N06-SRO-a

TITLE	**Review Completed SDM Calculation**	**REVISION**	**1**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**20 Minutes**

SCOPE OF REVISION: Bank JPM No. SRO-N005 revised to include Stuck Rod and Misaligned rod.

			DATE:
AUTHOR	**Name:**	Steve Pettinger	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

COURSE NUMBER AND TITLE:	N06-SRO-a Review Completed SDM Calculation	REVISION: 1

REFERENCES

Unit 1 Technical Data Book Cycle 20
01-OHP-4021-001-012, Rev 20 Determination of Reactor Shutdown Margin

TASK

TASK ID: ADM0370302 Verify Limiting Conditions for Operations are met in accordance with Technical Specifications

K/A Statement: 2.1.25 Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.
K/A Importance: RO: 2.8 SRO: 3.1

K/A Statement: 2.1.32 Ability to explain and apply all system limits and precautions.
K/A Importance: RO: 3.4 SRO: 3.8

EVALUATION SETTING

Classroom

HANDOUTS

Completed Attachment 1 of 01-OHP-4020-001-012
Tech Data Book Figures 1.3b and 13.1
Calculator

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N06-SRO-a Review Completed SDM Calculation	REVISION: 1

TASK OBJECTIVES/STANDARDS

Review and verify the accuracy of a manual Shutdown Margin Calculation for MODE 1 or 2.

EVALUATOR INSTRUCTIONS

Provide the operator with a completed copy of Attachment 1 of 01-OHP-4020-001-012 and Tech Data Book Figures

TASK BREIFING

You are the Unit Supervisor on Unit 1.

Per your direction, the extra Control Room Operator completed Attachment 2 of 01-OHP-4021-001-012, Determination of Reactor Shutdown Margin.

Unit 1 conditions are as follows:

- PPC point U0035 indicates 12,010 MWD/MTU
- Reactor power is at 100% steady state.
- RCS boron concentration is 535 ppm.
- Control Bank D step counter indicates 219 steps.
- Individual rod positions for the Control Bank D rods are as follows:
  - D-4 at 217 steps
  - D-8 at 200 steps
  - D-12 at 218 steps
  - H-4 at 216 steps
  - H-8 at 218 steps
  - H-12 at 220 steps
  - M-4 at 216 steps
  - M-8 at 220 steps
  - M-12 at 219 steps
- Control rod F-10 in Control Bank C was discovered to be untrippable during performance of Technical Specification Surveillance Requirement 3.1.4.2.
- The SM is addressing the Technical Specification Requirements associated with the Untrippable ROD.

Perform the SRO review of the completed Attachment 2.

Continuous	01-OHP-4021-001-012	Rev. 20	Page 18 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

1 PURPOSE AND SCOPE

1.1 **[Current TS]** To provide a method for manually calculating SHUTDOWN MARGIN while in MODE 1 or 2. (Technical Specification 3.1.1.1)

[Improved TS] To provide a method for manually calculating SHUTDOWN MARGIN while in MODE 1 or 2. (Technical Specification 3.1.1, 3.1.4, 3.1.5, and 3.1.6)

2 PREREQUISITES

2.1 None.

3 PRECAUTIONS AND LIMITATIONS

3.1 Data read from Technical Data Book figures shall **NOT** be interpolated. Minimum allowable Tavg per Technical Data Book is 68°F.

3.2 If a curve for desired plant conditions does **NOT** exist in the Technical Data Book, the next closer curve in the conservative direction shall be used.

CAUTION: It is essential to use the proper mathematical sign (+ or -) and include proper sign when performing calculations.

NOTE: Curves should be read as accurately as possible.

4 DETAILS **INIT**

4.1 Cycle data:

4.1.1 Enter Cycle number from Technical Data Book (TDB):

Unit 1 Cycle 20 SMP

Operator initiates review of Attachment 2.

Continuous	01-OHP-4021-001-012	Rev. 20	Page 19 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

4.1.2 Enter Current Date:

Date: 2/8/06 SAB

CAUTION: **[Current TS]** If one or more rods are immovable due to friction, interference or known to be untrippable, the action statement of Technical Specification (TS) 3.1.3.1 must be performed. The TS action statement includes the requirement to verify adequate SHUTDOWN MARGIN within one hour.

[Improved TS] If one or more rods are inoperable due to being immovable as a result of excessive friction or mechanical interference or otherwise known to be untrippable, the action statement of Technical Specification (TS) 3.1.4 must be performed. The TS action statement includes the requirement to verify adequate SHUTDOWN MARGIN within one hour.

4.2 Rod Data:

4.2.1 Enter the total number of rods which are untrippable or immovable:

Number of Untrippable Rods 1 SAB

4.2.2 Enter the total number of rods which are misaligned, including dropped rods, **AND** which violate the insertion limits of the CORE OPERATING LIMITS REPORT (COLR):

Number of Misaligned or Dropped Rods Ø SAB

CT: Operator determines that ONE rod is misaligned. Rod D-8 is misaligned. TBD-1-FIG-13.1 allows ± 18 steps. Rod D-8 is at –19 steps from bank demand.
[Added During Exam Administration: The Rod is NOT below the insertion limits and therefore is NOT included here.]

Continuous	01-OHP-4021-001-012	Rev. 20	Page 20 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

4.3 Core Burnup:

- **IF** the Plant Process Computer (PPC) is available, **THEN** enter Core Burnup value from PPC point U0035 **AND** divide by 1000 to convert the burnup from MWD/MTU to GWD/MTU:

PPC Point U0035	12010	MWD/MTU
	÷	
Conversion factor	1000	MWD/GWD
Core Burnup from PPC	= 12.01	GWD/MTU SAB

-OR-

- **IF** the PPC is **NOT** available, **THEN** obtain Core Burnup value from Reactor Engineering:

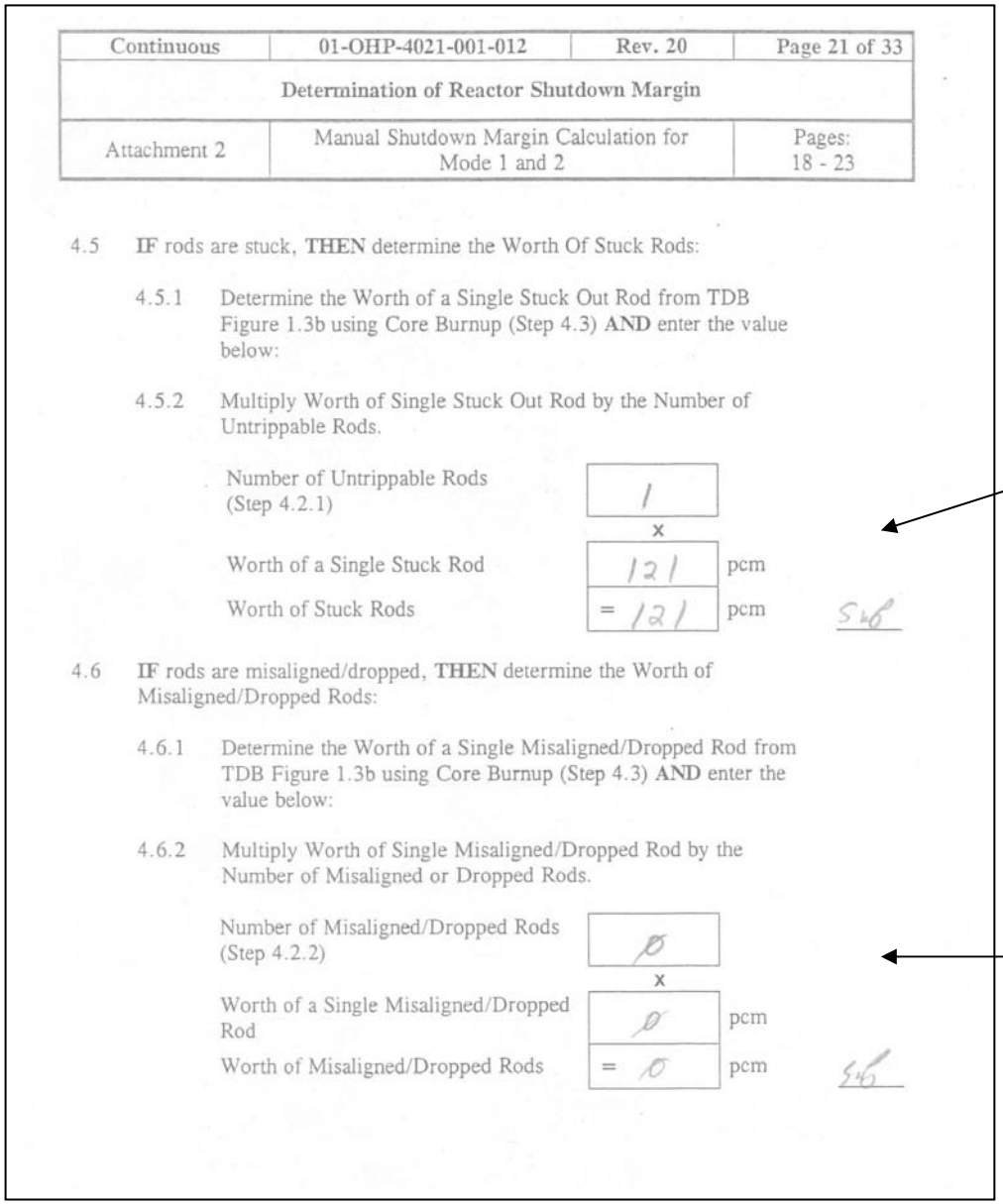
Core Burnup from Reactor Engineering		GWD/MTU ____

4.4 Excess SHUTDOWN MARGIN:

Using Core Burnup (Step 4.3) determine Excess SHUTDOWN MARGIN from Technical Data Book (TDB) Figure 1.3b.

Excess SHUTDOWN MARGIN	2150	pcm SAB

Operator should identify the second bullet of Step 4.3 as N/A with initial and date required.



Continuous	01-OHP-4021-001-012	Rev. 20	Page 21 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

4.5 **IF** rods are stuck, **THEN** determine the Worth Of Stuck Rods:

4.5.1 Determine the Worth of a Single Stuck Out Rod from TDB Figure 1.3b using Core Burnup (Step 4.3) **AND** enter the value below:

4.5.2 Multiply Worth of Single Stuck Out Rod by the Number of Untrippable Rods.

Number of Untrippable Rods (Step 4.2.1)	1	
	x	
Worth of a Single Stuck Rod	121	pcm
Worth of Stuck Rods	= 121	pcm

SAT

4.6 **IF** rods are misaligned/dropped, **THEN** determine the Worth of Misaligned/Dropped Rods:

4.6.1 Determine the Worth of a Single Misaligned/Dropped Rod from TDB Figure 1.3b using Core Burnup (Step 4.3) **AND** enter the value below:

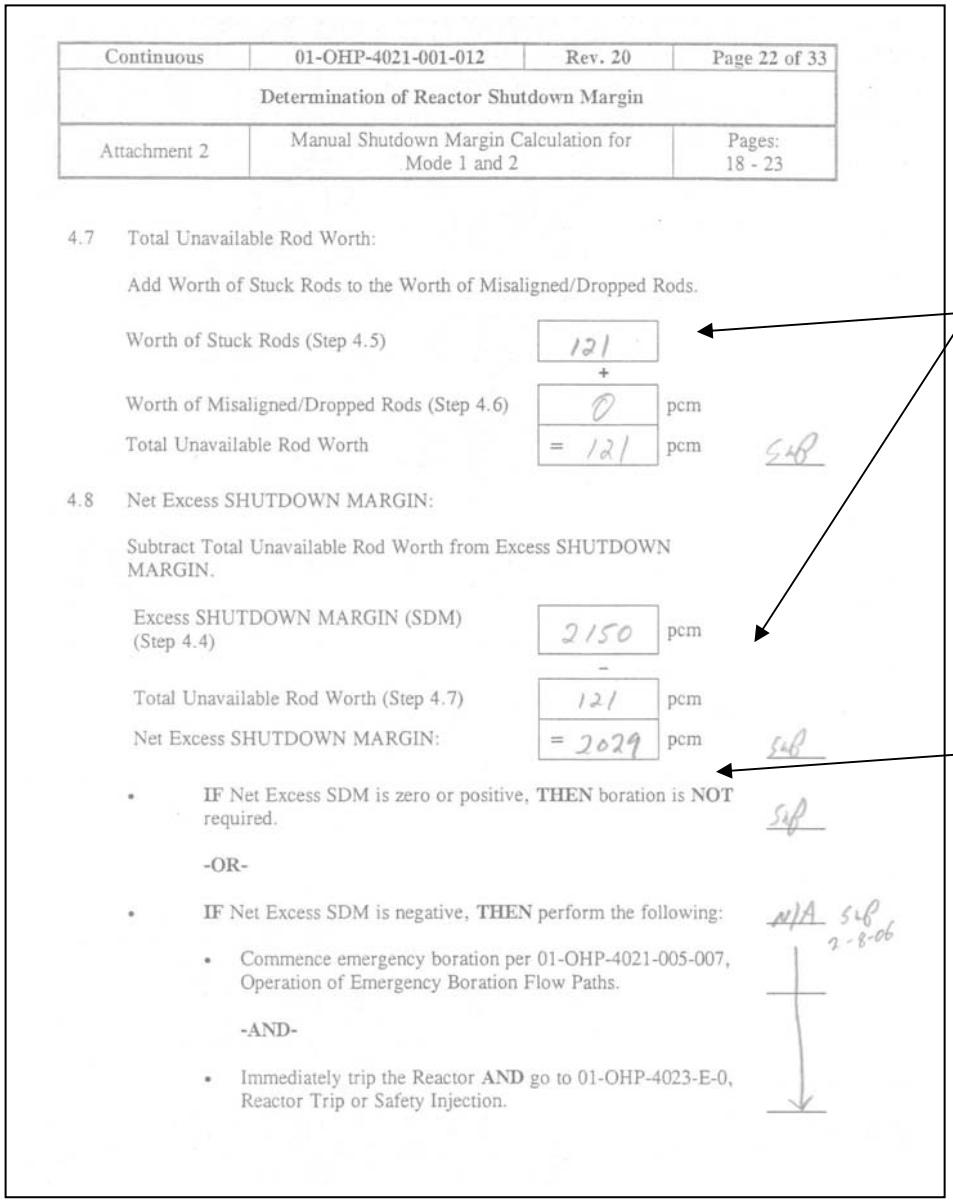
4.6.2 Multiply Worth of Single Misaligned/Dropped Rod by the Number of Misaligned or Dropped Rods.

