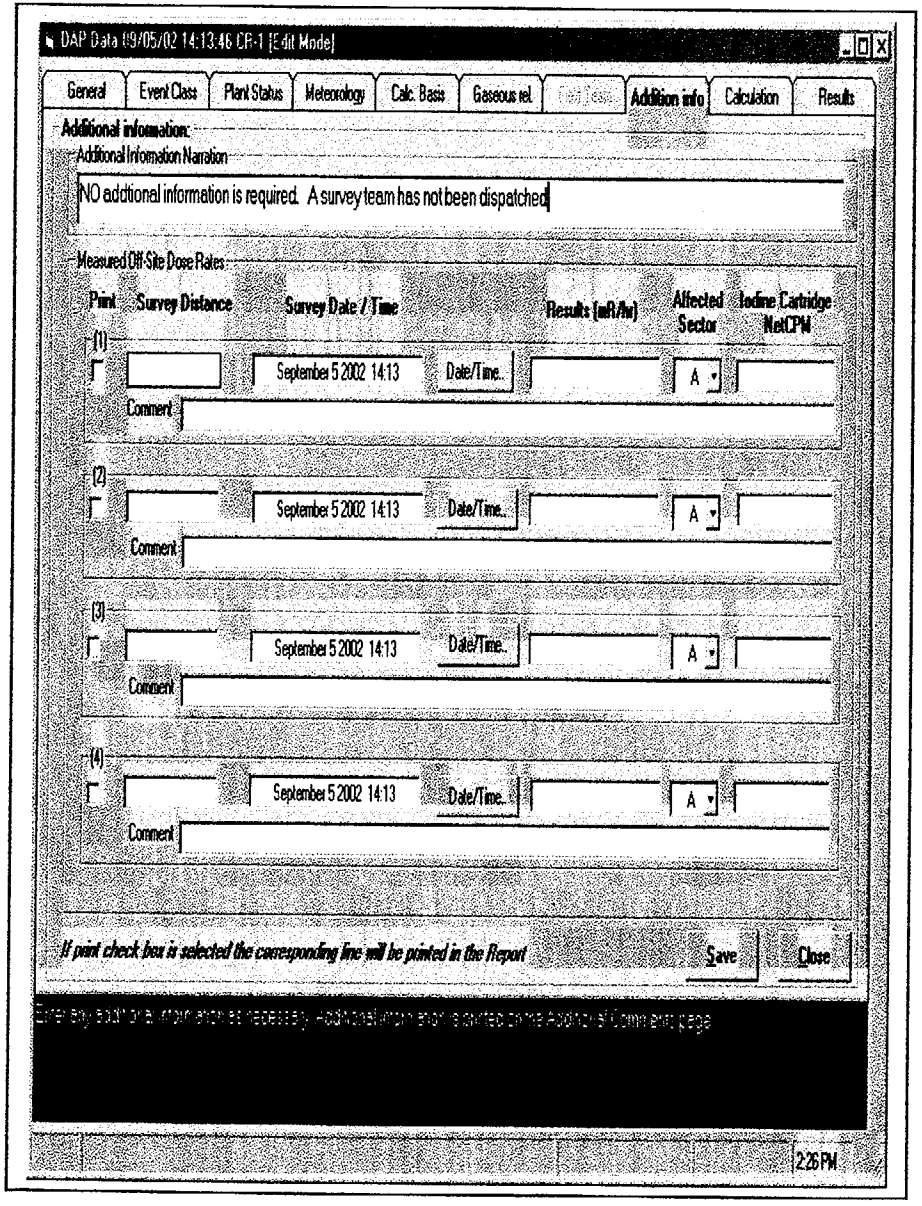
NOTE: Calculation Date and Time and Calculation Basis affect the dose assessment calculation.



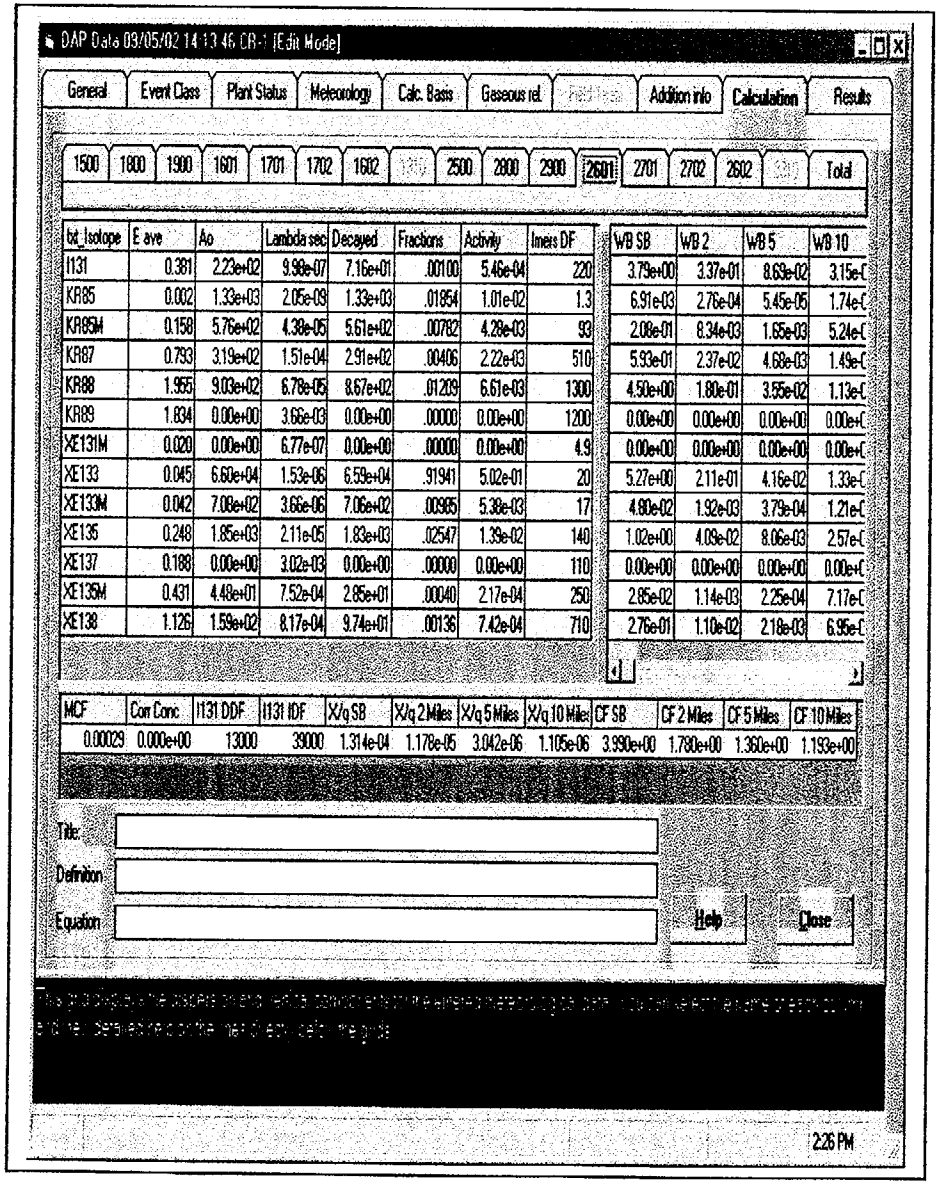
Under the Gaseous rel. tab, the student should

CT Complete the Gaseous Release information by entering the Concentration and Flow Rate (percent open) for the affected radiation monitor(s). Radiological information is provided with the briefing. (NOTE: ONLY the reading of the affected monitor(s) is required to be entered.)

NOTE: Gaseous Release affects the dose assessment calculation.



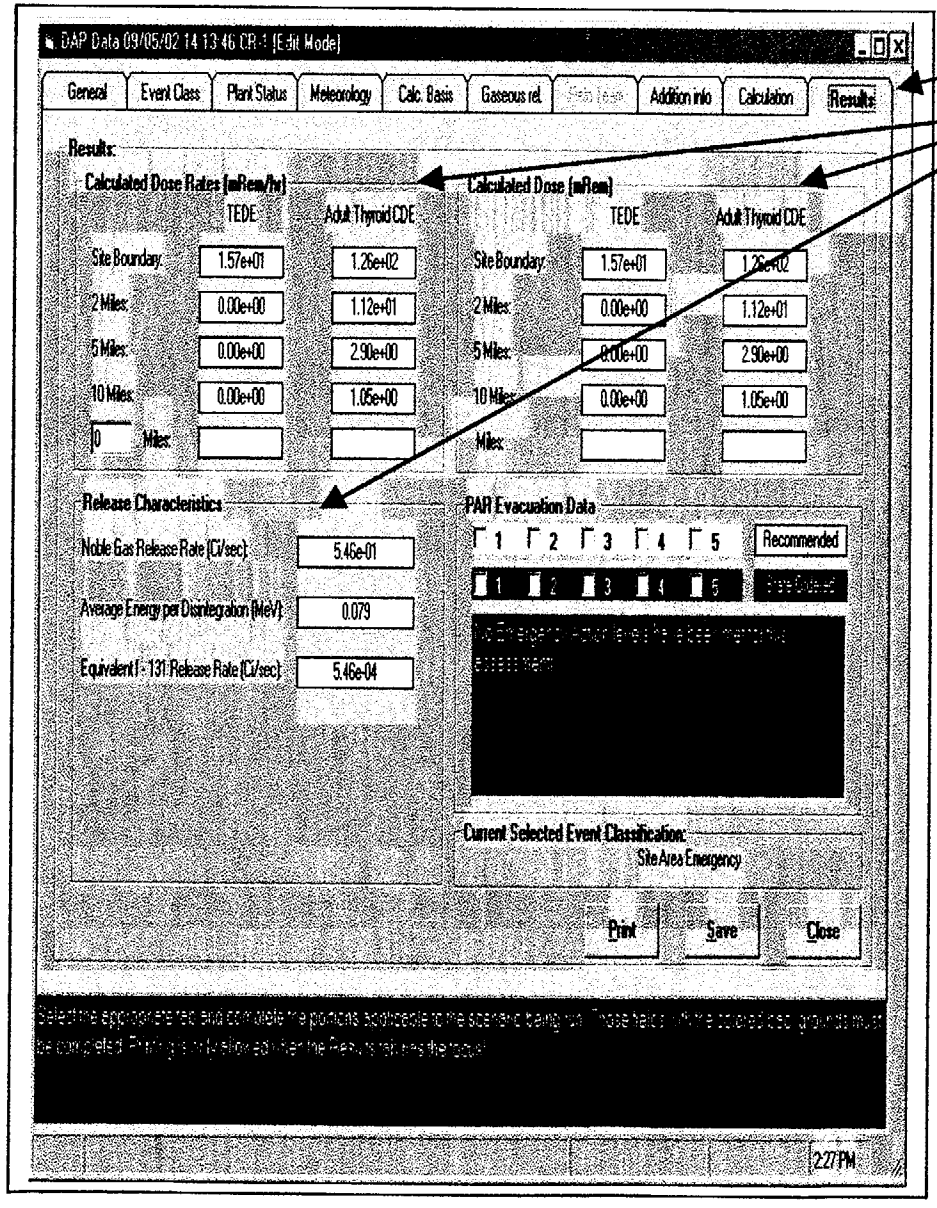
NO additional information is required under the Additional info tab. This information is used when needed to complete the EMD-32 forms. The student may leave these blank.



