

07-~~24~~<sup>70</sup>-91

UNIT 2 DYNAMIC SCENARIOS

- O2-REQ-009-1DY-2-01 CRD Pump Trip/Flow Comparator Failure/Recirc Pump High Vibration/Depressurization with a Group 1 Failure
- O2-REQ-009-1DY-2-02 F.W. Pump Trip/Recirc Pump Trip/EHC Malfunction causes an MSIV Isolation with a Failure to Scram
- O2-REQ-009-1DY-2-03 LPRM Fails Downscale/Loss of Off-Site 115 KV Line 6/Drywell leak with failure of Div II ECCS to Auto Start
- O2-REQ-009-1DY-2-04 Loss of High Pressure Injection systems with Stuck Control Rod Groups
- O2-REQ-009-1DY-2-05 ATWS Following a Turbine Trip without Bypass Valves
- O2-REQ-009-1DY-2-06 Steam Leak in the Drywell
- O2-REQ-009-1DY-2-07 F.W. System Malfunctions/EHC Oscillations/Diesel Generator INOP/High Water level trip due to Instrument Failure
- O2-REQ-009-1DY-2-08 Inadvertent start of HPCS followed by Turbine trip without Bypass
- O2-REQ-009-1DY-2-09 APRM Failure/HPCS Inadvertent Injection/Feedwater Line break/SDV Rupture
- O2-REQ-009-1DY-2-10 Main Steamline break inside containment
- O2-REQ-009-1DY-2-11 ATWS with SLC injection
- O2-REQ-009-1DY-2-12 Loss of Off-site power with Drywell steam leak
- O2-REQ-009-1DY-2-13 Large break LOCA with partial loss of electrical power
- O2-REQ-009-1DY-2-14 DBA LOCA with degraded low pressure ECCS
- O2-REQ-009-1DY-2-15 ATWS and Fuel failure with loss of High Pressure Injection
- O2-REQ-009-1DY-2-16 Large break outside containment with fuel failure (ATWS)
- O2-REQ-009-1DY-2-17 Small LOCA inside Primary Containment
- O2-REQ-009-1DY-2-18 Small steam break inside the Reactor Building
- O2-REQ-009-1DY-2-20 Failure of RPS; 8 stuck rods following ARI
- O2-REQ-009-1DY-2-21 Hydraulic lock of SDV/Steam leak in drywell

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NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

02-REQ-009-1DY-2-01 Revision 4

TITLE: CRD PUMP TRIP/FLOW COMPARATOR FAILURE/RECIRC PUMP HIGH VIBRATION/  
DEPRESSURIZATION WITH A GROUP 1 FAILURE

	SIGNATURE	DATE
PREPARED BY	<u>[Signature]</u>	<u>3/11/91</u>
VALIDATED BY	<u>[Signature]</u>	<u>3/11/91</u>
UNIT OPERATIONS TRAINING SUPERVISOR	<u>[Signature]</u>	<u>3/11/91</u>
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	<u>[Signature]</u>	<u>3/11/91</u>

**MASTER**  
Summary of Pages  
(Effective Date: 3/11/91)  
Number of Pages: 12  
**CONTROLLED**  
Date: March 1991 Pages: 1-2