Number of Misaligned/Dropped Rods (Step 4.2.2)	0	
	x	
Worth of a Single Misaligned/Dropped Rod	0	pcm
Worth of Misaligned/Dropped Rods	= 0	pcm

SAT

CT: Operator should identify Step 4.5.2 Stuck Rod Worth is Incorrect.
(Note: Stuck rod worth should be ~825 pcm (800-850 pcm) from the top table of 1-Figure 1.3b – 121 pcm obtained from the bottom table)

[Changed during Exam Administration]
~~**CT:** Operator determines that ONE rod is misaligned. Rod D-8 is misaligned. TBD-1-FIG-13.1 allows ± 18 steps. Rod D-8 is at 19 steps from bank demand.~~
~~(CT - Previously listed on page 5 of JPM)~~
~~(Note: Misaligned Rod Worth should be 121 pcm [120-122 pcm])~~



Continuous	01-OHP-4021-001-012	Rev. 20	Page 22 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

4.7 Total Unavailable Rod Worth:

Add Worth of Stuck Rods to the Worth of Misaligned/Dropped Rods.

Worth of Stuck Rods (Step 4.5)	121	
+		
Worth of Misaligned/Dropped Rods (Step 4.6)	0	pcm
Total Unavailable Rod Worth	= 121	pcm

SAB

4.8 Net Excess SHUTDOWN MARGIN:

Subtract Total Unavailable Rod Worth from Excess SHUTDOWN MARGIN.

Excess SHUTDOWN MARGIN (SDM) (Step 4.4)	2150	pcm
-		
Total Unavailable Rod Worth (Step 4.7)	121	pcm
Net Excess SHUTDOWN MARGIN:	= 2029	pcm

SAB

- IF Net Excess SDM is zero or positive, THEN boration is NOT required.

SAB

-OR-

- IF Net Excess SDM is negative, THEN perform the following:

N/A SAB 2-8-06

  - Commence emergency boration per 01-OHP-4021-005-007, Operation of Emergency Boration Flow Paths.

  -AND-

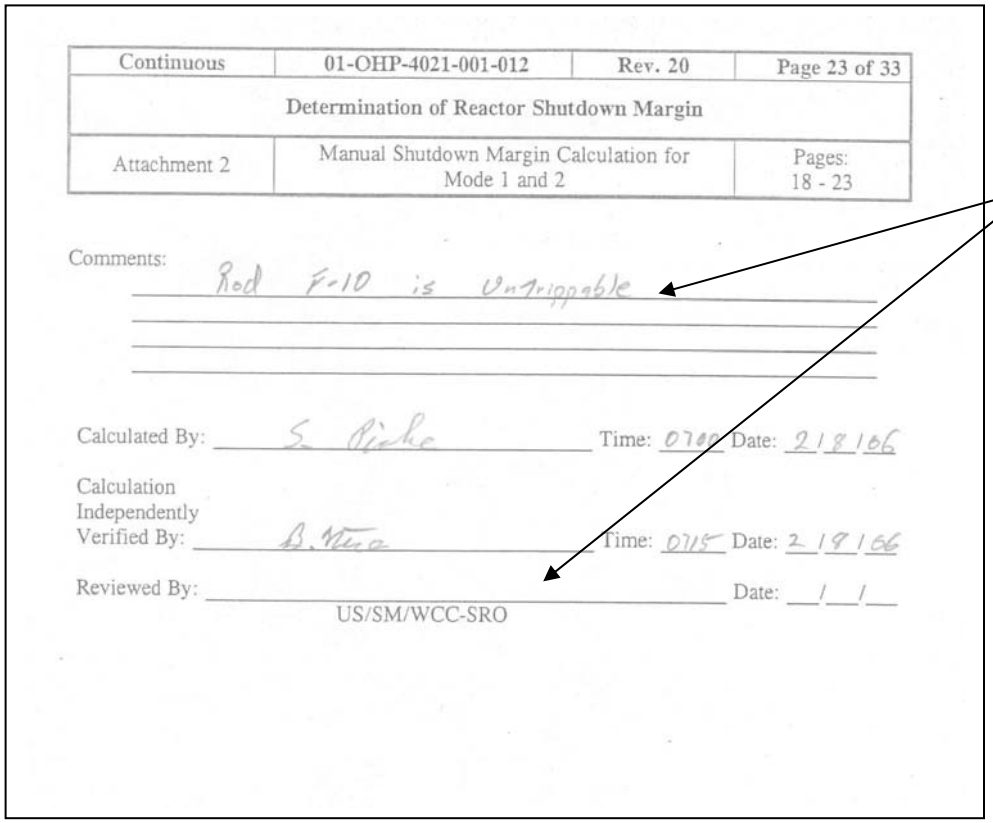
  - Immediately trip the Reactor AND go to 01-OHP-4023-E-0, Reactor Trip or Safety Injection.

[Changed during Exam Administration]

CT: Operator shall identify error carried forward.
Stuck Rod worth should be 825 pcm [800-850 pcm]
~~Rod D-8 as misaligned. Misaligned Worth is 121 pcm [120-122 pcm]~~.
Total Unavailable rod worth is ~~946 pcm [920-972 pcm~~]
825 pcm [800-850 pcm].

[Changed during Exam Administration : CT]

Net excess Shutdown Margin is Incorrect – Should be ~~1204 pcm [1178 to 1230] pcm~~ **1325 pcm [1300 to 1350 pcm].**



Continuous	01-OHP-4021-001-012	Rev. 20	Page 23 of 33
Determination of Reactor Shutdown Margin			
Attachment 2	Manual Shutdown Margin Calculation for Mode 1 and 2		Pages: 18 - 23

Comments: Rod F-10 is Untrippable

Calculated By: S. Richo Time: 0700 Date: 2/8/06

Calculation Independently Verified By: B. Nuno Time: 0715 Date: 2/9/06

Reviewed By: _____ Date: __/__/__

US/SM/WCC-SRO

Operator shall identify the incorrect data in the calculation. The calculated value is incorrect and the SDM calculation is Non-conservative The SRO should not sign this Attachment until the necessary corrections are made.

THIS JPM IS COMPLETE

Task Briefing

You are the Unit Supervisor on Unit 1.

Per your direction, the extra Control Room Operator completed Attachment 2 of 01-OHP-4021-001-012, Determination of Reactor Shutdown Margin.

Unit 1 conditions are as follows:

- PPC point U0035 indicates 12,010 MWD/MTU
- Reactor power is at 100% steady state.
- RCS boron concentration is 535 ppm.
- Control Bank D step counter indicates 219 steps.
- Individual rod positions for the Control Bank D rods are as follows:
  - D-4 at 217 steps
  - D-8 at 200 steps
  - D-12 at 218 steps
  - H-4 at 216 steps
  - H-8 at 218 steps
  - H-12 at 220 steps
  - M-4 at 216 steps
  - M-8 at 220 steps
  - M-12 at 219 steps
- Control rod F-10 in Control Bank C was discovered to be untrippable during performance of Technical Specification Surveillance Requirement 3.1.4.2.
- The SM is addressing the Technical Specification Requirements associated with the Untrippable ROD.

Perform the SRO review of the completed Attachment 2.

N06-SRO-b

TITLE	**Review AFD Log**	**REVISION**	**0**
PROGRAM	**Initial License Training (ILT)**	**TIME**	**15 Minutes**

SCOPE OF REVISION: New Issue from **SR-O-ADM10 Rev. 0**

			DATE:
AUTHOR	**Name:**	Max Bailey	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

COURSE NUMBER AND TITLE:	N06-SRO-b Review AFD Log	REVISION: 0

REFERENCES

01-OHP-4024-110, Drop 44, Rev. 12
Tech Data Book 1-Figure 13.1 Unit 1 Cycle 20

TASK

TASK ID: ADM0370302 Verify Limiting Conditions for Operations are met in accordance with Technical Specifications

K/A Statement: 2.1.12 Ability to apply technical specifications for a system.
K/A Importance: RO: 2.9 SRO: 4.0

EVALUATION SETTING

Classroom

HANDOUTS

Completed Attachment A of 01-OHP-4024-110 Drop 44.
Tech Data Book 1-Figure 13.1 Unit 1 Cycle 20

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N06-SRO-b Review AFD Log	REVISION: 0

TASK OBJECTIVES/STANDARDS

Review a completed AFD Log for correctness and compliance.

EVALUATOR INSTRUCTIONS

Provide student with a completed copy 01-OHP-4024-110 Drop 44, Attachment A.
Provide 1-Figure 13.1 Unit 1 Cycle 20

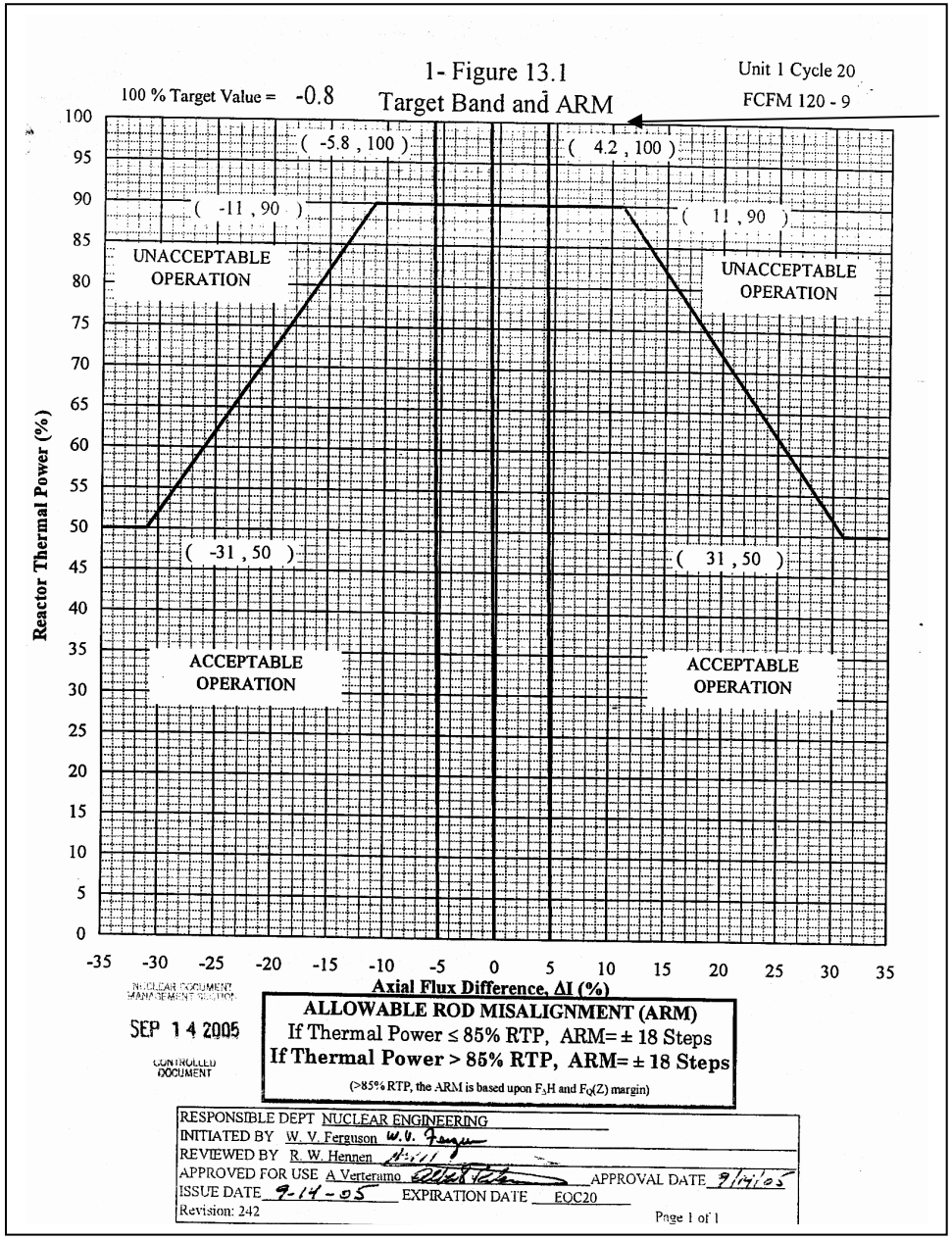
TASK BRIEFING

Unit 1 is at 100% power. A Xenon oscillation is in progress and as a result the Control Rods have been moved in an effort to dampen out the oscillation. The AFD Monitor Alarm was declared Inoperable at 0545 hrs this morning due to a bad input to the PPC. A Reactor Operator has recorded the AFD readings during the shift per 01-OHP-4024-110 Drop 44 Attachment A.

You are the Unit 1 Unit Supervisor.

The AFD Monitor Alarm was declared Operable at 1500 hrs. The Reactor Operator has stopped taking AFD data and turned in the completed Attachment A.

You are to review the completed 01-OHP-4024-110, Attachment A, for correctness and compliance.



C.T. Identifies AFD Target Band Limit is +4.2.

01-OHP-4024-110

Level of Use: REFERENCE

Drop 44

ATTACHMENT A

AFD LOG

DATE: Today

Next Surveillance Due Time: 1800 Date: TODAY

Log AFD per the requirements of Step 3.7 and 3.8.