NO entries are made under the Calculation tab. This tab provides information only.

When the tab for the affected radiation monitor(s) is selected, information on the different isotopes involved in the release and their contribution to the dose rate / dose is provided.

Atmospheric dispersion factors are also provided.



Under the Results tab, the student will find

The Calculated Dose Rates, Calculated Dose, and Release Characteristics based on the information entered under the preceding tabs.

The calculated dose rate and dose is used in conjunction with PMP-2080-EPP-101, Emergency Classification to determine Emergency Plan Classification and Protective Action Recommendations.

When required, the operator may recommend evacuation by selecting the affected areas.

The Dose Assessment Program will automatically generate Recommended PAR Evacuation Data when the PAR Basis - Dose Calculation is selected under the Cal Basis tab AND the dose assessment calculation indicates action is necessary. Recommendations generated by the Dose Assessment Program can NOT be changed by the operator.

The EMD-32a and/or EMD-32b forms may be printed as required. (NOT required for this JPM)

CT TEDE SB dose rate = 1.57e+01 mRem/hr
(1.25e+01 to 1.89e+01 mRem/hr is acceptable)
thyroid CDE SB dose rate = 1.26e+02 mRem/hr
(1.00e+02 to 1.52e+02 mRem/hr is acceptable)

JPM IS COMPLETE

Task Briefing

Given the following:

- At 06:50 Unit 2 tripped due to a large Steam Generator tube rupture on the Loop 1 Steam Generator.
- The break flow is estimated at 175 gpm.
- Due to problems immediately following the trip, all MSIV's were closed.
- At 06:55 the BOP operator reported that the PORV on the ruptured steam generator is 25% open and can not be closed.
- MRA-2601, Stm Gen Loop 1 PORV Discharge, has a High Alarm.
- At 07:00 the Shift Manager declares a Site Area Emergency and assumes the role of Site Emergency Coordinator.
- Current plant conditions are stable.

At 07:00 you are given a print out of the current PPC Dose Assessment Information screen (attached) and directed to perform an initial offsite dose assessment for the conditions described.

When you have completed the initial offsite dose assessment, report the calculated TEDE and Adult thyroid CDE Site Boundary dose rates to the examiner.

DOSE ASSESSMENT INFORMATION

TAG	ID	DATA DESCRIPTION	VALUE	UNITS
ERS-2305	RMS052	LOWER CONTNT LOW RNG NGAS - TR A	3.685E-06	µCI/CC
ERS-2307	RMS054	LOWER CONTNT MED RNG NGAS – TR A	1.050E-03	µCI/CC
ERS-2309	RMS055	LOWER CONTNT HI RNG NGAS – TR A	2.300E-03	µCI/CC
VRA-2310	RMS056	UPPER CONTNT HI RNG AREA – TR A	1.0003E+00	R/H
VRA-2410	RMS064	UPPER CONTNT HI RNG AREA – TR B	1.0003E+00	R/H
VRS-2505	RMS068	UNIT VENT EFFLUENT LOW RNG NGAS	2.331E-07	µCI/CC
VRS-2507	RMS070	UNIT VENT EFFLUENT MED RNG NGAS	7.600E-04	µCI/CC
VRS-2509	RMS071	UNIT VENT EFFLUENT HI RNG NGAS	1.100E-01	µCI/CC
VFR-2510	RMS072	UNIT VENT EFFLUENT FLOWRATE	8.327E+04	CFM
MRA-2601	RMS073	STM GEN LOOP 1 PORV DISCHARGE	1.330E+02	µCI/CC
MRA-2602	RMS074	STM GEN LOOP 4 PORV DISCHARGE	8.500E-01	µCI/CC
MRA-2701	RMS075	STM GEN LOOP 2 PORV DISCHARGE	1.300E+00	µCI/CC
MRA-2702	RMS076	STM GEN LOOP 3 PORV DISCHARGE	8.200E-01	µCI/CC
SRA-2805	RMS077	GLAND STM VENT EFFL LOW RNG NGAS	3.352E-06	µCI/CC
SRA-2807	RMS079	GLAND STM VENT EFFL MED RNG NGAS	1.090E-03	µCI/CC
SRA-2809	RMS080	GLAND STM VENT EFFL HI RNG NGAS	1.220E-01	µCI/CC
SFR-2810	RMS081	GLAND STM VENT EFFL FLOWRATE	9.969E+02	CFM
SRA-2905	RMS082	STM JET AIR EJE EFFL LO RNG NGAS	3.750E-05	µCI/CC
SRA-2907	RMS084	STM JET AIR EJE EFFL MED RNG NGAS	1.120E-03	µCI/CC
SRA-2909	RMS085	STM JET AIR EJE EFFL HI RNG NGAS	1.520E-01	µCI/CC
SFR-2910	RMS082	STM JET AIR EJE EFFL FLOWRATE	4.011E+00	CFM
ETQ-403	U0802	DELTA TEMPERATURE - MAIN TOWER	-1.0	DEGF
EFR-412	U0803	WIND DIRECTION 10M - MAIN TOWER	275.0	DEG/FROM
EFR-402	U0804	WIND SPEED 10M -MAIN TOWER	4.0	MPH
ELR-400	U0805	PRECIPITATION - MAIN TOWER	NO RAIN	NONE
EFR-413	U0806	WIND DIRECTION 10M - BACKUP TOWER	278.0	DEG/FROM
EFR-403	U0807	WIND SPEED 10M - BACKUP TOWER	3.6	MPH
EFR-410	U0808	WIND DIRECTION 60M - MAIN TOWER	280.0	DEG/FROM
EFR-400	U0809	WIND SPEED 60M - MAIN TOWER	5.0	MPH
NONE	U0810	STANDARD DEVIATION 10M - MAIN	0.0	DEGREES
NONE	U0811	STANDARD DEVIATION 10M - BACKUP	0.0	DEGREES
NONE	U0812	STANDARD DEVIATION 60M - MAIN	0.0	DEGREES

N02-A7a

TITLE	**Calculate QPTR with Inoperable Power Range Instrument**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/23/2002**
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/23/2002**
	Signature:	T. Werk	

COURSE NUMBER AND TITLE:	N02-A7a Calculate QPTR with Inoperable Power Range Instrument	REVISION: 0

References

02-OHP-4030-STP-032, Quadrant Power Tilt Calculation
Task: 0130180201 Perform Quadrant Power Tilt Ratio Calculation
K/A CROSS REFERENCE: 2.1.7
K/A IMPORTANCE: RO 3.7 SRO 4.4

Evaluation Setting

Simulator

Handouts

Task Briefing for N02-A7a
Copy of 02-OHP-4030-STP-032

Attachments

NI Calibration Data Card
Caution Tags (7)

Simulator Setup

Initialize to IC 989, with N-42 failed (Malfunction **NI10B**, final value **0**)
Complete actions of 02-OHP-4022-013-004, Power Range Malfunction:

- Control Rods in Manual
- Rod Stop Bypass Selector in N-42 position
- Selector switches in N-42 Position:
  - Comparator Channel Defeat
  - Upper Section Detector Current Comparator Defeat
  - Lower Section Detector Current Comparator Defeat
  - Power Mismatch Bypass
- Recorder inputs NOT selected to N-42:
  - Delta-T
  - Overtemperature Delta-T
- Trip OTDT Bistable 2-TS-421C – **(MRF RPR 123 Trip)**
- Trip OTDT Runback Rod Stop 2-TS-421D – **(MRF RPR 124 Trip)**
- Disconnect Power from N42 – **(MRF NIR09 Tripped)**
- Insert override for 2-SML-18:2 protection Channel 2 in test **(ZLOSTMC2[2] to ON)**
- Verify lit Status lights for 2-SML-16: 2, 27, 32, 42 and 47, 2-SML-17: 7 and 12, and 2-SML-18:2
- Hang Caution Tags on above selector switches (7)

COURSE NUMBER AND TITLE:	N02-A7a Calculate QPTR with Inoperable Power Range Instrument	REVISION: 0

Task Objectives/Standards

Correctly obtain values and calculates a Quadrant Power Tilt Ratio calculation with one power range channel out-of-service using 02-OHP-4030-STP-032.