**DOCUMENT**  
TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

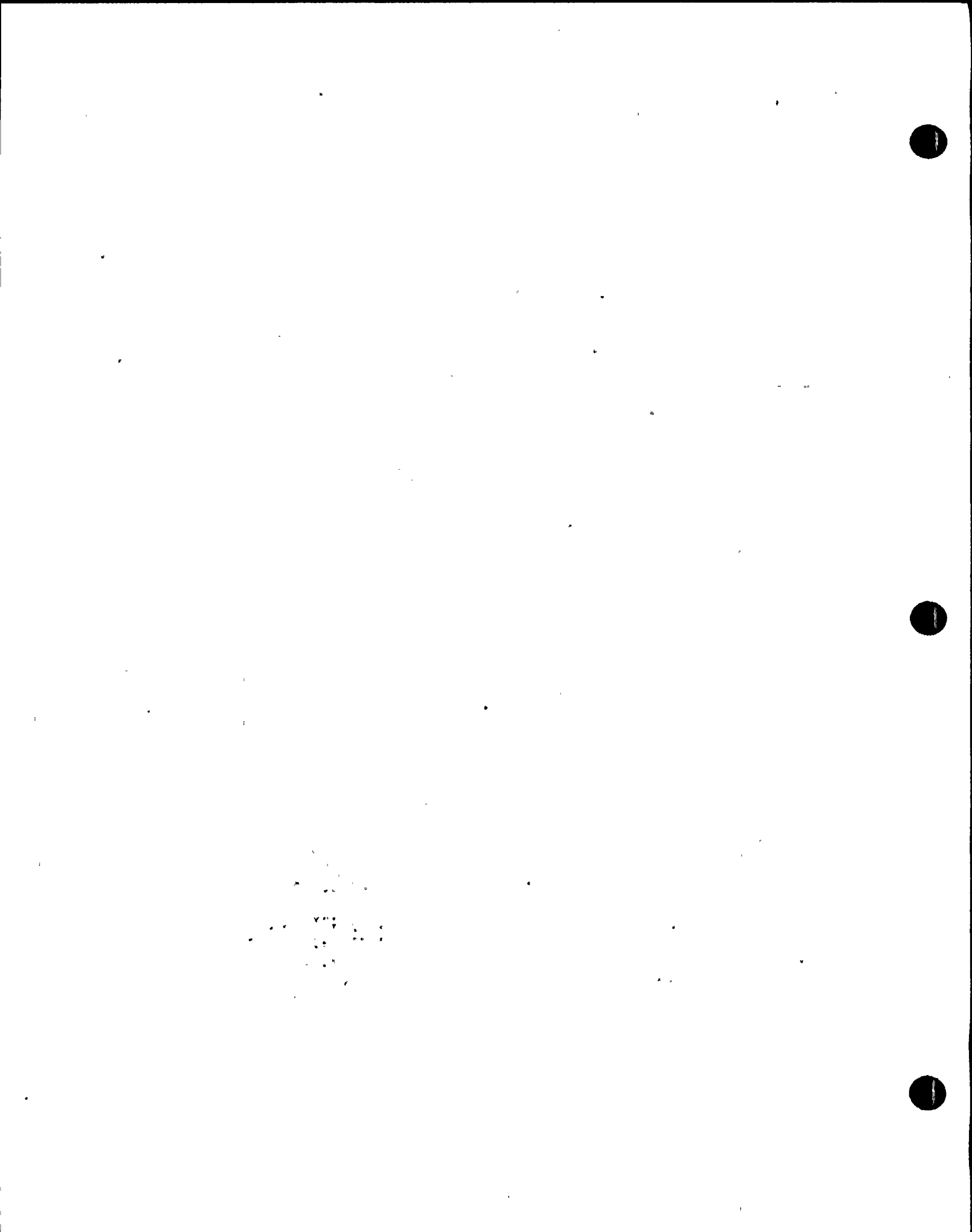
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## I. TRAINING DESCRIPTION