Per Step 3.7 Requirements; Increase AFD Surveillance Frequency at N/A

Date: N/A

INIT	TIME	% POWER	BANK D POSITION	CHANNEL N41 AFD	CHANNEL N42 AFD	CHANNEL N43 AFD	CHANNEL N44 AFD	ACCUM PENALTY DEV. TIME
B	0600	100.0	220	3.2	3.4	3.4	3.3	0
B	0630	99.95	219.5	3.2	3.3	3.4	3.3	0
A	0700	99.95	219.5	3.3	3.4	3.5	3.4	0
B	0730	100.0	219	3.3	3.4	3.5	3.4	0
A	0800	99.96	218.5	3.4	3.5	3.6	3.5	0
A	0830	99.98	218.5	3.5	3.7	3.7	3.6	0
TB	0900	100.0	218	3.6	3.8	3.8	3.7	0
TB	0930	99.99	218	3.6	3.7	3.7	3.6	0
A	1000	99.97	217.5	3.7	3.8	3.8	3.7	0
B	1030	99.98	217	3.8	3.9	3.9	3.8	0
A	1100	99.95	216	4.0	4.1	4.2	4.0	0
TB	1130	99.95	215.5	4.1	4.2	4.3	4.2	0
TB	1200	99.94	215.5	4.2	4.2	4.4	4.2	0
A	1230	99.96	215	4.2	4.3	4.4	4.2	0
B	1300	99.98	215	4.1	4.2	4.3	4.1	0
A	1330	100.0	215.5	3.9	3.9	4.1	3.9	0
A	1400	99.97	215.5	3.8	3.9	4.0	3.8	0
B	1430	99.98	216	3.7	3.8	3.9	3.7	0
A	1500	99.97	215.5	3.6	3.7	3.8	3.7	0

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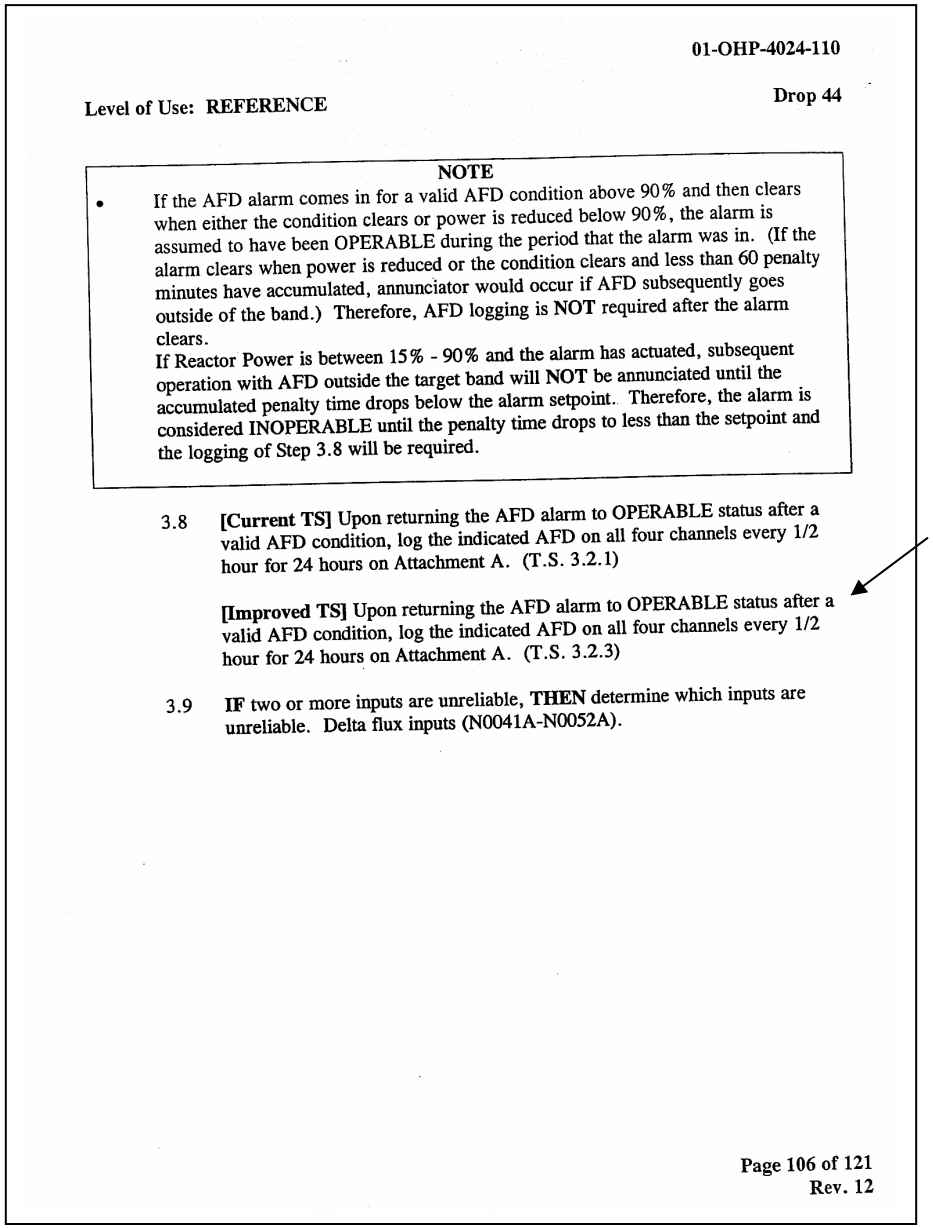
Rev. 12

C.T. Identifies AFD outside the Target Band (2 channels >+4.2)

Cue: Once AFD is identified as outside the Target Band, ask how long it has been outside the Target Band, based on the given data.

C.T. Identifies AFD was outside the Target Band for 30 to 60 minutes and required Technical Specification LCO 3.2.3 entry.

Cue: (If SRO is concerned about T.S. required Thermal Power reduction) Inform him/her the Senior License Holder is reviewing this issue and that the SRO is only responsible for the surveillance review.



01-OHP-4024-110

Level of Use: REFERENCE

Drop 44

NOTE

- If the AFD alarm comes in for a valid AFD condition above 90% and then clears when either the condition clears or power is reduced below 90%, the alarm is assumed to have been OPERABLE during the period that the alarm was in. (If the alarm clears when power is reduced or the condition clears and less than 60 penalty minutes have accumulated, annunciator would occur if AFD subsequently goes outside of the band.) Therefore, AFD logging is **NOT** required after the alarm clears.
  If Reactor Power is between 15% - 90% and the alarm has actuated, subsequent operation with AFD outside the target band will **NOT** be annunciated until the accumulated penalty time drops below the alarm setpoint. Therefore, the alarm is considered INOPERABLE until the penalty time drops to less than the setpoint and the logging of Step 3.8 will be required.

3.8 **[Current TS]** Upon returning the AFD alarm to OPERABLE status after a valid AFD condition, log the indicated AFD on all four channels every 1/2 hour for 24 hours on Attachment A. (T.S. 3.2.1)

[Improved TS] Upon returning the AFD alarm to OPERABLE status after a valid AFD condition, log the indicated AFD on all four channels every 1/2 hour for 24 hours on Attachment A. (T.S. 3.2.3)

3.9 **IF** two or more inputs are unreliable, **THEN** determine which inputs are unreliable. Delta flux inputs (N0041A-N0052A).

Page 106 of 121
Rev. 12

Cue: Ask the SRO if any additional surveillance requirements are necessary after the AFD Alarm Monitor was declared Operable at 1500 hrs.

C.T. Identifies log taking must continue to occur every 30 minutes for 24 hours after restoring the AFD Monitor Alarm to Operable status if the AFD has been outside the target band for any period of time in the previous 24 hours of operation.
Reference step 3.8.

THIS JPM IS COMPLETE

Task Briefing

Unit 1 is at 100% power. A Xenon oscillation is in progress and as a result the Control Rods have been moved in an effort to dampen out the oscillation. The AFD Monitor Alarm was declared Inoperable at 0545 hrs this morning due to a bad input to the PPC. A Reactor Operator has recorded the AFD readings during the shift per 01-OHP-4024-110 Drop 44 Attachment A.

You are the Unit 1 Unit Supervisor.

The AFD Monitor Alarm was declared Operable at 1500 hrs. The Reactor Operator has stopped taking AFD data and turned in the completed Attachment A.

You are to review the completed 01-OHP-4024-110, Attachment A, for correctness and compliance.

ATTACHMENT A

AFD LOG

DATE: 2-10-06

Next Surveillance Due Time: 1800 Date: 2-10-06

Log AFD per the requirements of Step 3.7 and 3.8.

Per Step 3.7 Requirements; Increase AFD Surveillance Frequency at N/A

Date: N/A

INIT	TIME	% POWER	BANK D POSITION	CHANNEL N41 AFD	CHANNEL N42 AFD	CHANNEL N43 AFD	CHANNEL N44 AFD	ACCUM PENALTY DEV. TIME
A	0600	100.0	220	3.2	3.4	3.4	3.3	0
A	0630	99.95	219.5	3.2	3.3	3.4	3.3	0
A	0700	99.95	219.5	3.3	3.4	3.5	3.4	0
A	0730	100.0	219	3.3	3.4	3.5	3.4	0
A	0900	99.96	218.5	3.4	3.5	3.6	3.5	0
A	0830	99.98	218.5	3.5	3.7	3.7	3.6	0
TB	0900	100.0	218	3.6	3.8	3.8	3.7	0
TB	0930	99.99	218	3.6	3.7	3.7	3.6	0
A	1000	99.97	217.5	3.7	3.8	3.8	3.7	0
A	1030	99.98	217	3.8	3.9	3.9	3.8	0
A	1100	99.95	216	4.0	4.1	4.2	4.0	0
TB	1130	99.95	215.5	4.1	4.2	4.3	4.2	0
TB	1200	99.94	215.8	4.2	4.2	4.4	4.2	0
A	1230	99.96	215	4.2	4.3	4.4	4.2	0
A	1300	99.98	215	4.1	4.2	4.3	4.1	0
A	1330	100.0	215.5	3.9	3.9	4.1	3.9	0
A	1400	99.97	215.5	3.8	3.9	4.0	3.8	0
A	1430	99.98	216	3.7	3.9	3.9	3.7	0
A	1500	99.97	215.5	3.6	3.7	3.8	3.7	0
	↓							

Level of Use: REFERENCE

Drop 44

ATTACHMENT A

INIT	TIME	% POWER	BANK D POSITION	CHANNEL N41 AFD	CHANNEL N42 AFD	CHANNEL N43 AFD	CHANNEL N44 AFD	ACCUM PENALTY DEV. TIME

Attachment initiated for next-due surveillance with next-due date/time completed:

Yes_____ N/A ✓

VERIFIED COMPLETE BY: Reactor Operator DATE: 2-10-06

REVIEWED BY:_____ DATE:_____

(U.S., S.M. OR WCC-SRO)

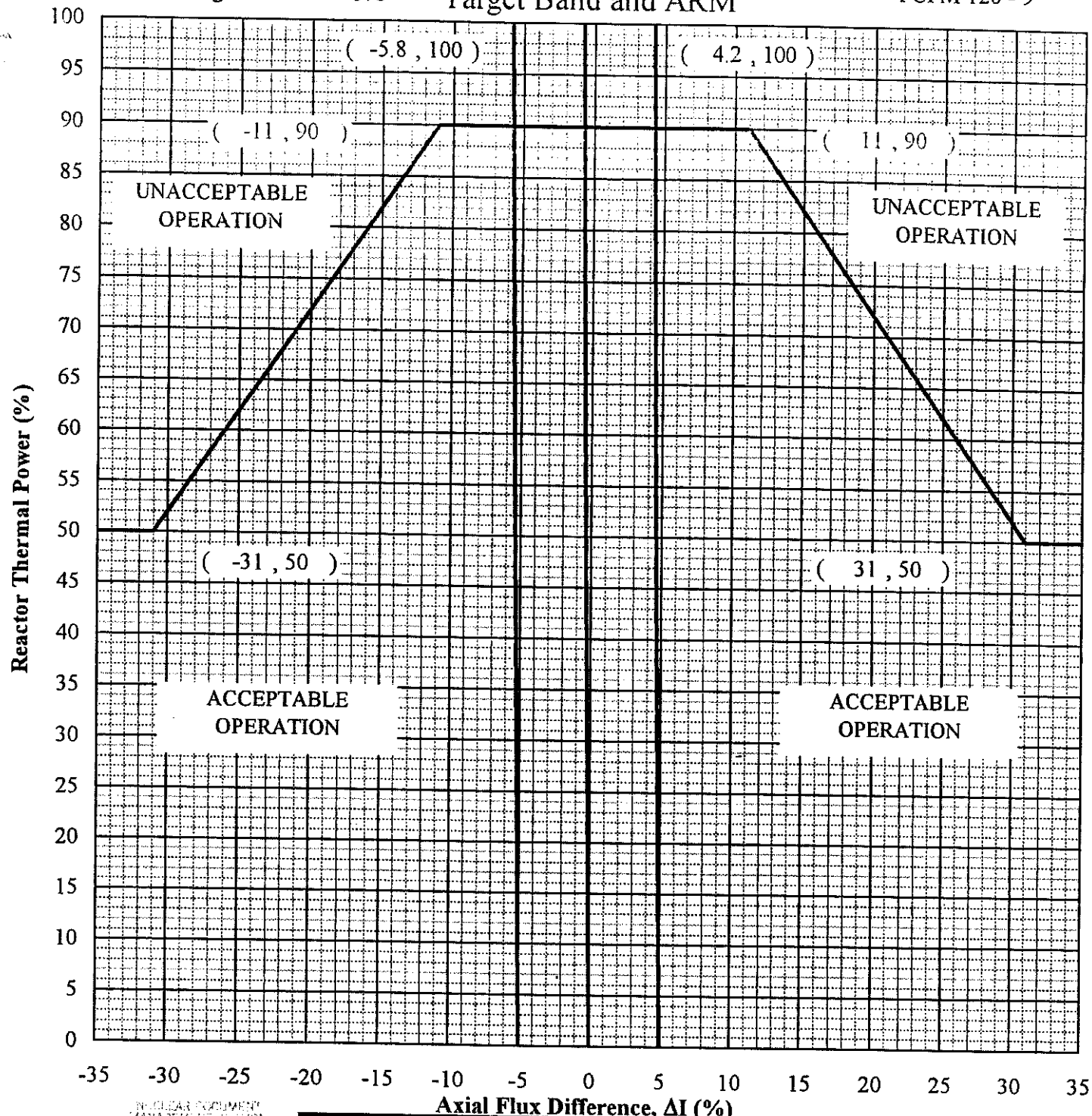
1- Figure 13.1

Unit 1 Cycle 20

FCFM 120 - 9

100 % Target Value = -0.8

Target Band and ARM



ALLOWABLE ROD MISALIGNMENT (ARM)

If Thermal Power ≤ 85% RTP, ARM= ± 18 Steps

If Thermal Power > 85% RTP, ARM= ± 18 Steps

(>85% RTP, the ARM is based upon $F_\Delta H$ and $F_Q(Z)$ margin)

RESPONSIBLE DEPT NUCLEAR ENGINEERING

INITIATED BY W. V. Ferguson W.V. Ferguson

REVIEWED BY R. W. Hennen

APPROVED FOR USE A Verteramo _____ APPROVAL DATE 9/14/05

ISSUE DATE 9-14-05 EXPIRATION DATE EOC20

Revision: 242

N06-SRO-c

TITLE	**Verify a Clearance Permit for East ESW Pump**	**REVISION**	**1**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**40 Minutes**

SCOPE OF REVISION: NEW ISSUE

			DATE:
AUTHOR	**Name:**	Max Bailey	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

COURSE NUMBER AND TITLE:	N06-SRO-c Verify a Clearance Permit for the East ESW Pump	REVISION: 1

REFERENCES

12-OHP-2110-CPS-001, Rev 14 Clearance Permit System

TASK

TASK ID: 3000040201 Verify/Approve a Clearance Permit.