Task Briefing

Given the following:

- NI Channel N-42 has failed low
- All actions of 02-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 02-OHP-4030-STP-032, Quadrant Power Tilt Calculation.

Reference	02-OHP 4030.STP.032	Rev. 8a	Page 3 of 11

QUADRANT POWER TILT RATIO CALCULATION

4 DETAILS

4.1 IF the Plant Process Computer (PPC) calculation for QPTR is OPERABLE, THEN obtain the QPTR as follows:

4.1.1 Select Tilting Factors by:

- Touch area "Tilting Factors" from NSS Menu

-OR-

- Typing Turn-On Code "TF"

4.1.2 Enter the Upper and Lower Radial Flux Tilts and the Highest Upper or Lower Radial Flux Tilt on Data Sheet 1, Quadrant Power Tilt Ratio From PPC.

4.2 IF the PPC calculation for QPTR is inoperable OR a manual calculation is desired, THEN calculate QPTR using one of the following:

4.2.1 IF all NIs are OPERABLE, THEN calculate QPTR per Step 4.3 using Data Sheet 2, Quadrant Power Tilt Ratio Calculation Sheet.

-OR-

4.2.2 IF any NI is inoperable, THEN calculate QPTR per Step 4.4 using Data Sheet 3, Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIS.

4.3 Calculation of QPTR with all NIs operable:

4.3.1 IF detector currents will be used to obtain power range excore amperages, THEN perform the following:

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 2.

General CUES:

CUE: PPC is inoperable for QPTR calculation

Operator determines step 4.4 is correct step

Reference	02-OHP 4030.STP.032	Rev. 8a	Page 4 of

QUADRANT POWER TILT RATIO CALCULATION

CAUTION: Fluke readings shall not be taken if bistables are tripped on any power range drawer.

4.3.2 **IF** a FLUKE will be used to determine QPTR, **THEN** perform the following:

a. Record instrument number and calibration due date on Data Sheet 2.

b. Set fluke to lowest scale for volts DC.

c. Obtain each individual NI detector voltage **AND** substitute this voltage for NI detector current on Data Sheet 2.

4.3.3 Enter the individual upper and lower power range 120% current values in the appropriate blanks.

4.3.4 Divide the individual NI current by its 120% current value.

4.3.5 Total the normalized values determined in Step 4.3.4.

4.3.6 Using the formula on Data Sheet 2, determine the upper and lower QPTR.

4.3.7 Enter the highest upper **OR** lower tilt ratio in the space provided on Data Sheet 2.

4.3.8 Obtain the Maximum QPTR from the Plant Process Computer by performing the following (N/A if the PPC is unavailable or inoperable):

a. Select Tilting Factors by:

- Touch area "Tilting Factors" from NSS Menu

-OR-

- Typing Turn-On Code "TF"

Operator determines steps on this page are not applicable

Reference	02-OHP 4030.STP.032	Rev. 8a	Page 5 of 11

QUADRANT POWER TILT RATIO CALCULATION

4.4 Calculation of QPTR with one NI inoperable:

4.4.1 Record the OPERABLE NI numbers in the appropriate blanks on Data Sheet 3.

4.4.2 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.

4.4.3 Enter the individual upper and lower power range 120% current values in the appropriate blanks on Data Sheet 3.

4.4.4 Divide each individual NI current by its 120% amperage.

4.4.5 Total the normalized values determined in Step 4.4.4.

4.4.6 Using the formula on Data Sheet 2, determine the upper and lower QPTR.

4.4.7 Enter the highest upper **OR** lower tilt ratio in the space provided on Data Sheet 3.

Operator determines this is correct step

Operator records N-41, 43 and 44 on Data Sheet 3 Upper & Lower Detector blanks.

Note: See Page 5 For expected values (Spreadsheet program may be used to verify accuracy of candidate readings and calculations)

Operator should select the 0.1 scale

CT: Operator records data to within +/- .0005 for indicators reading on a division mark and within the division marks for all others. (Enter data into spreadsheet for comparison)

CT: Operator enters data from cards on channel 3 NI Panel

Operator divides respective NI channel with its 120% value (from cards on channel 3 NI panel)

Operator totals 3 channels of normalized values

CT: 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)

Operator enters the highest calculated QPTR (**CT:** Covered on Page 5 of this section)

5 ACCEPTANCE CRITERIA

5.1 Acceptance criteria is contained on Data Sheets 1, 2, and 3.

6 CORRECTIVE MEASURES

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

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

- Notify SM and Reactor Engineering.
- Enter ACTION Statement of Tech Spec 3.2.4.

7 FINAL CONDITIONS

7.1 The QUADRANT POWER TILT RATIO has been calculated.

Reference	02-OHP 4030.STP.032	Rev. 8a	Page 11 of 11
QUADRANT POWER TILT RATIO CALCULATION			
Data Sheet 3	Quadrant Power Tilt Ratio Calculation Sheet Using 3 NIS		Page: 11

Upper Detector	Record Detector "A" Current	Record Detector "A" 120% value	Normalized Value Detector A ÷ 120% value
N-41	.0940	.1139	.8253
N-43	.0990	.1206	.8209
N-44	.0985	.1204	.8181
		Upper Total	2.4643

Lower Detector	Record Detector "B" Current	Record Detector "B" 120% value	Normalized Value Detector B ÷ 120% value
N-41	.0883	.1062	.8333
N-43	.0986	.1192	.8272
N-44	.0943	.1140	.8272
		Lower Total	2.4877

Upper Tilt Ratio = $\frac{\text{Max Upper Normalized Value}}{\text{Upper Total}} \times 3 =$ 1.0047

Lower Tilt Ratio = $\frac{\text{Max Lower Normalized Value}}{\text{Lower Total}} \times 3 =$ 1.0049

Enter the max upper **or** lower tilt ratio (Calculated QPTR) 1.0049

Highest Upper or Lower Radial Flux Tilt from PPC (N/A if unavailable or inoperable) N/A

Verify QPTR Consistent with Incore Detector Readings (N/A if reactor power is less that or equal to 75%) _____ ENPR

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

CT: Operator enters the highest calculated QPTR of these 2 values

Candidate marks "N/A"

Nuclear Engineering states that QPTR is consistent with Incore Readings.

Candidate Signs, Dates, & enters Time
Reports task completed.
JPM IS COMPLETE.

Task Briefing

Given the following:

- NI Channel N-42 has failed low
- All actions of 02-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 02-OHP-4030-STP-032, Quadrant Power Tilt Calculation.

N02-A7b

TITLE	**Determine Actions to Change Containment Integrity Options During Refueling**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**10/24/2002**
	Signature:	S. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	**10/24/2002**
	Signature:		

COURSE NUMBER AND TITLE:	N02-A7b - Determine Actions to Change Containment Integrity Options During Refueling	REVISION: 0

References

01-OHP-4030-127-041, Refueling Integrity

Task:0340260202 Verify Containment Penetration Integrity checks prior to Core Alterations

K/A CROSS REFERENCE: 2.2.26
K/A IMPORTANCE: SRO 3.7

Evaluation Setting

Classroom/simulator

Handouts

Task Briefing
01-OHP-4030-127-041 Original Data Sheet 1 CPN-74 pages 113 to 116
01-OHP-4030-127-041 Blank Data Sheet 1 CPN-74 pages 113 to 116

Attachments

None

Simulator Setup

N/A

COURSE NUMBER AND TITLE:	N02-A7b - Determine Actions to Change Containment Integrity Options During Refueling	REVISION: 0

Task Objectives/Standards

Verify alignment of valves during Refueling per 01-OHP-4030-127-041, Refueling Integrity, observing applicable precautions and limitations and procedural steps.

Task Briefing

Given the following:

- Unit 1 is in Mode 6
- Core Offload in Progress
- You are the Unit 1 Unit Supervisor

Panel 104 Drop 33 "CONTAINMENT CTRL AIR HDR PRESSURE LOW" and Panel 124 Drop 30 CNTMT 100 PSI CTRL AIR HDR 2 PRESSURE LOW" Alarms have annunciated.

MTI has investigated and determined that pressure transmitter 1-XPA-104 has failed.

01-OHP-4030-127-041, Refueling Integrity is impacted by this failure. Option A was previously chosen for CPN-74(1) on Data Sheet 5 (page 297).

The Shift Manager directs you select a different option per 01-OHP-4030-127-041,Step 4.2.6 and Data Sheet 1 for CPN-74 (page 113).

The option Chosen must maintain air to Containment and NOT require a Containment Entry.

CONTINUOUS	01-OHP-4030-127-041	Rev. 0	Page 6 of 318
Refueling Integrity			

NOTE: The following sub-step pertains to significant personnel industrial safety risks for tagging of installed components.

- **WHEN** tagging components for the purpose of "installed" **AND** the Shift Manager determines that personnel "Industrial Safety Risk" is significant enough to take exception to tagging the component(s), **THEN**:
  - "NOT HUNG" shall be entered in the "TAG HUNG" column on the applicable pages of the Data Sheet
  - The reason for NOT HUNG shall be stated on the page
  - The Shift Manager making the determination shall initial in the PERFORMED BY column

4.2.5 Log any out of position component, on penetrations that do **not** have administrative controls established, on Data Sheet 4, Loss Of Refueling Integrity Log.

a. **IF** a valve on a control board is out of position, **THEN** reverse the tag to show it is out of position and log this valve on Data Sheet 4.