- A. Title of Lesson: CRD Pump Trip/Flow Comparator Failure/Recirc, Pump High Vibration/Depressurization with a Group 1 Failure
- B. Lesson Description: The scenario begins while shutting down with power about 75%. Normal surveillances to support the shutdown are scheduled. The A CRD pump trips on overcurrent. The standby CRD pump is quickly started. Two minutes later, flow comparator unit C will fail downscale to give a half scram which will be bypassed and reset. (Option 2: Flow comparator unit C fails upscale to give a rod block). Following the failure of the C flow comparator, the 1A recirculation pump develops high vibrations and must be secured. Once the 1A recirculation pump is secured a malfunction occurs that rapidly depressurizes the RPV with a failure of the group one isolation. The scenario ends when the crew has restored RPV level and have taken actions to establish an alternate RPV pressure control.
- C. Estimate of the Duration of the Lesson: 50 minutes
- D. Prerequisites:
1. Instructor:
    - Qualified in accordance with NTP-16.
  2. Trainee:
    - Meet eligibility requirements per 10CFR55.
- E. References:
1. OP-30, H.1.0, Loss of CRD Pump
  2. OP-29, Reactor Recirculation
  3. OP-101D, Power Changes
  4. EOP-RL, RPV Water Level Control
  5. EOP-SPT, Suppression Pool Temperature
  6. EPP-4, Personnel Injury or Illness
  7. EPP-20, Emergency Notifications
  8. EPP-25, Emergency Reclassification and Recovery
  9. Technical Specifications:
    - a. 3.3.1 and Table 3.3.1-1
    - b. 3.3.6 and Table 3.3.6-1



## II. SCENARIO OBJECTIVES

### A. ISCT Summary

- ISCT #1 Respond to a Reactor Recirc Pump Trip  
SSS/ASSS K/A Rating 295001  
Gen. 7-3.6
- ISCT #2 Perform the Actions for One Reactor Pump Trip  
CSO/E Task Number 2000010501 K/A Rating 295001  
AA.01-3.5
- ISCT #3 Direct the Actions Required per EOP-RPV Section RL  
SSS/ASSS Task Number 3449400605 K/A Rating 295006  
Gen 12-4.4  
Direct the actions required per EOP-RPV Section RP  
Task Number 3449410603 K/A Rating 295006  
Gen. 12-4.4
- ISCT #4 Classify Emergency Events Requiring Emergency Plan  
Implementation.  
SSS/ASSS Task Number 3440190303 K/A Rating 294001  
A1.16-4.7
- ISCT #5 Ensure Required Notifications of On-Site and Off-Site  
Personnel During Off-Normal Events.  
SSS/ASSS Task Number 3440390303 K/A Rating 294001  
A1.16-4.7

### B. Generic Objectives

- GO-1.0 Demonstrate effective communications in accordance with the  
Operations Department Instruction on verbal communications.
- GO-2.0 Demonstrate for those exercises that require use of the  
Emergency Plan, an understanding of the roles and  
responsibilities of the SSS, ASSS/STA, and CSO/NAOE in  
accordance with Operations Department instructions.
- GO-3.0 SRO's shall demonstrate an understanding of command and  
control, EOP place keeping techniques and effective use of  
control room personnel during emergency conditions.
- GO-4.0 Operators shall demonstrate "Self Verification" work  
practice techniques in accordance with Operations  
Department instructions.

### C. Scenario Objectives

1. Given a reactor plant at approximately 100% power with a  
malfunction that results in the loss of the operating CRD pump.  
The operating crew will restore the CRD System prior to  
receiving two accumulator alarm IAW OP-30.
2. Given a reactor plant at approximately 100% power with high  
vibrations in the IA Reactor Recirculation pump, the operating  
crew will secure the pump within 5 minutes of exceeding 5 mils  
of vibration.
3. Given a reactor plant at approximately 40% power with a  
malfunction that results in a rapid depressurization and a group  
one failure, the operating crew will shut the MSIVs prior to  
exceeding a 100°F per hour cooldown rate.



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ATTACHMENT 1  
PRE-EVALUATION BRIEFING

IV. LESSON CONTENT  
LESSON CONTENT

DELIVERY NOTES

OBJECTIVES/  
NOTES

1. Establish simulator initial conditions.
2. Bring crew into the classroom and brief using Attachment 6, Simulator Briefing Checklist.
3. Identify the roles and responsibilities and individuals performing the function for:
  - a. Crew Evaluator
  - b. SRO Evaluator
  - c. RO Evaluator(s)
  - d. Console Operator
  - e. If NRC is present introduce the NRC participants.
4. Identify the roles of the participants.
  - a. SSS
  - b. ASSS
  - c. CSO
  - d. AOE's
  - e. SEPC (if applicable)
5. Ensure video tape is running and participants are aware:  
(NCTS-2)
  - a. That video taping is being conducted.
  - b. The reason for the video tape.