K/A REFERENCE: 2.2.13 Knowledge of tagging and clearance procedures.
K/A IMPORTANCE: RO 3.6 SRO 3.8

EVALUATION SETTILNG

Classroom

HANDOUTS

Task Briefing
Clearance Package (Forms, Cards)
Prints OP-1-5113-87, OP-1-98415-45, OP-1-94710, OP-98721-19
Copy of 12-OHP-2110-CPS-001, Attachment 1

ATTACHMENTS

None

SIMULATOR SETUP

None

Task Standards

The operator performs a review per 12-OHP-2110-CPS-001 and determines that the clearance is improperly sequenced, and that tags are required for the control power fuses and that the strainer power supply should be off.

Task Briefing

You are an extra SRO.

The Work Control Center-SRO directs you to verify the Unit 1 East Essential Service Water (PP-7E) Pump clearance is ready to hang per 12-OHP-2110-CPS-001, Attachment 1.

- The clearance was written to protect workers/equipment during an ESW internal motor/pump and strainer basket inspection.
- The Clearance was written from 2 Clearance Requests.
- The Clearance was not written from a Standard Clearance.
- The Clearance does not fit into the boundaries of an existing Clearance. (This is a stand alone clearance.)

Clearance Tag List
Clearance Group: 1-06
Clearance: N-ESW -ESWE-0130

American Electric Power
Donald C. Cook Nuclear Plant

01/10/2006 15:33

Tag Serial No.	Tag Type	Equipment * Equipment Description * Room	Pla Seq	Placement Configuration * Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Restoration Configuration * Notes	As Left Configuration	Rest. 1st Verif Date/Time	Rest. 2nd Verif Date/Time
6	Red	1-T11D10-FUSES * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E BREAKER 1-T11D10 FUSES {LOC IN REAR COR. OF BKR CTRL CUBE} * 4kv Room - CD 4Kv Switchgear Area	1	PULLED			8	INSERTED	INSERTED		
7	Red	1-T11D10 * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E * 4kv Room - CD 4Kv Switchgear Area	2	DISC			7	CONN	CONN		
8	Red	1-101-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	3	LOCKOUT			6	AUTO	AUTO		
9	Red	1-101-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	3	CL/NEUT			6	CL/NEUT	CL/NEUT		
10	Red	1-101-S1E * EAST ESW PUMP STRAINER {1-OME-34E} CONTROL MODE * Control Room	3	MANUAL			6	AUTO	AUTO		
11	Red	1-201-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	4	CL/NEUT			5	CL/NEUT	CL/NEUT		
12	Red	1-201-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	4	LOCKOUT			5	NEUTRAL	NEUTRAL		
13	Red	1-201-S1E * EAST ESW PUMP STRAINER CONTROL MODE * Control Room	4	MANUAL			5	AUTO	AUTO		

CT: Identifies 1-T11D10-Fuses and 1-T11D10 Breaker are sequenced before the Pump Control Switch

Note : (CS should be in Lockout, then Fuses Should be Pulled &Tagged before breaker is taken to DISC)

Clearance Tag List
Clearance Group: 1-06
Clearance: N-ESW -ESWE-0130

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Donald C. Cook Nuclear Plant

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Tag Serial No.	Tag Type	Equipment * Equipment Description * Room	Pla Seq	Placement Configuration * Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Restoration Configuration * Notes	As Left Configuration	Rest. 1st Verif Date/Time	Rest. 2nd Verif Date/Time
14	Red	1-101-ESWHE * EAST ESW PUMP 1-PP-7E MOTOR HEATER * Traveling Screen MCC Lower Room	5	OFF			4	ON	ON		
15	Red	1-SHMP-6 * ESSENTIAL SERVICE WATER PUMP '1E' MOTOR HEATER * Traveling Screen MCC Lower Room	6	OFF			3	ON	ON		
16	Red	1-PS-D-3C * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E * Traveling Screen MCC Upper Room	6	ON			3	OFF	OFF		
17	Red	1-PS-D-4C * EAST ESW PUMP DISCHARGE SHUTOFF VALVE 1-WMO-701 * Traveling Screen MCC Upper Room	6	OFF			3	ON	ON		
18	No Tag	1-WMO-701 * EAST ESW PUMP 1-PP-7E DISCHARGE VALVE * East ESW Pump Room	6	CLOSED			2	CLOSED	CLOSED		
19	Red	1-ESW-103E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E WEST BASKET DRAIN VALVE * East ESW Pump Room	7	OPEN			1	CLOSED	CLOSED		
20	Red	1-ESW-105E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E EAST BASKET DRAIN VALVE * East ESW Pump Room	7	OPEN			1	CLOSED	CLOSED		

Page 2 of 4

CT - Identifies 1-WMO-701 Local Valve has NO TAG associated. (Valve Should be Red Tagged)

CT – Identifies that the Position listed for 1-PS-D-3C (Strainer Power Supply Breaker) is ON (Should be tagged off)

Identifies that Restoration Configuration position for 1-PS-D-3C (Strainer Power Supply Breaker) is OFF (Should be ON)

CUE:
If Candidate states that the clearance should NOT be Placed, Request that they
"Identify any and ALL items that would prevent the Clearance from being Placed."

Critical Task Summary:

Incorrect sequencing of the Pump Control Switch and Breaker/Fuses
- **CT:** Identifies 1-T11D10-Fuses and 1-T11D10 Breaker are sequenced before the Pump Control Switch

Incorrect Placement Configuration for 1-PS-D-3C (Strainer Power Supply Breaker)
- **CT** – Identifies that the Position listed for 1-PS-D-3C (Strainer Power Supply Breaker) is ON (Should be tagged off)

Missing Tag for ESW Pump Discharge valve (locally)
- **CT** - Identifies 1-WMO-701 Local Valve has NO TAG associated. (Valve Should be Red Tagged)

THIS JPM IS COMPLETE.

Task Briefing

You are an extra SRO.

The Work Control Center-SRO directs you to verify the Unit 1 East Essential Service Water (PP-7E) Pump clearance is ready to hang per 12-OHP-2110-CPS-001, Attachment 1.

- The clearance was written to protect workers/equipment during an ESW internal motor/pump and strainer basket inspection.
- The Clearance was written from 2 Clearance Requests.
- The Clearance was not written from a Standard Clearance.
- The Clearance does not fit into the boundaries of an existing Clearance. (This is a stand alone clearance.)

Clearance Coversheet
Clearance Group: 1-06
Clearance: N-ESW -ESWE-0130

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Component to be Worked:

1-PP-7E

EAST ESSENTIAL SERVICE WATER PUMP

East ESW Pump Room

Clearance Description:

ESW Pump and Strainer Inspection

Placement Instructions:

Ref 12-OHP-4021-019-001, Operation of ESW

Restoration Instructions:

Ref 12-OHP-4021-019-001, Operation of ESW

Acceptor Instructions:

None

Clearance Verification:

Status	Description	User	Verification Date
Prepared	Prepared By	Kendall, K. R. Trng	01/10/2006 15:31
Written	Written By	Kendall, K. R. Trng	01/10/2006 15:31
Verified	Verified By	Heimbigner, F. A. Trng	01/10/2006 15:32
Approved for Issue	Approved for Issue	Heimbigner, F. A. Trng	01/10/2006 15:32
In Effect	In Effect		00/00/0000 00:00
Restoration Written	Restoration Written By		00/00/0000 00:00
Restoration Verified	Restoration Verified By		00/00/0000 00:00
Approved for Release	Approved for Release		00/00/0000 00:00
Closed	Closed By		00/00/0000 00:00

Clearance Attributes:

Attribute Description	Attribute Value
Procedure Number	
FEG	
Safety Train	
Venting and/or Draining Complete?	
Network - i.e. U2C15	
Dept. / Individual Resp. (> 90 Days)	
Clearance on Previous Qtr Report	

Work Order List:

Number / Equipment ID	Description
C0178488-01 ---------- OPEN ---------- 1-OME-34E	1-OME-34E, PERFORM STRAINER BASKET INSPECTION
R0266554-03 ---------- OPEN ---------- 1-PP-7E	1-PP-7E, PERFORM INTERNAL MOTOR AND PUMP INSPECTION

Clearance Tag List
Clearance Group: 1-06
Clearance: N-ESW -ESWE-0130

American Electric Power
Donald C. Cook Nuclear Plant

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Tag Serial No.	Tag Type	Equipment * Equipment Description * Room	Pla Seq	Placement Configuration * Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Restoration Configuration * Notes	As Left Configuration	Rest. 1st Verif Date/Time	Rest. 2nd Verif Date/Time
6	Red	1-T11D10-FUSES * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E BREAKER 1-T11D10 FUSES {LOC IN REAR COR. OF BKR CTRL CUBE} * 4kv Room - CD 4Kv Switchgear Area	1	PULLED			8	INSERTED	INSERTED		
7	Red	1-T11D10 * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E * 4kv Room - CD 4Kv Switchgear Area	2	DISC			7	CONN	CONN		
8	Red	1-101-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	3	LOCKOUT			6	AUTO	AUTO		
9	Red	1-101-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	3	CL/NEUT			6	CL/NEUT	CL/NEUT		
10	Red	1-101-S1E * EAST ESW PUMP STRAINER {1-OME-34E} CONTROL MODE * Control Room	3	MANUAL			6	AUTO	AUTO		
11	Red	1-201-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	4	CL/NEUT			5	CL/NEUT	CL/NEUT		
12	Red	1-201-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	4	LOCKOUT			5	NEUTRAL	NEUTRAL		
13	Red	1-201-S1E * EAST ESW PUMP STRAINER CONTROL MODE * Control Room	4	MANUAL			5	AUTO	AUTO		

Tag Serial No.	Tag Type	Equipment * Equipment Description * Room	Pla Seq	Placement Configuration * Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Restoration Configuration * Notes	As Left Configuration	Rest. 1st Verif Date/Time	Rest. 2nd Verif Date/Time
14	Red	1-101-ESWHE * EAST ESW PUMP 1-PP-7E MOTOR HEATER * Traveling Screen MCC Lower Room	5	OFF			4	ON	ON		
15	Red	1-SHMP-6 * ESSENTIAL SERVICE WATER PUMP '1E' MOTOR HEATER * Traveling Screen MCC Lower Room	6	OFF			3	ON	ON		
16	Red	1-PS-D-3C * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E * Traveling Screen MCC Upper Room	6	ON			3	OFF	OFF		
17	Red	1-PS-D-4C * EAST ESW PUMP DISCHARGE SHUTOFF VALVE 1-WMO-701 * Traveling Screen MCC Upper Room	6	OFF			3	ON	ON		
18	No Tag	1-WMO-701 * EAST ESW PUMP 1-PP-7E DISCHARGE VALVE * East ESW Pump Room	6	CLOSED			2	CLOSED	CLOSED		
19	Red	1-ESW-103E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E WEST BASKET DRAIN VALVE * East ESW Pump Room	7	OPEN			1	CLOSED	CLOSED		
20	Red	1-ESW-105E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E EAST BASKET DRAIN VALVE * East ESW Pump Room	7	OPEN			1	CLOSED	CLOSED		

Equipment Equipment Description Room	Detailed Location Prints		
1-T11D10-FUSES EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E BREAKER 1-T11D10 FUSES {LOC IN REAR COR. OF BKR CTRL CUBE} 4kv Room - CD 4Kv Switchgear Area	IN THE SOUTHWEST REGION OF THE ROOM, IN 4KV SWITCHGEAR #1-T11D, IN BREAKER COMPARTMENT #1-T11D10, IN THE UPPER COMPARTMENT, ON THE BACK PANEL 1-12072	1-93051	1-98415
1-T11D10 EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E 4kv Room - CD 4Kv Switchgear Area	IN THE SOUTHWEST REGION OF THE ROOM, IN 4KV SWITCHGEAR #1-T11D, NEAR THE FLOOR 1-12002 1-98415 1-98721	1-12072 1-98642 12-98461	1-93051 1-98649
1-101-T11D10 EAST ESW PUMP 1-PP-7E Control Room	IN THE MIDWEST REGION OF THE ROOM, 17 FEET SOUTHWEST OF THE UNIT SUPERVISOR'S DESK, ON ESSENTIAL SERVICE WATER CONTROL PANEL #1-ESW, 4 FEET ABOVE THE 1-5529 1-98415	1-5531A	1-92009
1-101-WMO-701 EAST ESW PUMP DISCHARGE 1-WMO-701 Control Room	IN THE MIDWEST REGION OF THE ROOM, 17 FEET SOUTHWEST OF THE UNIT SUPERVISOR'S DESK, ON ESSENTIAL SERVICE WATER CONTROL PANEL #1-ESW, 3 FEET ABOVE THE 1-5529 1-98415	1-5531A	1-92009
1-101-S1E EAST ESW PUMP STRAINER {1-OME-34E} CONTROL MODE Control Room	IN THE MIDWEST REGION OF THE ROOM, 17 FEET SOUTHWEST OF THE UNIT SUPERVISOR'S DESK, ON ESSENTIAL SERVICE WATER CONTROL PANEL #1-ESW, 2 FEET ABOVE THE 1-5529 1-98415	1-5531A	1-92009
1-201-WMO-701 EAST ESW PUMP DISCHARGE 1-WMO-701 Control Room	IN THE NORTHWEST PART OF THE ROOM, NEAR THE NORTH WALL, ON UNIT 1 HOT SHUTDOWN PANEL #1-HSD1, 3 FEET ABOVE THE FLOOR 1-5531I 2-92137	1-5560	1-98415
1-201-T11D10 EAST ESW PUMP 1-PP-7E Control Room	IN THE NORTHWEST PART OF THE ROOM, NEAR THE NORTH WALL, ON UNIT 1 HOT SHUTDOWN PANEL #1-HSD1, 4 FEET ABOVE THE FLOOR 1-5531I 2-92137	1-5560	1-98415
1-201-S1E EAST ESW PUMP STRAINER CONTROL MODE Control Room	IN THE NORTHWEST PART OF THE ROOM, NEAR THE NORTH WALL, ON UNIT 1 HOT SHUTDOWN PANEL #1-HSD1, 2 FEET ABOVE THE FLOOR 1-5531I 2-92137	1-5560	1-98415