4.2.6 **IF** it becomes necessary to change the way a penetration is isolated once Refueling Integrity is established, **THEN:**

a. Obtain prior SRO-CA approval to ensure change will not interfere with CORE ALTERATIONS.

b. Obtain appropriate page from Data Sheet 1.

c. Perform and verify lineup for desired option.

1. **IF** Refueling Integrity is required while changing options, **THEN** ensure it is maintained.

d. Attach new page to front of original page.

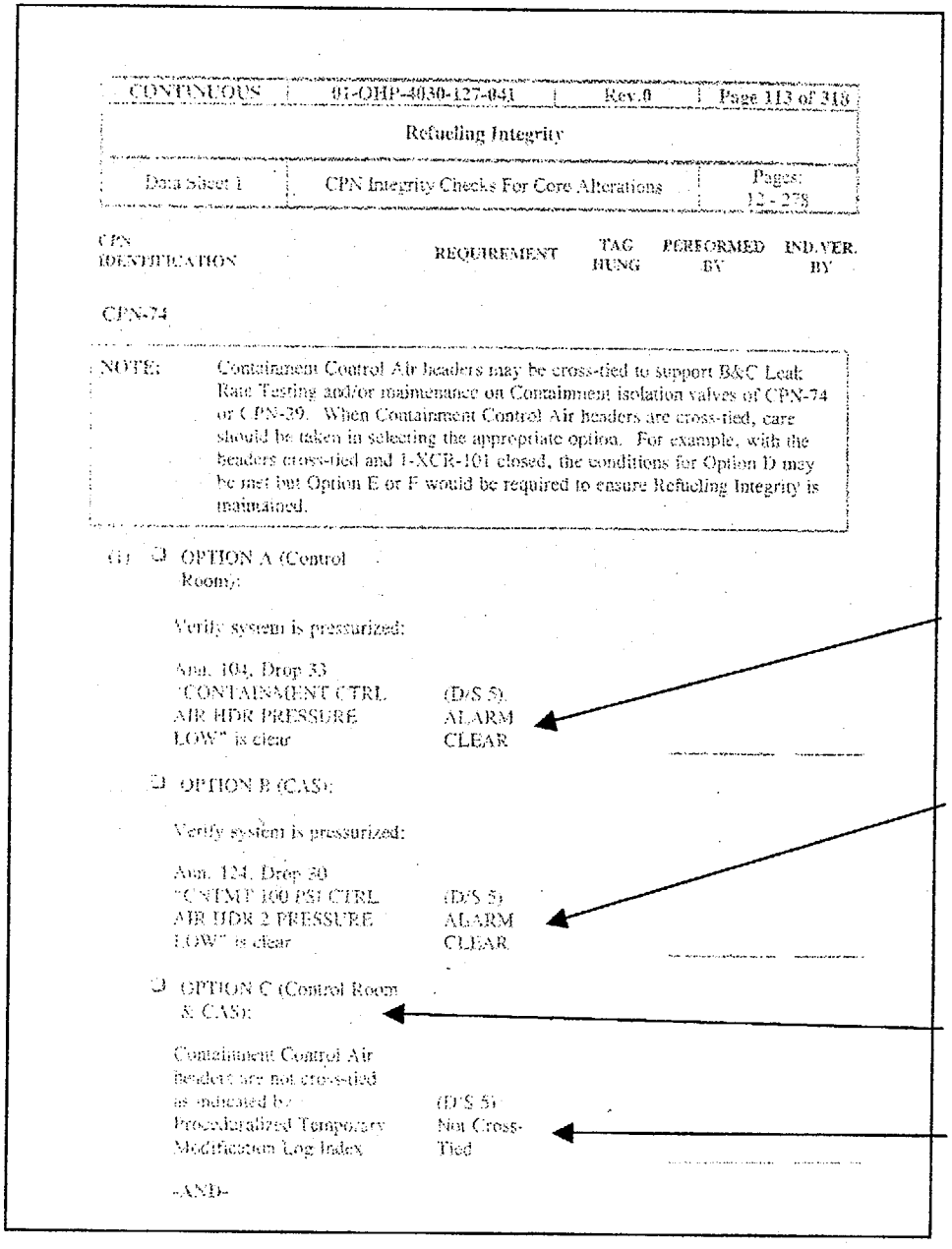
e. Check off on original page that the option was changed, and obtain Unit Supervisor signoff of Name, Date and Time.

General CUES:

CONTINUOUS	01-OHP-4030-127-041	Rev. 0	Page 297 of 318
Refueling Integrity			
Data Sheet 5	Daily System Parameters		Pages: 295 - 302

DESCRIPTION	Ref. Page	INSTRUMENT	VALUE	INITIALS
CPN-75 (2) OPTION A CCW Flow to Excess Letdown Hx	Page 55	1-CFA-459	> 100 gpm	
CPN-82 (1) OPTION A CCW Flow to Rx Support Cooler	Page 57	1-CFA-457	> 20 gpm	
CPN-82 (2) OPTION A CCW Flow from RX Support Cooler	Page 58	1-CFA-456	> 20 gpm	
CPN-74 (1) OPTION A Ann. 104, Drop 33 is Clear	Page 113		ALARM CLEAR	
CPN-74 (1) OPTION C Containment Control Air Headers	Page 113		Not Cross-tied	
CPN-29 (1) OPTION A Ann. 104, Drop 33 is Clear	Page 208		ALARM CLEAR	
CPN-29 (1) OPTION C Containment Control Air Headers	Page 208		Not Cross-tied	
CPN-29 (2) OPTION A Plant Air Pressure	Page 210	1-PPI-10	> 20 psig	
NO. 1 SG OUTSIDE CONTAINMENT (N/A IF INSIDE CONTAINMENT UTILIZED)				
CPN-6 (1) OPTION A WR Level #11 SG	Page 223	1-BLI-110	> 5%	
CPN-7 (1) OPTION A WR Level #11 SG	Page 224	1-BLI-110	> 80%	
CPN-66 (9) OPTION A WR Level #11 SG	Page 226	1-BLI-110	> 5%	

CUE : Alarm is no longer valid



CONTINUOUS	01-OHP-4030-127-041	Rev.0	Page 113 of 318

Refueling Integrity

Data Sheet 1	CPN Integrity Checks For Core Alterations	Pages: 12 - 278

CPN IDENTIFICATION	REQUIREMENT	TAG HUNG	PERFORMED BY	IND.VER. BY
CPN-74				

NOTE: Containment Control Air headers may be cross-tied to support B&C Leak Rate Testing and/or maintenance on Containment isolation valves of CPN-74 or CPN-29. When Containment Control Air headers are cross-tied, care should be taken in selecting the appropriate option. For example, with the headers cross-tied and 1-XCR-101 closed, the conditions for Option D may be met but Option E or F would be required to ensure Refueling Integrity is maintained.

(1) ☐ OPTION A (Control Room):

Verify system is pressurized:

Ann. 104, Drop 33 "CONTAINMENT CTRL AIR HDR PRESSURE LOW" is clear	(D/S 5) ALARM CLEAR

☐ OPTION B (CAS):

Verify system is pressurized:

Ann. 124, Drop 30 "CNTMT 100 PSI CTRL AIR HDR 2 PRESSURE LOW" is clear	(D/S 5) ALARM CLEAR

☐ OPTION C (Control Room & CAS):

Containment Control Air headers are not cross-tied as indicated by Proceduralized Temporary Modification Log Index	(D/S 5) Not Cross-Tied