Discuss each item on the checklist.  
This checklist should be discussed during the first evaluated lesson plan during a training week and prior to subsequent evaluated lesson plans as necessary.

Ensure the participants understand that the evaluators will be taking extensive notes during the session and not to be concerned with the evaluators actions.



ATTACHMENT 1  
PRE-EVALUATION BRIEFING

LESSON CONTENT

DELIVERY NOTES

OBJECTIVES/  
NOTES

6. Refer to Attachment 2. Turnover information and conduct shift turnover in the simulator.



TIME

EVENT

INSTRUCTOR ACTIVITY

ATTACHMENT  
PLANT RESPONSE

OPERATOR ACTIONS

EVALUATOR COMMENTS

Special Instructions:

Simulator Operation:

Initialize: IC 17

Take RSCS to insert

Preset Malfunctions:

Preset Remote Functions:

None

Preset Instructor Overrides:

None

Initial Conditions:

100% power, BOL,

RWM GR-147

Have the pull sheet open to  
GP-147.

Surveillances scheduled:

None

Allow not more than five minutes  
to walk down panels.

Walk control boards.

T = 0

Commence the Scenario

Assume the shift; continue  
power operation.



TIME	EVENT	INSTRUCTOR ACTIVITY	ATTACHMENT PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
T=5		Enter Malfunction MF; 1,RD12A	CRD pump 1A trips	CSO/E 1. Recognizes/reports pump trip 2. Requests maintenance to inspect pump 3. Enter OP-30 4. Starts standby CRD pump a. Controller to manual b. Close FCV c. Start pump d. Reset flow = 63 gpm e. Controller to auto	Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA
T = 15	2	Enter malfunction 2,RR08C  Role Play: As I&C report that it will take a few minutes	Flow comparator C trip; half scram.	Team Reports/responds to alarms  SSS/ASSS 1. Directs OP-92/96 activities. 2. Contacts I&C to investigate failure 3. Directs bypassing and drawer removal	Sat/Unsat/NA  Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA





TIME

EVENT

INSTRUCTOR ACTIVITY

ATTACHMENT  
PLANT RESPONSE

OPERATOR ACTIONS

EVALUATOR COMMENTS

CSO/E

Bypasses Channel C flow  
comparator

Sat/Unsat/NA

SSS/ASSS

1. Reviews Tech Specs (Table  
3.3.1-1 and 3.3.6-1 & T/S  
interpretation #73)

Sat/Unsat/NA

Role Play: As I&C report  
that channel C drawer needs  
replacement; you can bypass  
the scram signal

Clear MF 2 and report the  
scram signal is bypassed and  
you've pulled the drawer



TIME	EVENT	INSTRUCTOR ACTIVITY	ATTACHMENT PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				CSO/E Resets half scram (Rod block clears)	Sat/Unsat/NA
T = 35	3	Enter the following I/O: I/O; 1,AN602201-19,,ON	Recirc Pump 1A/1B Hi vibration	<u>Crew</u> Respond/Report annunciator	Sat/Unsat/NA
		Role Play: As operator dispatched to 1 2RCS-PNL100 (RB 240), report that the 1A pump vibration is 5 mils and rising.			
		Note: When the pump is secured per OP-29, remove I/O 1.		SSS 1. Directs operators to reduce power per OP-101D. 2. Directs operators to secure the A Recirc pump per OP-29. 3. Directs operators to establish single loop conditions per OP-101D and OP-29. 4. Refers to T.S. for SLO. 5. Call Reactor Analyst 6. Calls I&C Department	Sat/Unsat/NA Sat/Unsat/NA ISCT #1 Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA
		Role Play: If asked, report that 1A pump vibration is 0 mils (after the pump is secured).			