Equipment Equipment Description Room	Detailed Location Prints		
1-101-ESWHE EAST ESW PUMP 1-PP-7E MOTOR HEATER Traveling Screen MCC Lower Room	IN THE NORTHEAST REGION OF THE ROOM, ON THE NORTH WALL, 4 FEET ABOVE THE FLOOR 1-95103	1-98721	
1-SHMP-6 ESSENTIAL SERVICE WATER PUMP '1E' MOTOR HEATER Traveling Screen MCC Lower Room	IN THE NORTHEAST CORNER OF THE ROOM, ON THE EAST WALL, ON POWER PANEL #1-SHMP 1-98721		
1-PS-D-3C EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E Traveling Screen MCC Upper Room	ON THE WEST WALL, 2 FEET SOUTH OF THE ROOM'S ENTRANCE DOOR, IN 600VAC MOTOR CONTROL CENTER #1-PS-D COMPARTMENT 3C, 4 FEET ABOVE THE FLOOR 1-12033	1-94710	1-98415
1-PS-D-4C EAST ESW PUMP DISCHARGE SHUTOFF VALVE 1-WMO-701 Traveling Screen MCC Upper Room	ON THE WEST WALL, 2 FEET SOUTH OF THE ROOM'S ENTRANCE DOOR, IN 600VAC MOTOR CONTROL CENTER #1-PS-D COMPARTMENT 4C, 3 FEET ABOVE THE FLOOR 1-12033	1-94710	1-98415
1-WMO-701 EAST ESW PUMP 1-PP-7E DISCHARGE VALVE East ESW Pump Room	SOUTHEAST OF EAST ESSENTIAL SERVICE WATER PUMP #1-PP-7E, IN THE SOUTHEAST AREA OF THE ROOM 1-12033 1-5774 1-98642 SEE TECH NOTES	1-5104E 1-95241 1-98648	1-5113 1-98415 12-ESW-X-1
1-ESW-103E EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E WEST BASKET DRAIN VALVE East ESW Pump Room	1 FOOT SOUTH OF EAST ESSENTIAL SERVICE WATER PUMP DISCHARGE STRAINER #1-OME-34E, AT THE FLOOR 1-5113	1-ESW-505	
1-ESW-105E EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E EAST BASKET DRAIN VALVE East ESW Pump Room	1 FOOT SOUTH OF EAST ESSENTIAL SERVICE WATER PUMP DISCHARGE STRAINER #1-OME-34E, AT THE FLOOR 1-5113	1-ESW-505	

Clearance Tag Hang List
Clearance Group: 1-06
Clearance: N-ESW -ESWE-0130

American Electric Power
Donald C. Cook Nuclear Plant

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Tag Serial No.	Tag Type	Equipment Equipment Description Room	Place. Seq.	Placement Configuration	Placement 1st Verif Date/Time	Placement 2nd Verif Date/Time	Tag Notes
6	Red	* 1-T11D10-FUSES * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E BREAKER 1-T11D10 FUSES {LOC IN REAR COR. OF BKR CTRL CUBE} * 4kv Room - CD 4Kv Switchgear Area	1	**PULLED**			
7	Red	* 1-T11D10 * EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E * 4kv Room - CD 4Kv Switchgear Area	2	**DISC**			
8	Red	* 1-101-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	3	**LOCKOUT**			
9	Red	* 1-101-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	3	**CL/NEUT**			
10	Red	* 1-101-S1E * EAST ESW PUMP STRAINER {1-OME-34E} CONTROL MODE * Control Room	3	**MANUAL**			
11	Red	* 1-201-WMO-701 * EAST ESW PUMP DISCHARGE 1-WMO-701 * Control Room	4	**CL/NEUT**			
12	Red	* 1-201-T11D10 * EAST ESW PUMP 1-PP-7E * Control Room	4	**LOCKOUT**			
13	Red	* 1-201-S1E * EAST ESW PUMP STRAINER CONTROL MODE * Control Room	4	**MANUAL**			
14	Red	* 1-101-ESWHE * EAST ESW PUMP 1-PP-7E MOTOR HEATER * Traveling Screen MCC Lower Room	5	**OFF**			
15	Red	* 1-SHMP-6 * ESSENTIAL SERVICE WATER PUMP '1E' MOTOR HEATER * Traveling Screen MCC Lower Room	6	**OFF**			

Tag Serial No.	Tag Type	Equipment Equipment Description Room	Place. Seq.	Placement Configuration	Placement 1st Verif Date/Time	Placement 2nd Verif Date/Time	Tag Notes
16	Red	* 1-PS-D-3C * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E * Traveling Screen MCC Upper Room	6	**ON**			
17	Red	* 1-PS-D-4C * EAST ESW PUMP DISCHARGE SHUTOFF VALVE 1-WMO-701 * Traveling Screen MCC Upper Room	6	**OFF**			
18	No Tag	* 1-WMO-701 * EAST ESW PUMP 1-PP-7E DISCHARGE VALVE * East ESW Pump Room	6	**CLOSED**			
19	Red	* 1-ESW-103E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E WEST BASKET DRAIN VALVE * East ESW Pump Room	7	**OPEN**			
20	Red	* 1-ESW-105E * EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E EAST BASKET DRAIN VALVE * East ESW Pump Room	7	**OPEN**			

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-T11D10

EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E

1-06-00007

DISC

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-T11D10-FUSES

EAST ESSENTIAL SERVICE WATER PUMP 1-PP-7E BREAKER 1-T11D10 FUSES {LOC IN REAR COR. OF BKR CTRL CUBE}

1-06-00006

PULLED

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-101-WMO-701

EAST ESW PUMP DISCHARGE 1-WMO-701

1-06-00009

CL/NEUT

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-101-T11D10

EAST ESW PUMP 1-PP-7E

1-06-00008

LOCKOUT

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-201-WMO-701

EAST ESW PUMP DISCHARGE 1-WMO-701

1-06-00011

CL/NEUT

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-101-S1E

EAST ESW PUMP STRAINER {1-OME-34E} CONTROL MODE

1-06-00010

MANUAL

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-201-S1E

EAST ESW PUMP STRAINER CONTROL MODE

1-06-00013

MANUAL

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-201-T11D10

EAST ESW PUMP 1-PP-7E

1-06-00012

LOCKOUT

DANGER DANGER DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-SHMP-6

ESSENTIAL SERVICE WATER PUMP '1E' MOTOR HEATER

1-06-00015

OFF

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-101-ESWHE

EAST ESW PUMP '1E' MOTOR HEATER

1-06-00014

OFF

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-PS-D-4C

EAST ESW PUMP DISCHARGE SHUTOFF VALVE 1-WMO-701

1-06-00017

OFF

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-PS-D-3C

EAST ESW PUMP DISCHARGE STRAINER 1-OME-34E

1-06-00016

ON

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-ESW-105E

EAST ESW PUMP DISCHARGE STRAINER
1-OME-34E EAST BASKET DRAIN VALVE
1-06-00020

OPEN

DANGER DANGER DANGER

DANGER DANGER DANGER

DANGER

DANGER

DO NOT OPERATE THIS EQUIPMENT

* * * Red * * *

1-ESW-103E

EAST ESW PUMP DISCHARGE STRAINER
1-OME-34E WEST BASKET DRAIN VALVE
1-06-00019

OPEN

DANGER DANGER DANGER

N06-SRO-d

TITLE	**Respond to a High SJAE Radiation Alarm**	**REVISION**	**0**
PROGRAM	**Initial License Training (ILT)**	**TIME**	**15 Minutes**

SCOPE OF REVISION: New Issue

			DATE:
AUTHOR	**Name:**	Max Bailey	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

12-OHP-4024-139, Drop 27, Rev. 12 Steam Jet Air Ejector
Tech Data Book Figures:

- 2-Figure-19.19a, Rev 3 Primary to Secondary Leak Rate (Unit 2 at 5 SCFM)
- 2-Figure-19.19b, Rev 2 Primary to Secondary Leak Rate (Unit 2 at 10 SCFM)
- 2-Figure-19.19c, Rev 2 Primary to Secondary Leak Rate (Unit 2 at 15 SCFM)
- 2-Figure-19.19e, Rev 0 Primary to Secondary Leak Rate (Unit 2 at 20 SCFM)

TASK

TASK ID: ADM0420302 Verify Limiting Conditions for Operations are met in accordance with Offsite Dose Calculation Manual (ODCM)

K/A Statement: 2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

K/A Importance: RO: 2.9 SRO: 3.3

EVALUATION SETTING

Classroom

HANDOUTS

Completed Data Sheet 1 of 12-OHP-4024-139 Drop 27.
Tech Data Book Figures:

- 2-Figure-19.19a
- 2-Figure 19.19b
- 2-Figure-19.19c
- 2-Figure-19.19e

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N06-SRO-d Respond to a High SJAE Radiation Alarm	REVISION: 0

TASK OBJECTIVES/STANDARDS

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

EVALUATOR INSTRUCTIONS

Provide student with a completed copy Data Sheet 1 of 12-OHP-4024-139 Drop 27.
Provide a copy of 2-Figure 19.19a, 2-Figure 19.19b, 2-Figure 19.19c, and 2-Figure 19.19e.

TASK BREIFING

Unit 2 is at 100% power. Radiation Monitoring Panel Alert alarm was received on SRA 2900. A RCS to Steam Generator Tube Leak is suspected. The BOP has taken initial action per 12-OHP-4024-139, Drop 27 to record SRA-2905 activity on Data Sheet 1 at 15 minute intervals. The SJAE flowrate is 7 scfm.

Your are the extra SRO.

The US directs you to plot the data and determine the total leak rate in accordance with 12-OHP-4024-139, Drop 27. Report your results and any operational limitations required per 12-OHP-4024-139, Drop 27.

12-OHP-4024-139

Level of Use: REFERENCE #27

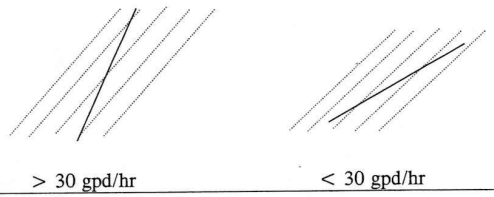
NOTE

Primary-to-Secondary Leak Rate Change graphs are contained in each Unit's TDB, Figure 19.19.a, b, c and e.

These graphs represent expected SJAE monitor readings corresponding to a 30 gpd/hr leak rate rise versus time based or steady-state (i.e. equilibrium) conditions between the primary and secondary systems.

Plotting actual SJAE monitor readings versus time on the appropriate graph (5, 10, 15 or 20 scfm SJAE flow rate) results in a line with a slope comparable to the calculated 30 gpd/hr leak rate rise. The SJAE graph representing the closest HIGHER flow rate is used. If SJAE flow is 6 scfm, the 10 scfm graph is used. If SJAE flow is 12 scfm, the 15 scfm graph is used.

A plotted line with a slope greater than the calculated slope indicates a leak rate rising at a rate greater than 30 gpd/hr. A plotted line with a slope less than the calculated slope indicates a leak rate rising at a rate less than 30 gpd/hr.



3.1.2 Determine SJAE flow rate:

- **IF** SJAE flow rate is <10 cfm, **THEN** 2-SFR-402, SJAE Vent Narrow Range is the preferred instrument.
- **IF** SJAE flow rate is ≥10 cfm, **THEN** either SJAE Vent Wide Range indication, 2-SFR-2910 **OR** 2-SFR-401 is the preferred instrument.
- **IF** necessary, **THEN** SJAE flow rates may be obtained at local manometers.

3.1.3 Select appropriate Primary to Secondary Leak Rate Change graph from the TDB Unit 2 Figures 19.19.a, b, c or e to determine primary-to-secondary leak rate and rate of change of primary to secondary leakage.

Page 106 of 120

Operator determines that SJAE graph for 10 scfm (7 scfm actual) should be used for graphing radiation reading.