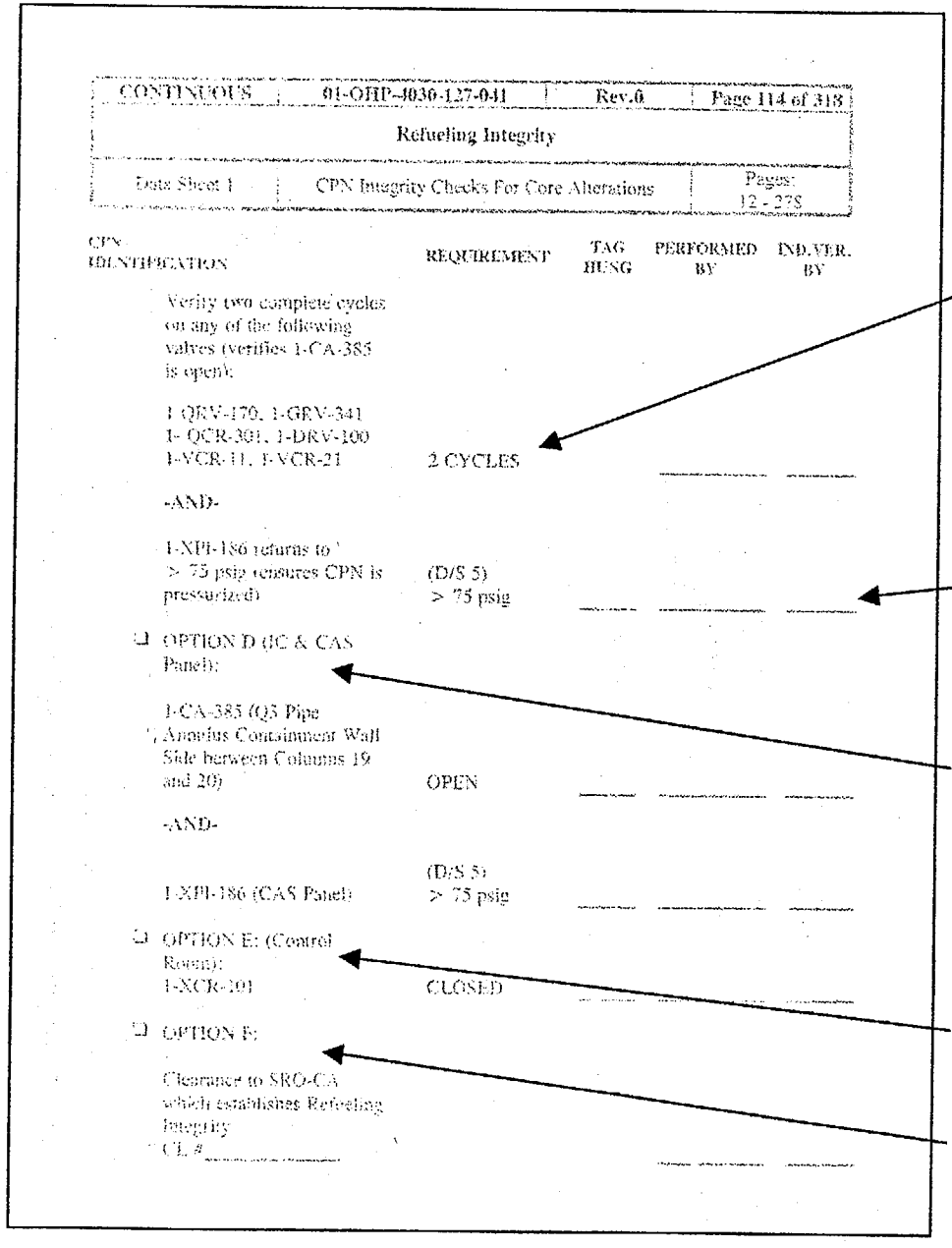
-AND-

Alarm is not Valid nor clear

Alarm is not Valid nor clear

CT: Determines that Option C is required Option

Verifies that Air headers are not Crosstied
CUE: "Proceduralized Temporary Modification Log Index does NOT list Containment Control Air Header crosstie."



CONTINUOUS	91-OHP-4030-127-041	Rev.0	Page 114 of 318

Refueling Integrity

Data Sheet 1	CPN Integrity Checks For Core Alterations	Pages: 12 - 27S

CPN IDENTIFICATION	REQUIREMENT	TAG HUNG	PERFORMED BY	IND.VER. BY
Verify two complete cycles on any of the following valves (verifies 1-CA-385 is open):				
1-QRV-170, 1-GRV-341 1- QCR-301, 1-DRV-100 1-VCR-11, 1-VCR-21	2 CYCLES			
-AND-				
1-XPI-186 returns to > 75 psig (ensures CPN is pressurized)	(D/S 5) > 75 psig			
☐ OPTION D (IC & CAS Panel):				
1-CA-385 (Q5 Pipe Annulus Containment Wall Side between Columns 19 and 20)	OPEN			
-AND-				
1-XPI-186 (CAS Panel)	(D/S 5) > 75 psig			
☐ OPTION E: (Control Room): 1-XCR-201	CLOSED			
☐ OPTION F:				
Clearance to SRO-CA which establishes Refueling Integrity CL #				

CT: Selects one valve and verifies that it cycles Two (2) times

Requests that AEO read pressure on 1-XPI-186 at CAS panel

Cue : "1-XPI-186 reads 85 psig"

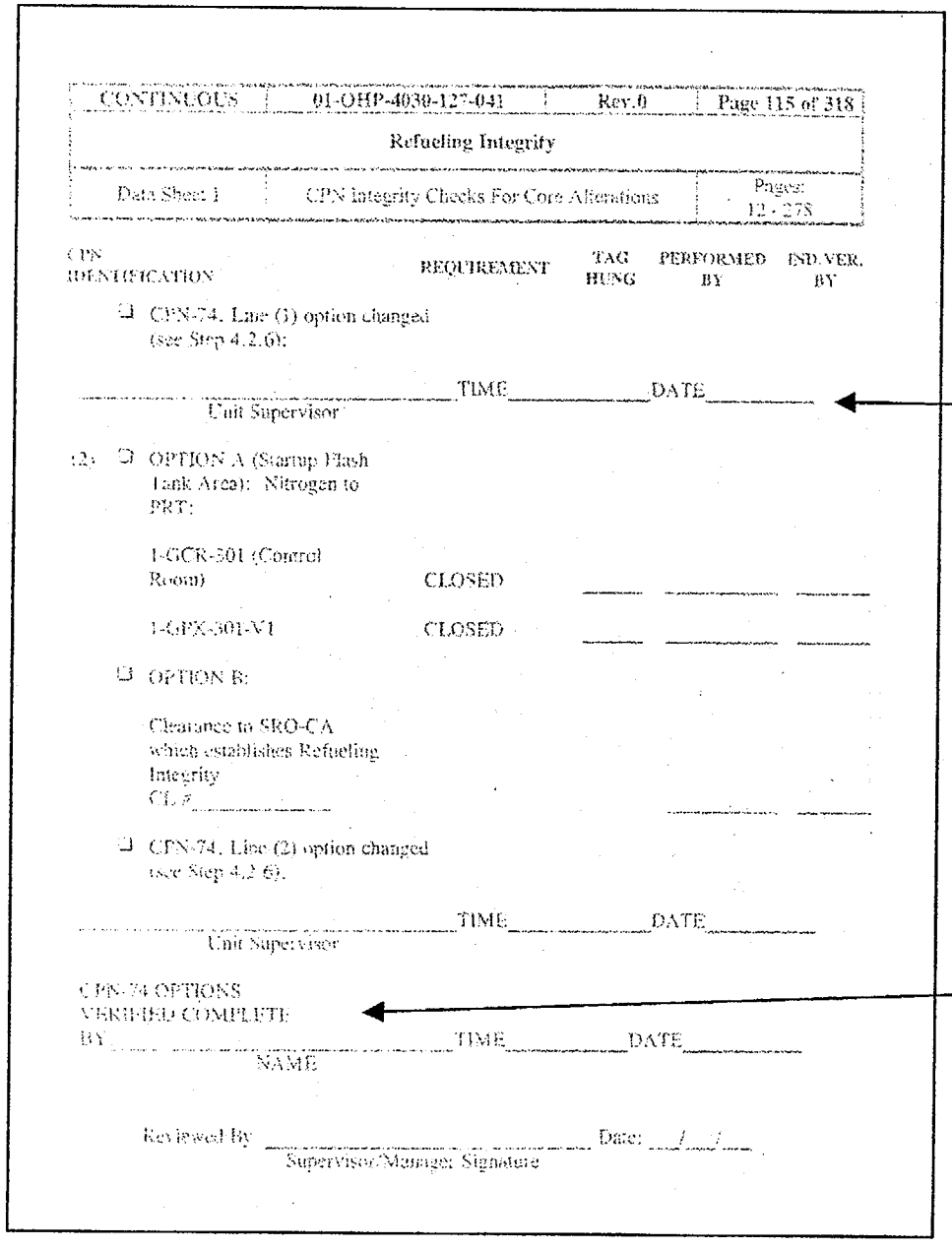
CT: Verifies Pressure is > 75 psig.
Requests Refuel Tag to be Hung on 1-XPI-186

Cue: "Refuel Tag is Hung on 1-XPI-186"

Can Not be used as it requires operations inside containment.

Can Not be used as air would be isolated

Can Not be used as air would be isolated



CONTINUOUS	01-OHP-4030-127-041	Rev.0	Page 115 of 318

Refueling Integrity

Data Sheet 1	CPN Integrity Checks For Core Alterations	Pages: 12 - 278

CPN IDENTIFICATION	REQUIREMENT	TAG HUNG	PERFORMED BY	IND.VER. BY
☐ CPN-74, Line (1) option changed (see Step 4.2.6):				
_____ Unit Supervisor		TIME_____	DATE_____	
(2) ☐ OPTION A (Startup Flash Tank Area): Nitrogen to PRT:				
1-GCR-301 (Control Room)	CLOSED			
1-GFX-301-V1	CLOSED			
☐ OPTION B:				
Clearance to SRO-CA which establishes Refueling Integrity CL #_____				
☐ CPN-74, Line (2) option changed (see Step 4.2.6).				
_____ Unit Supervisor		TIME_____	DATE_____	
CPN-74 OPTIONS VERIFIED COMPLETE BY _____ NAME		TIME_____	DATE_____	