CSO/E

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Per OP-101D section H.1.0 and OP-29 section G.2.0:             <ol style="list-style-type: none"> <li>a. Reduces flow for the A Recirc pump to 8% indicated.</li> <li>b. Core flow maintained <math>\geq</math> 49 Mlb/hr.</li> <li>c. The B Recirc pump flow maintained &lt; 41,800 gpm.</li> <li>d. Inserts CRAM Rods (as necessary)</li> <li>e. Opens Brkr 5A</li> </ol> </li> <li>2. Per OP-29 section H.7.0             <ol style="list-style-type: none"> <li>a. Recirc flow control in loop manual</li> </ol> </li> </ol> | <p>IISCT #2</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> |
|--|---|

T = 45      4      Insert the following malfunctions  
 MF; 3, MS13  
 MF; 4, TC01

MSIV Isolation failure  
 EHC System pressure sensor failure

Crew

- |  |                     |
|--|---------------------|
| <ol style="list-style-type: none"> <li>1. Recognize/report the Group 1 failure.</li> </ol> | <p>Sat/Unsat/NA</p> |
|--|---------------------|



TIME	EVENT	INSTRUCTOR ACTIVITY	ATTACHMENT PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
			Rx. plant depressurizes through the TCV's and Turbine BPV's.	<u>SSS</u> 1. Orders the Reactor scrammed 2. Enters RPV EOP 3. Orders the MSIV's shut 4. Establishes an alternate pressure control	ISCT #3 Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA
				<u>CSO/E</u> 1. Scrams the reactor 2. Shuts the MSIV's 3. Controls RPV pressure (as directed)	Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA
				<u>SSS/ASSS</u> 1. Classifies the event as an alert or higher 2. Makes notifications	ISCT #4,5 Sat/Unsat/NA Sat/Unsat/NA

Termination: End scenario when RPV level is controlled between 159 and 202 inches and an alternate method of pressure control has been established.





## POST EVALUATION ASSESSMENT

LESSON CONTENTDELIVERY NOTESNOTES AND  
COMMENTS

1. Ensure operators stand fast and do not communicate immediately after simulator is placed in freeze.
2. Evaluators should caucus to determine if any follow-up questions are necessary.
3. Ask follow-up questions before the SSS and crew is released.
4. Instruct the SSS to assess the session with the crew to determine crew strengths and areas for improvement. This should be documented in Attachment 4 for later evaluations.
4. Evaluation Team Shall:
  - a. Determine crew strengths and areas for improvement.
  - b. Conduct a crew evaluation in Attachment 13.
  - c. Determine SAT/UNSAT/NA for all critical tasks and who performed each task.
  - d. Conduct individual evaluations on Attachments 10 and 11.
5. Following the evaluation (if NRC is present) the results of evaluation should be given to the NRC examiners.
6. Conduct a post exercise assessment as follows:
  - a. Review the learning objectives. . .  
Have the crew state how each was met during the session.



## LESSON CONTENT

## DELIVERY NOTES

## b. Participants Self-Evaluation

Discussion should focus on measurable behaviors and how these contributed to or detract from meeting the objectives.

Allow participants to evaluate themselves against the learning objectives and tasks for the session.

Discussion should center on performances and not personal feelings or interpretations of actions.

c. Instructors assessment and performance  
(NCTS-2) recommendations.

1. Assess the participants performance for those objectives and tasks not included in the crew self-assessment. Use the video tape in the assessment to more effectively assess communications, teamwork, and prioritization, if necessary.

2. Provide feedback on ways to improve performance as appropriate.

## 7. Session and program feedback.

1. Distribute Simulator Training Evaluation Feedback Form, NTI-4.4 Attachment 13.

2. Provide students with time to complete form.

## 8. Document session

1. Complete Post Evaluation Summary, Attachment 4.

2. Place a copy in file for next training session.

3. Document any NRC/INPO operating concerns as an items list attached to the training record. (TR)