Responsible Dept: Operations
Initiated By: [signature] Reviewed by: [signature]
Approved For Use in Ops Dept. by: [signature]
Issue Date: 01-05-2005 Expiration Date: N/A

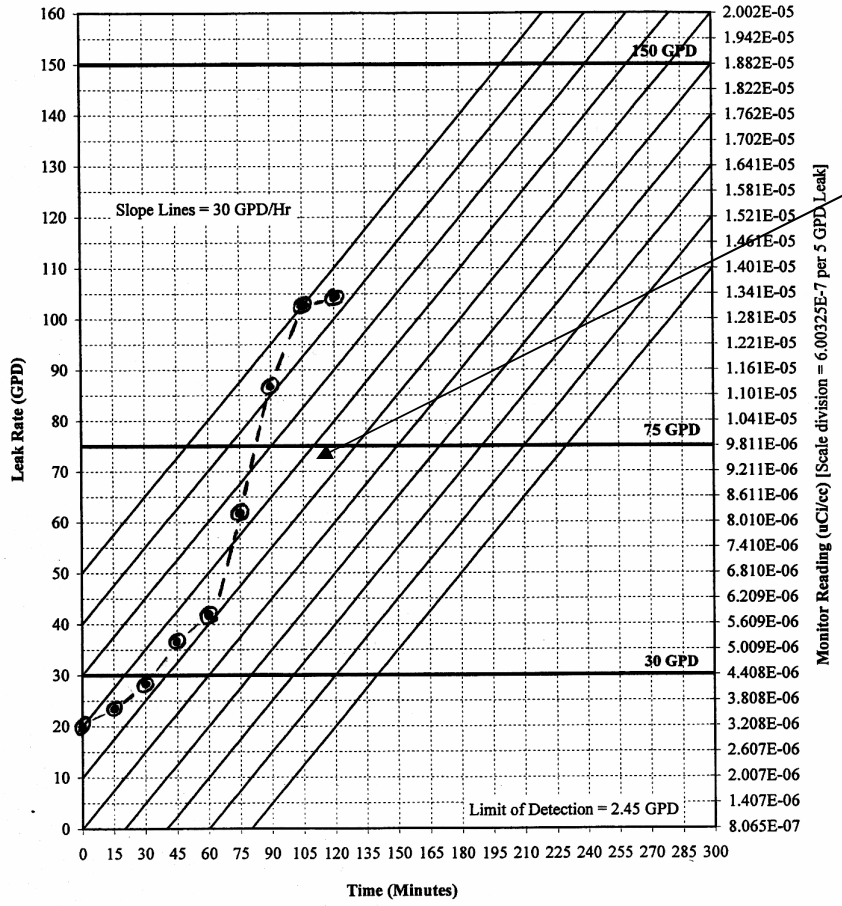
2-Figure 19.19b Rev. 2

NUCLEAR DOCUMENT MANAGEMENT SECTION

JAN 0 5 2005

CONTROLLED DOCUMENT

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



Graph prepared using Unit 2 12/17/04 RCS gas activity data.

Page 1 of 1

CT: Operator graphs the radiation monitor data as indicated. Slope of curve indicates the rate of rise of the leakrate exceeds 30 GPD/hr.

12-OHP-4024-139

Level of Use: REFERENCE **#27**

Data Sheet 1

Unit 2 P-to-S Leak Rate

Time	Activity	Leak Rate	Time	Activity	Leak Rate	Time	Activity	Leak Rate
0	3.2 E-6	20						
+15	3.7E-6	24						
+30	4.2E-6	28						
+45	5.1E-6	36						
+60	5.8E-6	42						
+75	8.2E-6	62						
+90	1.12E-5	87						
+105	1.3E-5	103						
+120	1.31E-5	104						

Completed by: S. R Date: 2/10/06

Reviewed by: _____ Date: _____

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Rev. 12

CT: Operator determines the final leakrate is 103 GPD (100 to 105)

CT: Operator reports the need to reduce power to less than 50% within one hour and be in MODE 3 within the next two hours.

CUE: US acknowledges leakrate and need to commence power reduction.

THIS JPM IS COMPLETE

Task Briefing

Unit 2 is at 100% power. Radiation Monitoring Panel Alert alarm was received on SRA 2900. A RCS to Steam Generator Tube Leak is suspected. The BOP has taken initial action per 12-OHP-4024-139, Drop 27 to record SRA-2905 activity on Data Sheet 1 at 15 minute intervals. The SJAE flowrate is 7 scfm.

Your are the extra SRO.

The US directs you to plot the data and determine the total leak rate in accordance with 12-OHP-4024-139, Drop 27. Report your results and any operational limitations required per 12-OHP-4024-139, Drop 27.

12-OHP-4024-139

Level of Use: REFERENCE **#27**

Data Sheet 1

Unit 2 P-to-S Leak Rate

Time	Activity	Leak Rate	Time	Activity	Leak Rate	Time	Activity	Leak Rate
0	3.2 E-6							
+15	3.7 E-6							
+30	4.2 E-6							
+45	5.1 E-6							
+60	5.8 E-6							
+75	8.2 E-6							
+90	1.12 E-5							
+105	1.3 E-5							
+120	1.31 E-5							

Completed by: S. R Date: 2/10/06

Reviewed by: _____ Date: _____

N06-SRO-e

TITLE	**Prepare Prompt NRC Notification Worksheet**	**REVISION**	**1**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**25 Minutes**

SCOPE OF REVISION: New Issue

			DATE:
AUTHOR	**Name:**	Max Bailey	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

COURSE NUMBER AND TITLE:	N06-SRO-e Prepare Prompt NRC Notification Worksheet	REVISION: 1

REFERENCES

PMP-7030-001-001, Rev 8 Prompt NRC Notification
10 CFR 50.72, Notification of NRC
NUREG-1022, Revent Reporting Guidelines

TASK

TASK ID: ADM1250304 Make a prompt NRC notification

K/A Statement: 2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies.

K/A Importance: RO: 2.2 SRO: 3.6

EVALUATION SETTING

Classroom

HANDOUTS

Task Briefing Sheet
Copy of procedure PMP-7030-001-001

ATTACHMENTS

None

SIMULATOR SETUP

None

COURSE NUMBER AND TITLE:	N06-SRO-e Prepare Prompt NRC Notification Worksheet	REVISION: 1

TASK OBJECTIVES/STANDARDS

Determine NRC notification requirements and prepare an event notification worksheet.

EVALUATOR INSTRUCTIONS

Brief the student by providing the student with a task briefing sheet to read. Provide a copy of PMP-7030-001-001 for reference use.

TASK BRIEFING

You are the extra SRO.

The Shift Manager directs you to determine the NRC notification requirements and prepare an event notification worksheet (Data Sheet 1) for prompt NRC NOTIFICATION in accordance with PMP-7030-001-001.

The following plant conditions exist as noted.

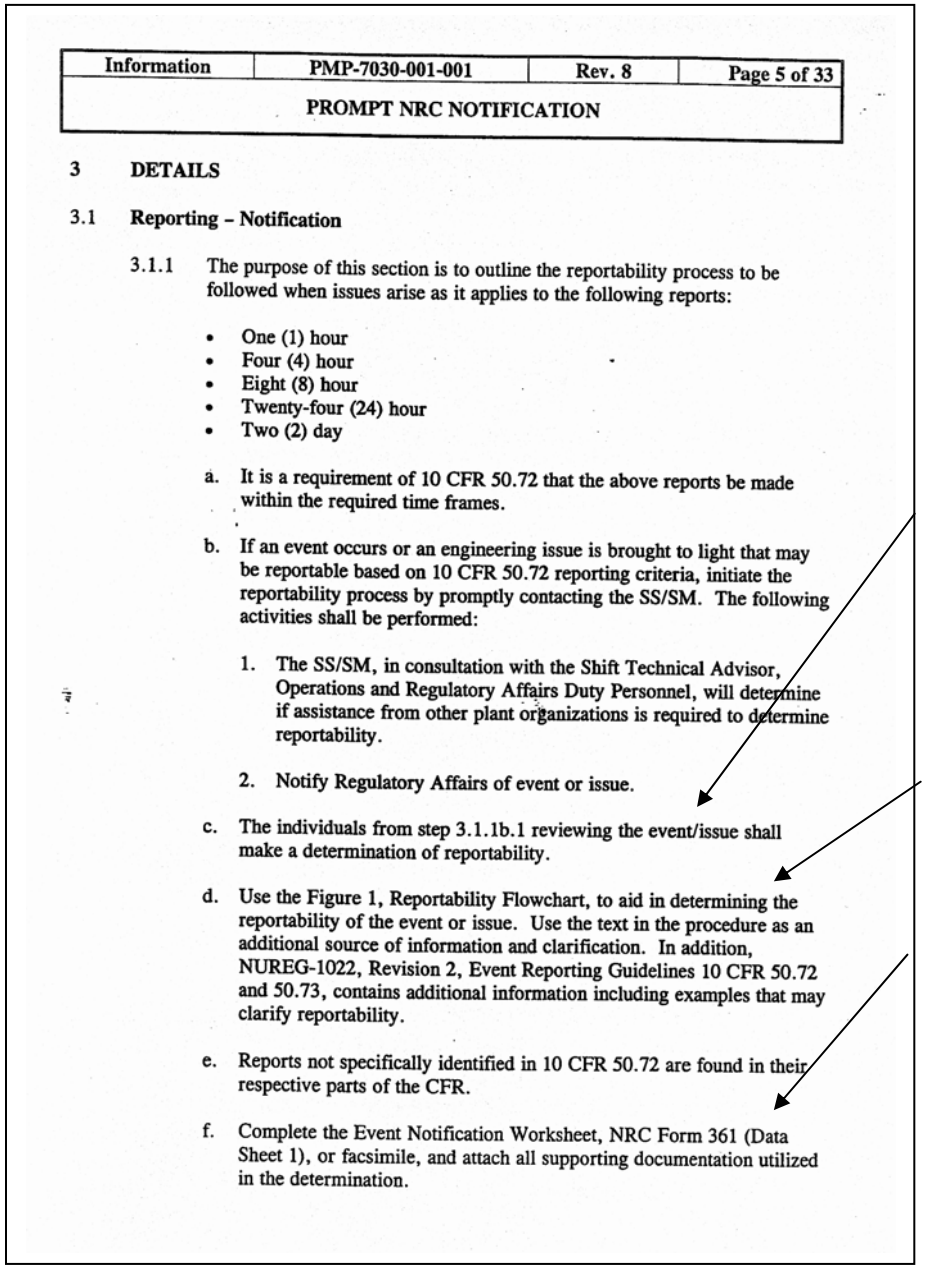
- **Current time is** 1400

- DC Cook Unit 1 was in MODE 3 at Operating Temperature and Pressure. The Shutdown and Control Rods were fully inserted with the Reactor Trip Breakers Open.
- At 1325 today, Steam Generator #12 Safety Valve has opened and did not reseat (remains partially open).
- The Unit 1 operation crew manually initiated Safety Injection due to uncontrolled lowering of RCS temperature / pressure, and Steam Generator #12 pressure continues to lower.
- The Unit 1 operating crew has completed E-0, Reactor Trip and Safety Injection, E-2 Faulted Steam Generator Isolation, and is currently in ES-1.1, SI Termination. SI flow has been terminated per ES-1.1.

- **Present RCS conditions**: RCS is stable in Mode 3; level in SG #12 is at 5% WR and slowly lowering; all other SG's are being maintained between 26% and 50% NR on auxiliary feedwater; and there is no detectable radiation release in progress.

- All other plant systems responded normally to the event.

- The SM has determined that NO Emergency Classification is required per PMP-2080-EPP-101.



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PROMPT NRC NOTIFICATION			

3 DETAILS

3.1 Reporting – Notification

3.1.1 The purpose of this section is to outline the reportability process to be followed when issues arise as it applies to the following reports:

- One (1) hour
- Four (4) hour
- Eight (8) hour
- Twenty-four (24) hour
- Two (2) day

a. It is a requirement of 10 CFR 50.72 that the above reports be made within the required time frames.

b. If an event occurs or an engineering issue is brought to light that may be reportable based on 10 CFR 50.72 reporting criteria, initiate the reportability process by promptly contacting the SS/SM. The following activities shall be performed:

1. The SS/SM, in consultation with the Shift Technical Advisor, Operations and Regulatory Affairs Duty Personnel, will determine if assistance from other plant organizations is required to determine reportability.

2. Notify Regulatory Affairs of event or issue.

c. The individuals from step 3.1.1b.1 reviewing the event/issue shall make a determination of reportability.

d. Use the Figure 1, Reportability Flowchart, to aid in determining the reportability of the event or issue. Use the text in the procedure as an additional source of information and clarification. In addition, NUREG-1022, Revision 2, Event Reporting Guidelines 10 CFR 50.72 and 50.73, contains additional information including examples that may clarify reportability.

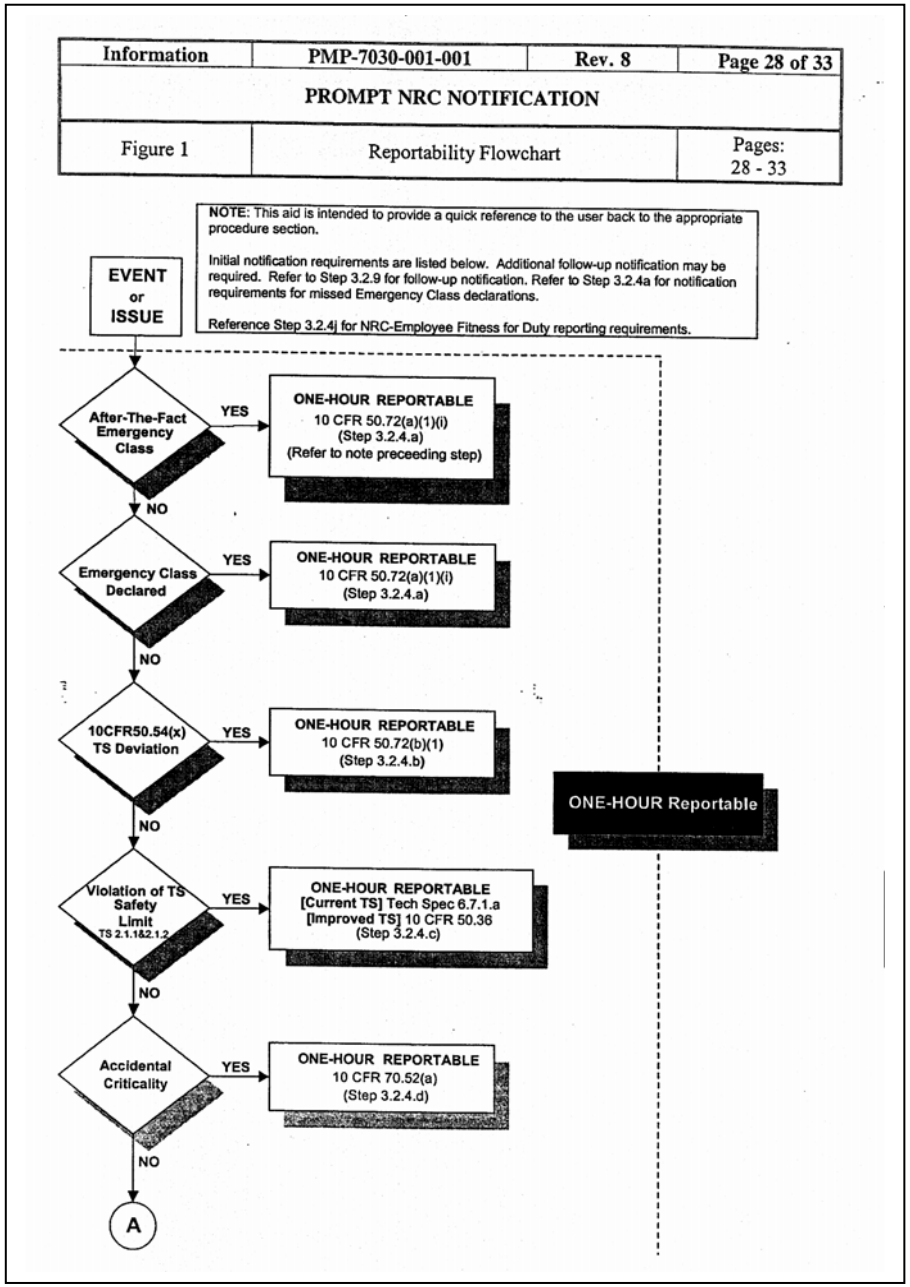
e. Reports not specifically identified in 10 CFR 50.72 are found in their respective parts of the CFR.

f. Complete the Event Notification Worksheet, NRC Form 361 (Data Sheet 1), or facsimile, and attach all supporting documentation utilized in the determination.