Reviewed By _____ Date: __/__/__
Supervisor/Manager Signature

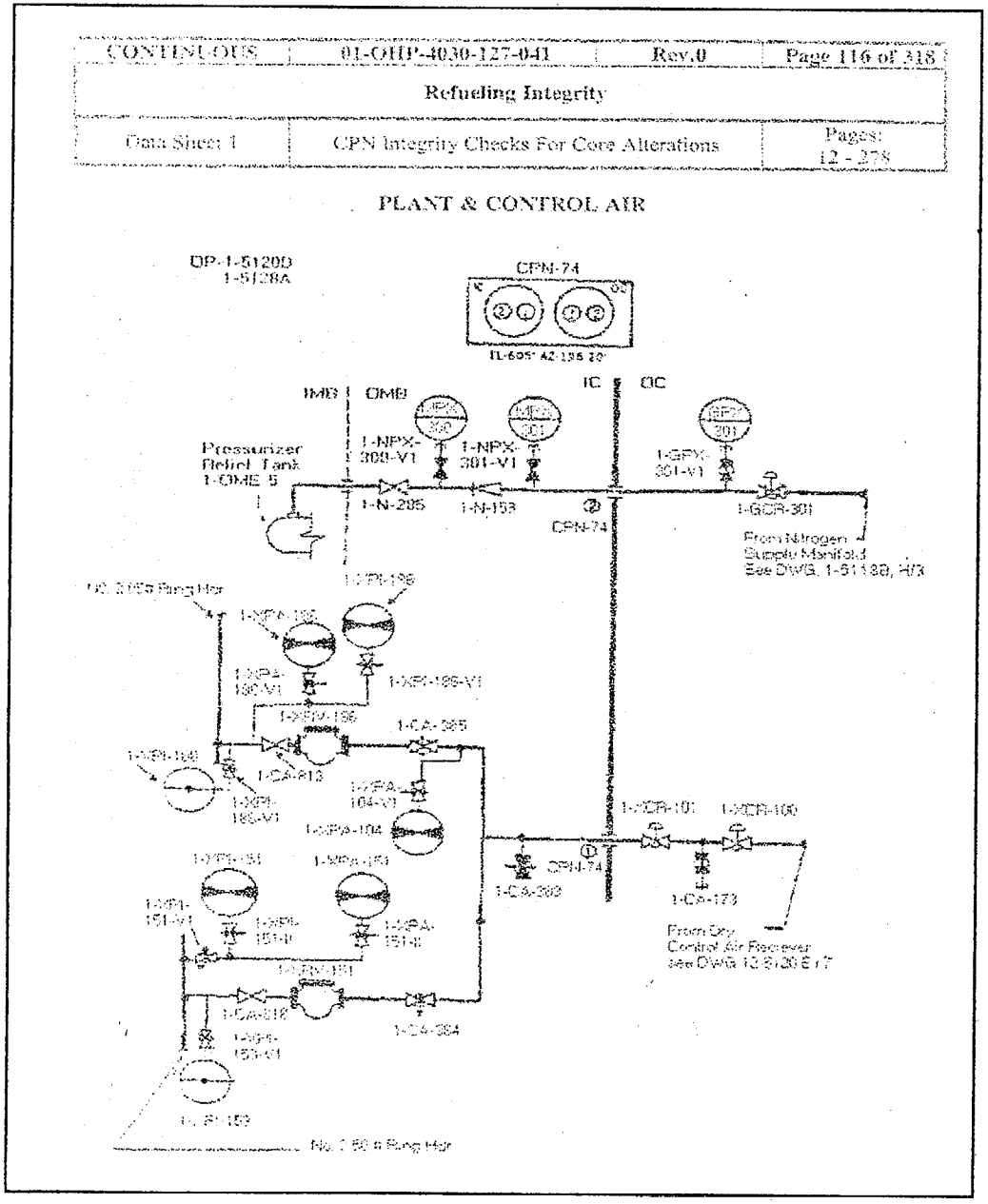
Evaluators Note: The following signature should be made on the Original copy of 01-OHP-4030-127-041 Data Sheet 1 page 115.

CT: Signs, enters Time & Date that CPN Line (1) was changed

Signs that CPN-74 Options are Complete on New Copy of 01-OHP-4030-127-041 Data Sheet 1 page 115

Reports task completed.

JPM IS COMPLETE.



(for reference only)

Task Briefing

Given the following:

- Unit 1 is in Mode 6
- Core Offload in Progress
- You are the Unit 1 Unit Supervisor

Panel 104 Drop 33 "CONTAINMENT CTRL AIR HDR PRESSURE LOW" and Panel 124 Drop 30 CNTMT 100 PSI CTRL AIR HDR 2 PRESSURE LOW" Alarms have annunciated.

MTI has investigated and determined that pressure transmitter 1-XPA-104 has failed.

01-OHP-4030-127-041, Refueling Integrity is impacted by this failure. Option A was previously chosen for CPN-74(1) on Data Sheet 5 (page 297).

The Shift Manager directs you select a different option per 01-OHP-4030-127-041,Step 4.2.6 and Data Sheet 1 for CPN-74 (page 113).

The option Chosen must maintain air to Containment and NOT require a Containment Entry.

NO2-A8

TITLE	Verify a Clearance
PROGRAM	NRC License Examination

REVISION	0
TIME	20 Minutes

			DATE:
DEVELOPING INSTRUCTOR:	Name:	Dale J. Frie	**10/29/02**
	Signature:		
OPERATIONS REVIEW:	Name:	T. Werk	**10/29/02**
	Signature:		

COURSE NUMBER AND TITLE:	NO2-A8 Verify a Clearance Permit	REVISION: 0

REFERENCES

12-OHP-2110-CPS-001 Clearance Permit System

Task: 3000040201 Verify a Clearance Permit.

K/A CROSS REFERENCE: 2.2.13
K/A IMPORTANCE: SRO 3.8

Evaluation Setting

Classroom/Simulator

Handouts

Task Briefing
Clearance Package (Forms, Cards (4), & Prints OP-2-5113-71, OP-2-98721-7, OP-2-98415-47)

ATTACHMENTS

12-OHP-2110-CPS-001 Attachment 3, Clearance Development Checklist - Verifier

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	NO2-A8 Verify a Clearance Permit	REVISION: 0

Task Standards

The Candidate performs a review as per 12-OHP-2110-CPS-001 Attachment 3 and determines that the clearance is improperly sequenced and that tags should be required for the breaker and control power fuses.

Task Briefing

The Clearance Control Group Supervisor directs you to verify the 2E Essential Service Water (ESW) Pump Clearance #2011795 per 12-OHP-2110-CPS-001 Attachment 3.

The Clearance was written from a directly generated Clearance Request.
There is no Job Order Activity.
The Clearance was not written from a Standard Clearance.
The Clearance does not fit into the boundaries of an existing Clearance.

Information	12-OHP-2110-CPS-001	Rev. 4	Page 33 of 41
Clearance Permit System			
Attachment 3	Clearance Development Checklist-Verifier		Pages: 33 - 34

This checklist is to be used as an aid in Clearance development and is not intended to be a comprehensive list.

Clearance Development Checklist - VERIFIER

ACTIVITY CHECKS

- ☐ Read JOA description: check unit designation, Clearance type (Red/Striped).
- ☐ Does activity fit within the boundaries of an existing Clearance?

CLEARANCE CHECKS

- ☐ Clearance written from a standard.
- ☐ Special instructions to explain why special boundaries were chosen
- ☐ Main equipment removed before support
- ☐ Is Containment Integrity maintained
- ☐ Properly sequenced to prevent: auto actuation's and minimize retracing of steps
- ☐ Conflict check, Sort, Tags properly labeled (Red-Striped-Caution/Red Stripe)
- ☐ Prints show boundaries and Clearance points
- ☐ Prints verified via NDIS
- ☐ Management approval for Uncontrolled Drawings

For those checks that are not necessary for this Clearance, i.e. the checks without arrows, accept any trainee comment.

Trainee determines that there are no support equipment removed from service by this Clearance.

NOTE: Trainee may interpret that the Control Switch should be in 'Pull To Lock' and Control Power Fuses should be 'Pulled' before the Breaker is racked to Disconnect at this point. IF so, this meets the standard for proper sequencing of tags.

CT: Trainee determines that the Control Switch and the Breaker are improperly sequenced.

CT: Trainee determines that the Control Power Fuses and the Breaker should be "RED" tagged instead of "NO" tagged.

Information	12-OHP-2110-CPS-001	Rev. 4	Page 34 of 41
Clearance Permit System			
Attachment 3	Clearance Development Checklist-Verifier		Pages: 33 - 34

MECHANICAL	ELECTRICAL
❑ Low energy <100 psig < 130 °F ❑ Steam side of trap isolated first ❑ High press side of pumped systems isolated first ❑ Does component have seal water ❑ At least one vent and/or drain tagged open, if possible ❑ Check drains that tie into a common header ❑ Planning notified if drain hoses affecting HELB barriers ❑ Prevent rotation-isolate process flow ❑ Hazardous gases, liquids and solids	❑ Any electric plant limitations ❑ Remote switches on HSD Panel and other unit ❑ One tag per lifted lead ❑ Motor Heater power ❑ Breaker cleaning maps ❑ Alternate power ❑ Control switch, fuses, breaker ❑ Ground Clearance separate ❑ Induced power (PT's) ❑ Grounds required when working on electrical circuits > 600 volts
FIRE PROTECTION	**INSTRUMENTATION**
❑ PMP 2291.PLN.001, Work Management Activity Planning Process ❑ Appendix R ❑ Document turn counts on Placement and Restoration Special Instructions	❑ Control Air isolated ❑ Failure position ❑ Auto start signals
ADMIN	
❑ Criteria for conducting infrequently performed tests or evolutions: PMI-4090 ❑ Event initiated surveillance PMP 4030.EIS.001 ❑ Racking 4 kV breakers 12-OHP 4021.082.009 ❑ Racking 600 VAC breakers 12-OHP 4021.082.009 ❑ Breaker Cycling PMP 2291.PMT.001 ❑ Non-positive boundary - 12-OHP 2110.CPS.001, Data Sheet 5 ❑ PMP 2291.OLR.001, On-Line Risk Management ❑ PMP 4100.SDR.001, Plant Shutdown Safety and Risk Management	
❑ The verification of the boundaries is independent and not influenced by the writer.	

For those checks that are not necessary for the Clearance, accept any trainee comment.

Evaluator Note: HSD Panel Switches are the 201 switches.

CT: Trainee determines Control Switch, Fuses, and Breaker need to be properly sequenced and RED tagged.

NOTE: This may have been previously determined on page 33 of the checklist.

CUE: When the Trainee completes the ELECTRICAL portion of the checklist announce,

JPM IS COMPLETE.

Task Briefing

The Clearance Control Group Supervisor directs you to verify the 2E Essential Service Water (ESW) Pump Clearance #2011795 per 12-OHP-2110-CPS-001 Attachment 3.

The Clearance was written from a directly generated Clearance Request.
There is no Job Order Activity.
The Clearance was not written from a Standard Clearance.
The Clearance does not fit into the boundaries of an existing Clearance.

N02-A9

TITLE	**Reviewing Liquid Release (Alternate Path)**	**REVISION**	**0**
PROGRAM	**NRC License Exam**	**TIME**	**15 Minutes**

			DATE:
DEVELOPING INSTRUCTOR:	Name:	S. Pettinger	**9/7/02**
	Signature:	Steven W. Pettinger	
OPERATIONS REVIEW:	Name:	T. Werk	
	Signature:		9/9/02

References

12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks
PMP-6010-OSD-001, Offsite Dose Calculation Manual

Task: 0230140102 Verify releases comply with the Offsite Dose Calculation Manual.
0060220103 Authorize a radioactive liquid release to the Circulating Water System.

K/A CROSS REFERENCE: 2.3.6
K/A IMPORTANCE: SRO 3.1 RO 2.1

Evaluation Setting

Classroom / Simulator

Handouts

Task Briefing
Prepared Release Package:

- 12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks:
  - Attachment 3, Monitor Tank Release To The Circ. Water System
  - Data Sheets 1, Monitor Tank Release Permit
  - Lineup Sheet 3, Monitor Tank No. 3 Recirc Valve Lineup
  - Line up Sheet 7, Monitor Tank No. 3 Release Valve Lineup
- Liquid Release Worksheet (1)

Available References

- PMP-6010-OSD-001, Offsite Dose Calculation Manual

Simulator Setup

N/A

Task Objectives/Standards

Identifying conditions that would prevent authorization of a liquid release in accordance with Step 4.5.4 of 12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks.

Task Briefing

Given the following conditions:

- You are the WCC/SRO
- Both units are at 100% power
- All Circulating Water Pumps are running in both units
- Both units Circulating Water Systems are in their normal alignment
  - All condenser water box halves are in service
  - Neither unit is in De-Ice Mode
- RRS-1001, Liquid waste Effluent Monitor is INOPERABLE
- Monitor Tank # 3 is ready to be released to the Unit 2 circulating water system.
- The monitor tank release package is ready for your review and authorization.

Authorize monitor tank release (L-02-75) in accordance with Step 4.5.4 of 12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks. Be sure to mark any (and all) conditions that would prevent authorization of this release.

Reference	12-OHP-4021-006-004	Rev. 25	Page 20 of 58
Transferring Distillate From Monitor Tanks			
Attachment 3	Monitor Tank Release To The Circ Water System		Pages: 14 - 28

MONITOR TANK NO. _____ RELEASE NO._____

4.5 Align Monitor Tank to be released:

4.5.1 Complete applicable release lineup sheet (√):

- ☐ Lineup Sheet 5, Monitor Tank No. 1 Release Valve Lineup
- ☐ Lineup Sheet 6, Monitor Tank No. 2 Release Valve Lineup
- ☐ Lineup Sheet 7, Monitor Tank No. 3 Release Valve Lineup
- ☐ Lineup Sheet 8, Monitor Tank No. 4 Release Valve Lineup

____ ____

4.5.2 Verify release number has been entered on each page of Lineup sheet.

____ ____

4.5.3 Document release flowpath in Section 3.0 of Data Sheet 1.

____ ____

4.5.4 Obtain SM/WCC-SRO authorization for release:

- Applicable Release Valve Lineup sheet is complete.
- Plant conditions required for a radioactive release, as specified by ODCM, have been met.
- 24 hours have NOT elapsed since Chemistry approval for release.

_____ Time: _____ Date: _____
SM/WCC SRO

4.6 Request RP Tech perform the following:

4.6.1 Enter RRS-1001 High Alarm setpoint (Section 2 - Data Sheet 1).

____ ____
RP Tech OPS

4.6.2 Verify two previous Ten Minute Averages are Normal for RRS-1001.

C:

____ ____
RP Tech OPS

4.6.3 Verify parameter files for all RRS-1000 channels are correct. [Ref. 7.2.1i.3]

____
RP Tech

CT - Identifies that the discharge alignment was NOT <u>independently</u> verified by <u>two</u> (different) operators for CW (Circ Water) valves located in the Turb Bldg on first page (page 53) of Lineup Sheet 7 (i.e., 1-CW-123, 1-CW-124, 2-CW-123, 2-CW-124).

CT - Identifies that <u>two</u> independent samples were NOT performed as only <u>one</u> LIQUID RELEASE WORKSHEET form is included in the release package.

Identifies that greater than 24 hours has elapsed since chemistry approved the release (Data Sheet 1, Section 2, Chemistry Approval Date/Time (Sample: 11/21/02 @ 0601, Exam: 11/22/02 after 0700)
<u>Cue</u>: If the candidate asks, the current time is as-is (real time).

<u>Cue</u>: Reports task completed.

JPM IS COMPLETE.

Task Briefing

Given the following conditions:

- You are the WCC/SRO
- Both units are at 100% power
- All Circulating Water Pumps are running in both units
- Both units Circulating Water Systems are in their normal alignment
  - All condenser water box halves are in service
  - Neither unit is in De-Ice Mode
- RRS-1001, Liquid waste Effluent Monitor is INOPERABLE
- Monitor Tank # 3 is ready to be released to the Unit 2 circulating water system.
- The monitor tank release package is ready for your review and authorization.

Authorize monitor tank release (L-02-75) in accordance with Step 4.5.4 of 12-OHP-4021-006-004, Transferring Distillate From Monitor Tanks. Be sure to mark any (and all) conditions that would prevent authorization of this release.

N02-A10

TITLE	**Emergency Plan Classification with PAR**
PROGRAM	NRC License Exam

REVISION	**0**
TIME	**15 Minutes**

DEVELOPING INSTRUCTOR:	Name:	Dale Tidwell	**DATE:** **9/7/02**
	Signature:	Dale Tidwell	
OPERATIONS REVIEW:	Name:	T. Werk	
	Signature:		9/9/02

REFERENCES

Procedure: PMP-2080-EPP-101 revision 3b, Emergency Classification

Task: EPP0020703, Classify an Emergency Condition

K/A CROSS REFERENCE: 2.4.41

K/A IMPORTANCE: SRO 4.1 RO 2.3

Procedure: PMP-2080-EPP-100 revision 0, Emergency Response

Task EPP0120703, Develop a Protective Action Recommendation

K/A CROSS REFERENCE: 2.4.44

K/A IMPORTANCE: SRO 4.0 RO 2.1

EVALUATION SETTING

Classroom or office

HANDOUTS

Task Briefing

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N02-A10 Emergency Plan Classification with PAR	REVISION: 0

TASK OBJECTIVES/STANDARDS

Terminal Objectives:

1. In accordance with procedures, and with an independent assessment from the STA, when an emergency event has occurred or changed, the operator will be able to:

    1. Classify an Emergency Condition
    2. Change an Emergency Classification based on plant conditions.
    3. Develop a Protective Action Recommendation

Enabling Objectives

1. Given a narrative description of a plant condition, an applicable list of plant parameters, and a copy of Emergency Plan Procedure (PMP-2080-EPP-101), demonstrate the ability to classify the emergency within 10 minutes.

2. Given a brief event scenario and a copy of PMP 2080.EPP.100 (Initial Emergency Response) determine the appropriate Protective Action Recommendation.

TASK BRIEFING

You are the shift manager. A complete loss of AC power has occurred and it is expected to take at least 5 hours to restore AC power.

Inform the examiner of the Emergency Classification of this event and any applicable Protective Action Recommendations.

Assume the weather is fair with the wind from 300° at 4 mph and NO offsite release is occurring.

Reference	PMP-2080-EPP-101	Rev. 3b	Page 15 of 114
Emergency CLASSIFICATION			
Attachment 1	Emergency Condition Categories		Pages 8 - 20

INITIATING CONDITIONS - Mode 1-4

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
SYSTEM MALFUNCTIONS			
S-1 RPS failure (p.83) 1 Auto and manual Reactor Trip fails from Control Rooms for ASD Subcriticality and Core Cooling CSFSTs are RED OR 2 Subcriticality and Heat Sink CSFSTs are RED.	S-1 RPS failure (p.82) Auto and manual Reactor Trip fails from Control room.	S-1 RPS failure (p.80) Auto Reactor Trip fails AND manual trip successful from Control Room.	
S-2 Loss of AC (p.88) 1 Prolonged loss of all AC (A and D - T buses) AND Core Cooling CSFST - ORANGE OR 2 Loss of all AC (A and D - T buses) expected to last for > 4 hrs	S-2 Loss of AC (p.87) Loss of all AC (A and D - T buses) for > 15 minutes	S-2 Loss of AC (p.86) AC power supply to T buses reduced to a single source for > 15 minutes.	S-2 Loss of AC (p.85) Loss of ALL OFF-SITE power (Auxiliary, Reserve and 69kv Transformers) to the T Buses for > 15 minutes
	S-3 Loss of DC power (p.90) Loss of ALL vital DC buses AB AND CD for > 15 minutes (bus volts < 220v)		
	S-5 Loss of Hot SD sys (p.91) Loss of ability to achieve or maintain hot shutdown based on entry into: 1.OHP 4023.FR H.1, Response to Loss of Secondary Heat Sink OR 2.OHP 4023.FR C.1, Response to Inadequate Core Cooling.		