CT: Determine from conditions stated that the event is reportable per guidance provided in PMP 7030-001-001

Refers to FIGURE 1 to identify reportability and the reference text section for information and clarification

CT: Goes to Data Sheet 1



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PROMPT NRC NOTIFICATION			
Figure 1	Reportability Flowchart		Pages: 28 - 33

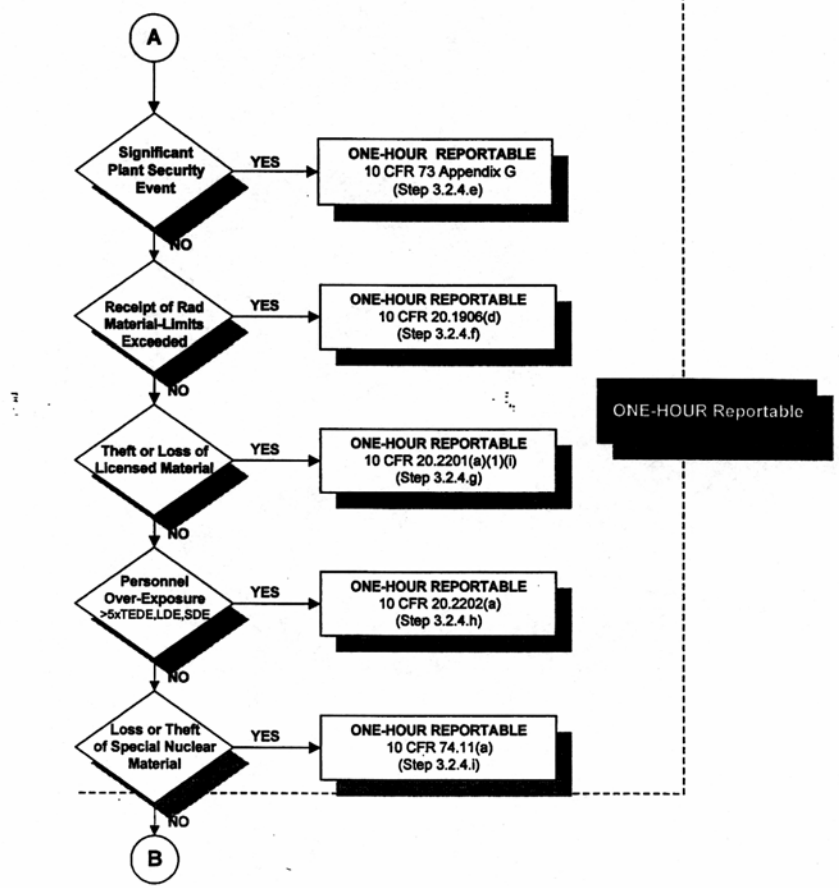
NOTE: This aid is intended to provide a quick reference to the user back to the appropriate procedure section.

Initial notification requirements are listed below. Additional follow-up notification may be required. Refer to Step 3.2.9 for follow-up notification. Refer to Step 3.2.4a for notification requirements for missed Emergency Class declarations.

Reference Step 3.2.4j for NRC-Employee Fitness for Duty reporting requirements.

NO CRITERIA ON THIS PAGE APPLY TO THE STATED PLANT CONDITIONS.

Information	PMP-7030-001-001	Rev. 8	Page 29 of 33
PROMPT NRC NOTIFICATION			
Figure 1	Reportability Flowchart		Pages: 28 - 33



NO CRITERIA ON THIS PAGE APPLY TO THE STATED PLANT CONDITIONS.

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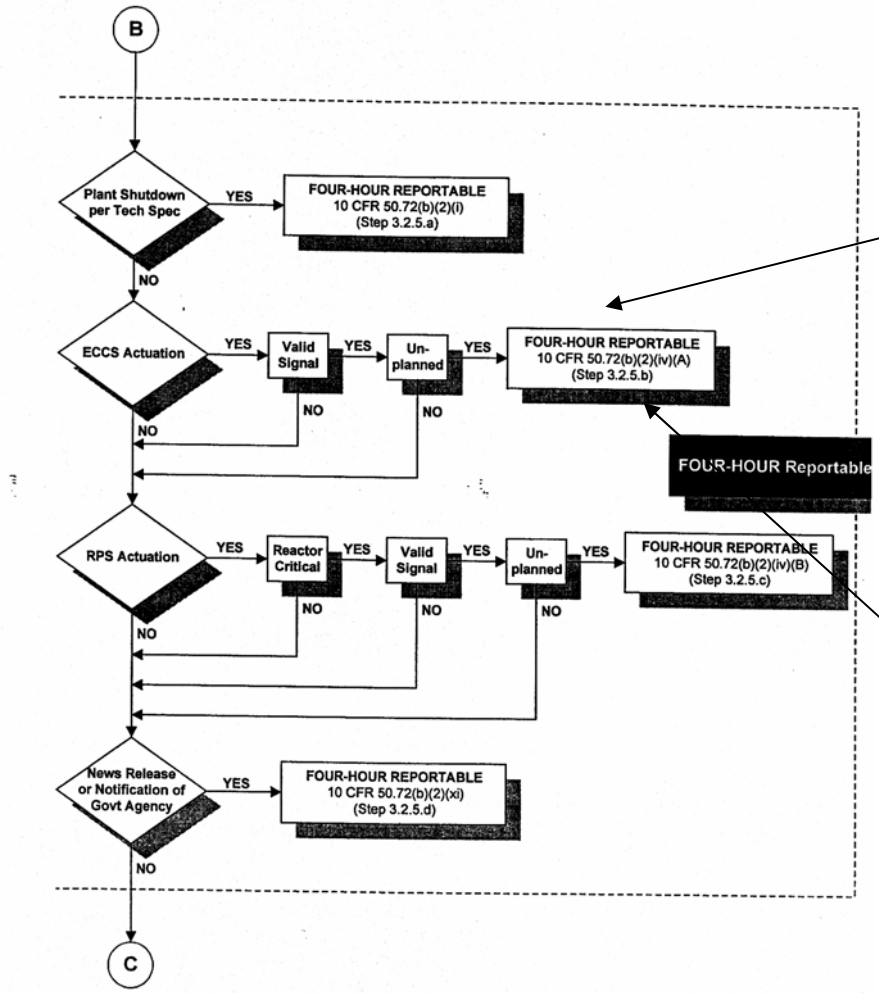
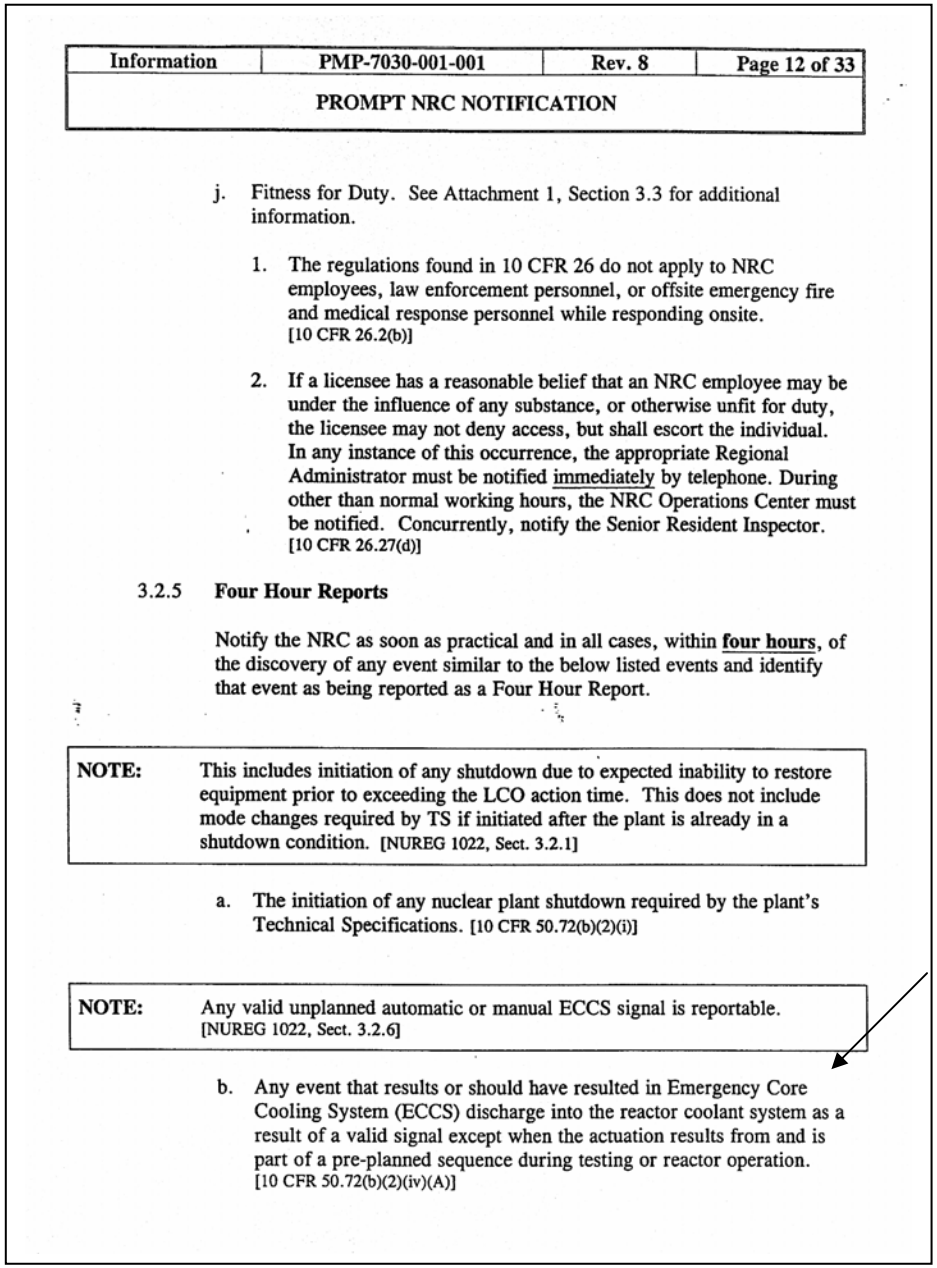
PROMPT NRC NOTIFICATION			
Figure 1	Reportability Flowchart		Pages: 28 - 33



CT: Identifies that an unplanned ECCS actuation from valid signal (Manual SI) requires a report within 4 hours.

Note the sections in the procedure text that provide information or clarification of this flow chart determination.



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j. Fitness for Duty. See Attachment 1, Section 3.3 for additional information.

1. The regulations found in 10 CFR 26 do not apply to NRC employees, law enforcement personnel, or offsite emergency fire and medical response personnel while responding onsite. [10 CFR 26.2(b)]

2. If a licensee has a reasonable belief that an NRC employee may be under the influence of any substance, or otherwise unfit for duty, the licensee may not deny access, but shall escort the individual. In any instance of this occurrence, the appropriate Regional Administrator must be notified immediately by telephone. During other than normal working hours, the NRC Operations Center must be notified. Concurrently, notify the Senior Resident Inspector. [10 CFR 26.27(d)]

3.2.5 **Four Hour Reports**

Notify the NRC as soon as practical and in all cases, within **four hours**, of the discovery of any event similar to the below listed events and identify that event as being reported as a Four Hour Report.