The trainee should refer to PMP-2080-EPP-101, Emergency Classification, Attachment 1, page 15 of 114.

CT The classification for this event is "General Emergency"

Pages 88 and 89 should be referred to for the basis of the General Emergency classification (next 2 pages).

Reference	PMP-2080.EPP.101	Rev. 3b	Page 88 of 114
Emergency CLASSIFICATION			
Attachment 5	Basis For Emergency Action Levels (Commitment: 6489)		Pages: 22 - 114

EC CATEGORY NAME, EMERGENCY CLASS, AND DESCRIPTION

S-2: GENERAL EMERGENCY – LOSS OF AC POWER

INITIATING CONDITION

Prolonged loss of ALL offsite power and ALL onsite AC power to essential buses.

MODE APPLICABILITY

1, 2, 3, 4

EAL THRESHOLD VALUE

1 Loss of both of the following T-buses on a unit AND Core Cooling CSFST is ORANGE

a. T11A, T11D (Unit 1)

-OR-

b. T21A, T21D (Unit 2)

-OR-

2 Loss of both of the following T-buses that is expected to last for > 4 hours

a. T11A, T11D (Unit 1)

-OR-

b. T21A, T21D (Unit 2)

NOTE: Evaluate each units' power supply separately.

BASIS (References)

PROLONGED – Restoration of at least one emergency bus within four (4) hours is not likely.

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and ESW. Prolonged loss of all AC power could lead to loss of fuel clad, RCS, and containment. In accordance with letters AEP:NRC:0537D, dated April 14, 1989, and AEP:NRC:0537F, dated March 30, 1990, Cook Nuclear Plant falls within the four hour station blackout (SBO) coping category.

This IC is specified to assure that in the unlikely event of a prolonged station blackout timely recognition of the seriousness of the event occurs and that declaration of a General Emergency occurs

as early as is appropriate, based on a reasonable assessment of the event trajectory. Although this IC may be viewed as redundant to the Fission Product Barrier Degradation IC, its inclusion is necessary to better assure timely recognition and emergency response.

The likelihood of restoring at least one emergency bus should be based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions.

TERMINATION/RECOVERY CRITERIA

Cold shutdown is established or a reliable power supply to the ESF buses is established and other initiating conditions requiring maintenance of the general alert status are not present.

DEVIATION FROM NUMARC:

This EAL is specified by loss of essential pump buses rather than loss of transformers and emergency generators.

b. Direct a Control Room Operator to make the following announcement for the appropriate ERO facility(s) to be activated, over the PA system. Have the announcement broadcast twice.

"Attention all personnel. Attention all personnel. The Unusual Event is still in effect, however report to and activate the *Operations Staging Area/Technical Support Center/Emergency Operations Facility*. All other plant personnel be prepared for further announcements."

c. On any touch-tone telephone:

- Dial 1646
- Wait for the tone
- Press *##* to access the Training Center and Buchanan Office Building PA
- Repeat the above announcement twice

3.2.7 IF a General Emergency has been declared, THEN direct the development of a Protective Action Recommendation using the following steps:

a. Prior to developing a PAR consider whether the following could have an effect on the PAR:

- Adverse weather conditions.
- A forecast of changing weather conditions.
- Release characteristics (Puff vs. Continuous)
- Evacuation times per Attachment 3 of PMP-2081-EPP-305, Protective Action Recommendations

b. Include any deviations from the PAR flowchart, Attachment 1, based on this step in the protective action recommendation.

A General Emergency requires a protective action recommendation be made to the state.

e. Obtain the following data:

- Wind direction

- AND -

- Offsite dose projection (if available) as calculated using DAP or actual offsite dose rate measurements.

d. Using Attachment 1, determine the appropriate PAR.

e. Enter the Protective Action Recommendation on the Nuclear Plant Accident Notification form, obtained from the Emergency Kit and inform the State of Michigan of the recommendation immediately.

f. Repeat Steps 3.2.7.a through 3.2.7.e every 15 minutes or as requested until relieved by the incoming Emergency Response Organization.

3.2.8 Perform mitigating actions in accordance with appropriate plant procedures.

3.2.9 IF the Plant Process Computer (PPC) is inoperable, THEN:

- Designate someone to complete Data Sheet 1, Technical Information Sheet, every 15 minutes.
- Forward the completed copy to the TSC.
- Continue this activity for the duration of the emergency or until the PPC is operable.

3.2.10 IF accountability results identify a missing person(s) AND the TSC and OSA are NOT activated, THEN have Security attempt to locate the missing person(s) per PMP-2081-EPP-103, Assembly, Accountability, and Evacuation of Personnel.

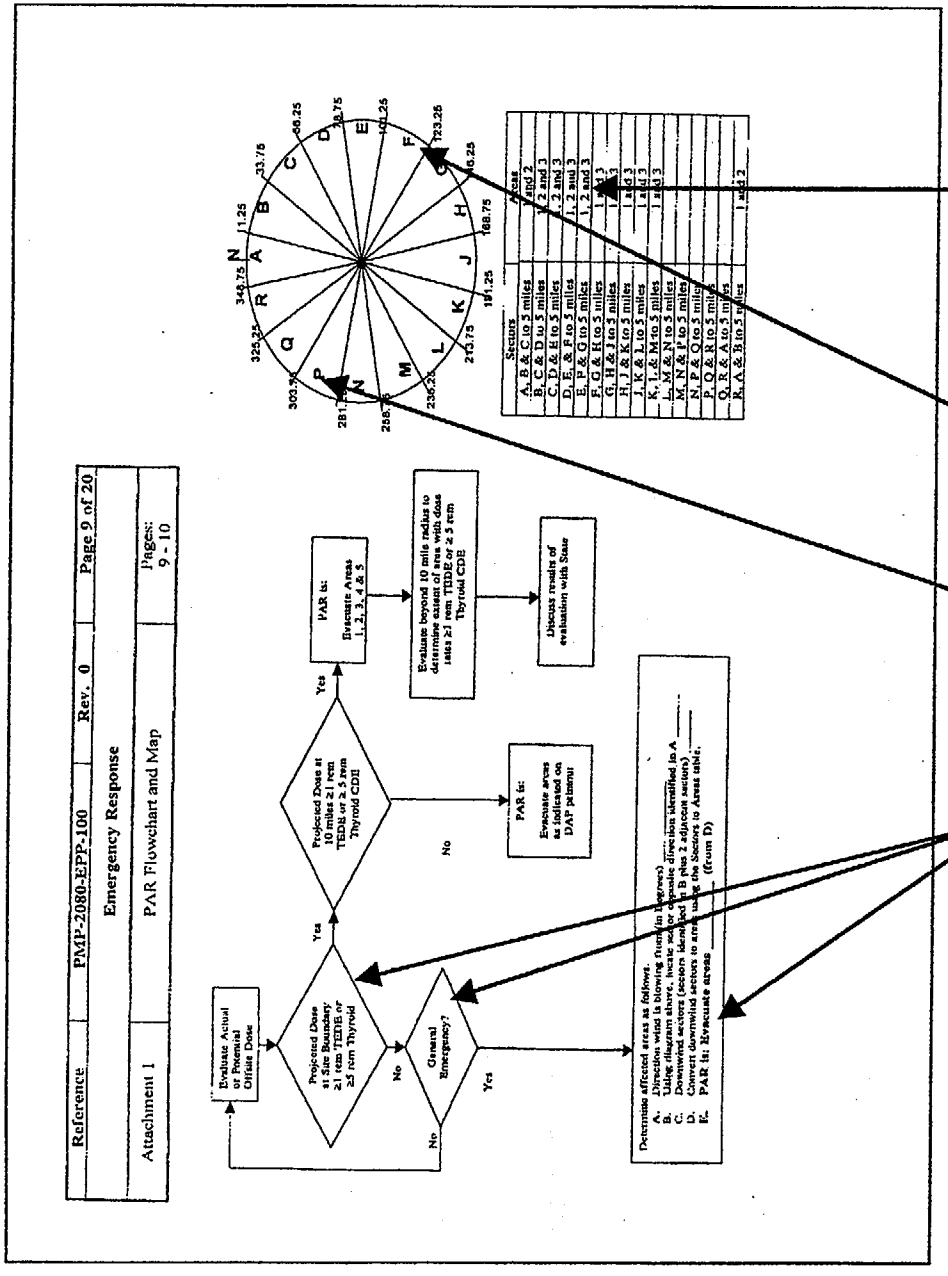
3.2.11 Upon arrival of the oncoming SEC conduct a turnover as follows:

a. Obtain a copy of Data Sheet 2, Emergency Turnover Checklist.

Wind direction and speed is given in briefing. Wind is from 300° at 4 mph.

Per briefing, NO offsite release is occurring.

Next page.



CT Protective Action Recommendation is to evacuate areas 1, 2, and 3.

Wind is from 300°. Downwind sector is F and adjacent sectors are sectors E and G.

CT Even though there is NO offsite release occurring, a protective action recommendation is still required based on the General Emergency classification.

Student informs examiner that this event is classified as a General Emergency with a Protective Action Recommendation to evacuate areas 1, 2, and 3.

JPM IS COMPLETE

Task Briefing

You are the shift manager. A complete loss of AC power has occurred and it is expected to take at least 5 hours to restore AC power.

Inform the examiner of the Emergency Classification of this event and any applicable Protective Action Recommendations.

Assume the weather is fair with the wind from 300° at 4 mph and NO offsite release is occurring.