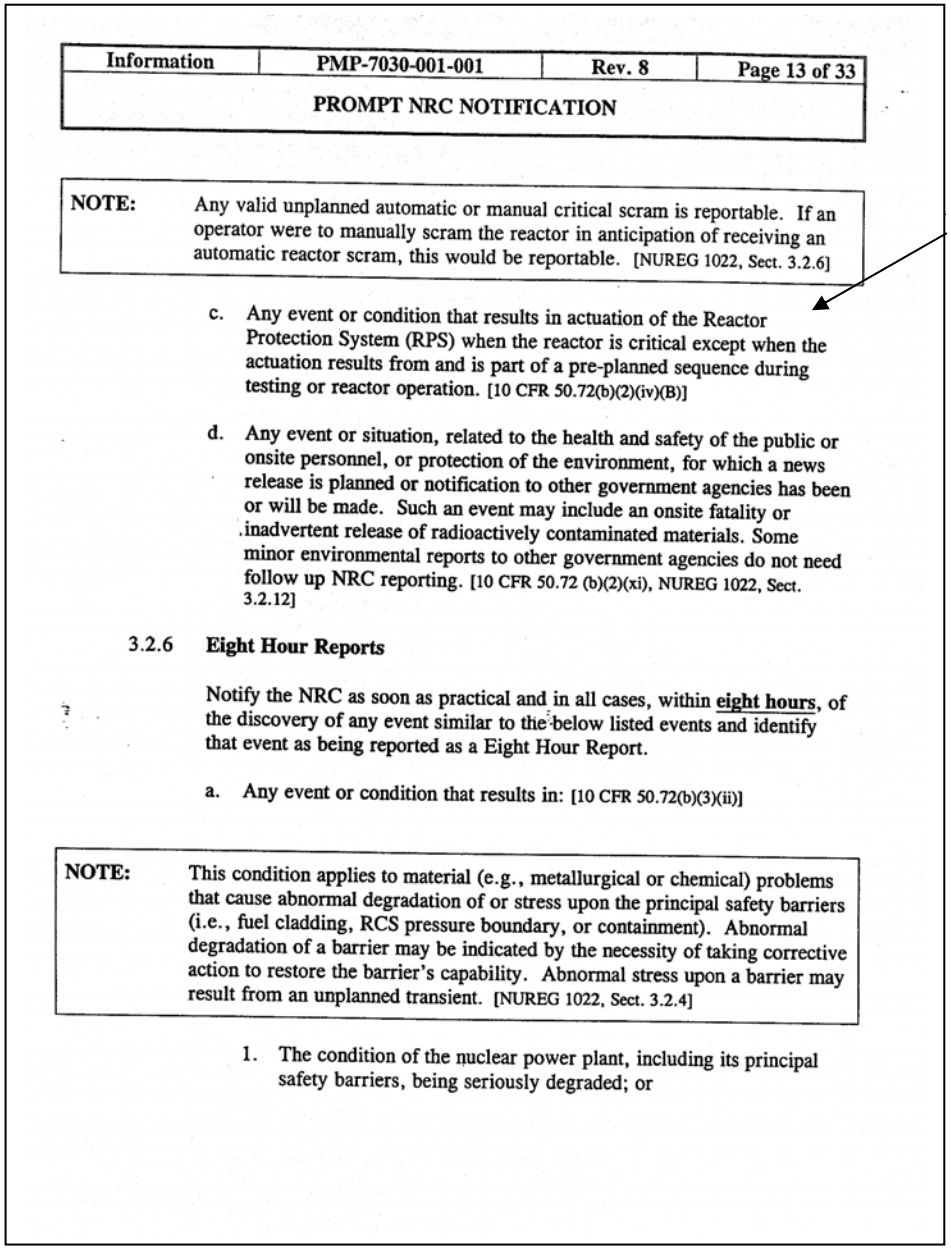
NOTE: This includes initiation of any shutdown due to expected inability to restore equipment prior to exceeding the LCO action time. This does not include mode changes required by TS if initiated after the plant is already in a shutdown condition. [NUREG 1022, Sect. 3.2.1]

a. The initiation of any nuclear plant shutdown required by the plant's Technical Specifications. [10 CFR 50.72(b)(2)(i)]

NOTE: Any valid unplanned automatic or manual ECCS signal is reportable. [NUREG 1022, Sect. 3.2.6]

b. Any event that results or should have resulted in Emergency Core Cooling System (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. [10 CFR 50.72(b)(2)(iv)(A)]

CT: Refers to section in procedure text for information of clarification of flow chart results



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PROMPT NRC NOTIFICATION

NOTE: Any valid unplanned automatic or manual critical scram is reportable. If an operator were to manually scram the reactor in anticipation of receiving an automatic reactor scram, this would be reportable. [NUREG 1022, Sect. 3.2.6]

c. Any event or condition that results in actuation of the Reactor Protection System (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. [10 CFR 50.72(b)(2)(iv)(B)]

d. Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials. Some minor environmental reports to other government agencies do not need follow up NRC reporting. [10 CFR 50.72 (b)(2)(xi), NUREG 1022, Sect. 3.2.12]

3.2.6 **Eight Hour Reports**

Notify the NRC as soon as practical and in all cases, within **eight hours**, of the discovery of any event similar to the below listed events and identify that event as being reported as a Eight Hour Report.

a. Any event or condition that results in: [10 CFR 50.72(b)(3)(ii)]

NOTE: This condition applies to material (e.g., metallurgical or chemical) problems that cause abnormal degradation of or stress upon the principal safety barriers (i.e., fuel cladding, RCS pressure boundary, or containment). Abnormal degradation of a barrier may be indicated by the necessity of taking corrective action to restore the barrier's capability. Abnormal stress upon a barrier may result from an unplanned transient. [NUREG 1022, Sect. 3.2.4]

1. The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or

CT: Refers to section in procedure text for information of clarification of flow chart results.

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PROMPT NRC NOTIFICATION			
Data Sheet 1	Event Notification Worksheet	Pages: 26 - 27	

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NRC FORM 361 (12-2000)

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

U.S. NUCLEAR REGULATORY COMMISSION OPERATIONS CENTER

EN #

NRC OPERATION TELEPHONE NUMBER: PRIMARY – 301-816-5100 OR 800-532-3469*, BACKUP – [1 ST] 301-951-0550 OR 800-449-3694* [2 ND] 301-415-0550 AND [3 RD] 301-415-0553 *Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	~~CALL BACK #~~
1400	DC COOK	1	(Fill in NAME)	(ANY EXTENSION)

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
1325	2/6/06	0% / MODE 3	0% / MODE 3

EVENT CLASSIFICATIONS

	GENERAL EMERGENCY	GENA/AAEC
	SITE AREA EMERGENCY	SIT/AAEC
	ALERT	ALE/AAEC
	UNUSUAL EVENT	UNU/AAEC
X	50.72 NON-EMERGENCY	*(see next column)*
	PHYSICAL SECURITY (73.71)	DDDD
	MATERIAL/EXPOSURE	B???
	FITNESS FOR DUTY	HFIT
	OTHER UNSPECIFIED REQMT.	*(see last column)*
	INFROMATION ONLY	NNF

1-HR NON-EMERGENCY 10 CFR 50.72(b)(1)

	TS Deviation	ADEV

4-HR NON-EMERGENCY 10 CFR 50.72 (b)(2)

	(i)	TS Required S/D	ASHU
X	(iv)(A)	~~ECCS Discharge to RCS~~	ACCS
	(iv)(B)	RPS Actuation (scram)	ARPS
	(xi)	Offsite Notification	APRE

8-HR NON-EMERGENCY 10 CFR 50.72 (b)(3)

	(ii)(A)	Degraded Condition	ADEG
	(ii)(B)	Unanalyzed Condition	AUNA
	(iv)(A)	Specified System Actuation	AESF

	(v)(A) Safe S/D Capability	AINA
	(v)(B) RHR Capability	AINB
	(v)(C) Control of Rad Release	AINC
	(v)(D) Accident Mitigation	AIND
	(xii) Offsite Medical	AMED
	(xiii) Loss Comm/Asmt/Resp	ACOM

60-Day Optional 10 CFR 50-73 (a)(1)

Invalid Specified System Actuation	AINV

Other Unspecified Requirement (Identity)

		NONR
		NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc. *(Continue on back)*

(Fill in GENERAL DESCRIPTION)

NOTIFICATIONS	YES	NO	WILL BE
NRC RESIDENT			X
STATE(S)			
LOCAL			
OTHER GOV AGENCIES			
MEDIA/PRESS RELEASE			

ANYTHING UNUSUAL OR NOT UNDERSTOOD ? ☐ YES (Explain above) ☐ NO

DID ALL SYSTEMS FUNCTION AS REQUIRED? Above) ☒ YES ☐ NO (Explain

MODE OF OPERATION UNTIL CORRECTED: | ESTIMATED RESTART DATE: | ADDITIONAL INFO ON BACK ☐ YES ☐ NO

Fill in applicable data to include:

CT: Notification of Time / Facility or organization / Unit

Caller / Call Back Number (Can be any plant extension)

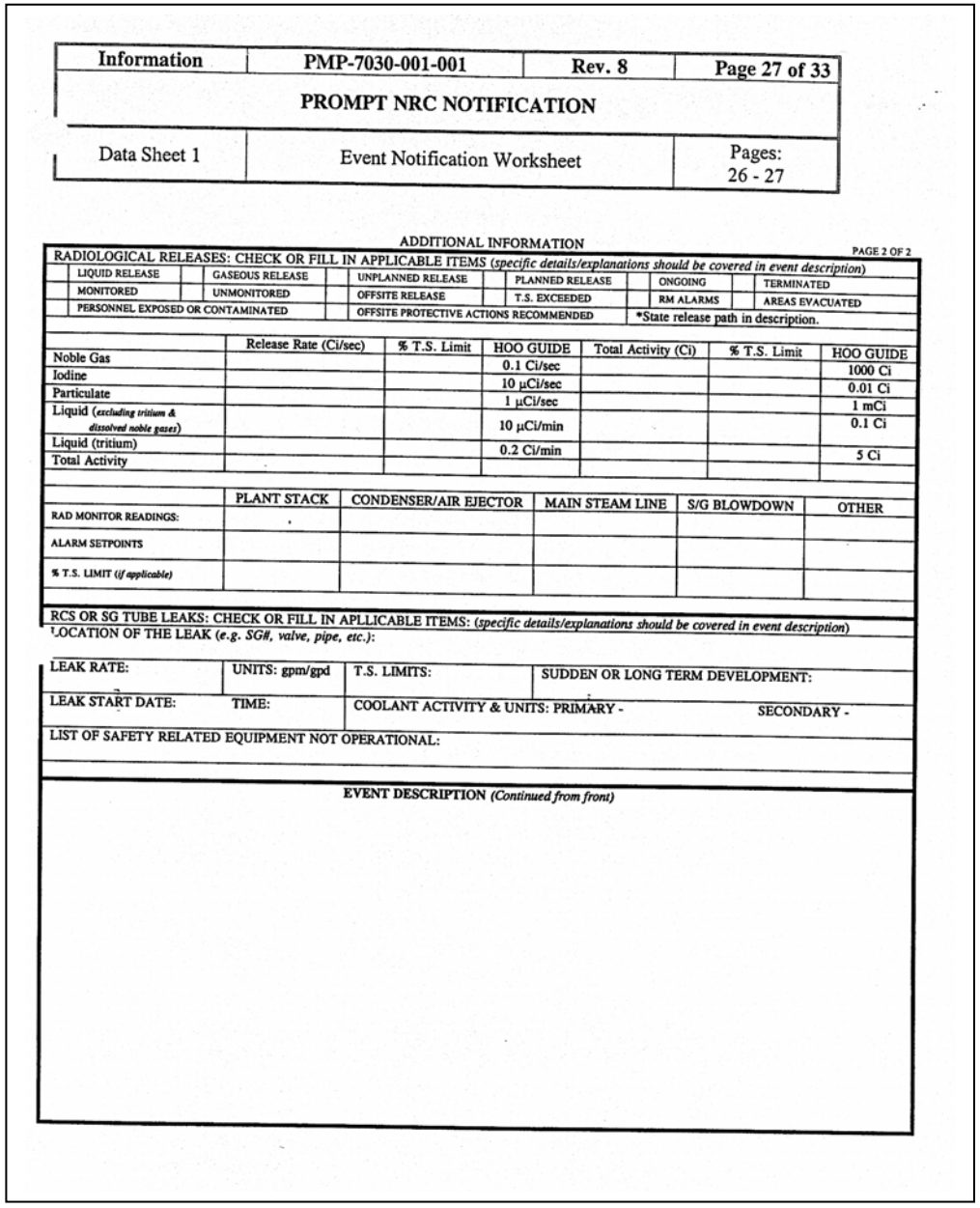
CT: Event Time / Date / mode (Before and After)

CT: 4 hr Classification (ECCS Discharge to RCS)

Description:
Manual ECCS Actuation on lowering RCS Temp & Pressure from steam release through SG #12 safety valve that opened and failed to reseat. RCS stable in mode three, SI terminated per ES-1.1, SI Termination, SG #12 has blown down and all other SGs are stable at 26% to 50% NR level.

Notifications (NRC)

Other Information



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ADDITIONAL INFORMATION

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RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS (*specific details/explanations should be covered in event description*)

LIQUID RELEASE	GASEOUS RELEASE	UNPLANNED RELEASE	PLANNED RELEASE	ONGOING	TERMINATED
MONITORED	UNMONITORED	OFFSITE RELEASE	T.S. EXCEEDED	RM ALARMS	AREAS EVACUATED
PERSONNEL EXPOSED OR CONTAMINATED		OFFSITE PROTECTIVE ACTIONS RECOMMENDED		*State release path in description.	

	Release Rate (Ci/sec)	% T.S. Limit	HOO GUIDE	Total Activity (Ci)	% T.S. Limit	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 µCi/sec			0.01 Ci
Particulate			1 µCi/sec			1 mCi
Liquid (*excluding tritium & dissolved noble gases*)			10 µCi/min			0.1 Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	S/G BLOWDOWN	OTHER
RAD MONITOR READINGS:					
ALARM SETPOINTS					
% T.S. LIMIT (*if applicable*)					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APLLICABLE ITEMS: (*specific details/explanations should be covered in event description*)

LOCATION OF THE LEAK (*e.g. SG#, valve, pipe, etc.*):

LEAK RATE:	UNITS: gpm/gpd	T.S. LIMITS:	SUDDEN OR LONG TERM DEVELOPMENT:
LEAK START DATE:	TIME:	COOLANT ACTIVITY & UNITS: PRIMARY -	SECONDARY -

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL:

EVENT DESCRIPTION (*Continued from front*)

NO ITEMS ON THIS PAGE ARE APPLICABLE

JPM IS COMPLETE

Task Briefing

You are the extra SRO.

The Shift Manager directs you to determine the NRC notification requirements and prepare an event notification worksheet (Data Sheet 1) for prompt NRC NOTIFICATION in accordance with PMP-7030-001-001.

The following plant conditions exist as noted.

- **Current time is** 1400

- DC Cook Unit 1 was in MODE 3 at Operating Temperature and Pressure. The Shutdown and Control Rods were fully inserted with the Reactor Trip Breakers Open.
- At 1325 today, Steam Generator #12 Safety Valve has opened and did not reseat (remains partially open).
- The Unit 1 operation crew manually initiated Safety Injection due to uncontrolled lowering of RCS temperature / pressure, and Steam Generator #12 pressure continues to lower.
- The Unit 1 operating crew has completed E-0, Reactor Trip and Safety Injection, E-2 Faulted Steam Generator Isolation, and is currently in ES-1.1, SI Termination. SI flow has been terminated per ES-1.1.

- **Present RCS conditions**: RCS is stable in Mode 3; level in SG #12 is at 5% WR and slowly lowering; all other SG's are being maintained between 26% and 50% NR on auxiliary feedwater; and there is no detectable radiation release in progress.

- All other plant systems responded normally to the event.

- The SM has determined that NO Emergency Classification is required per PMP-2080-EPP-101.