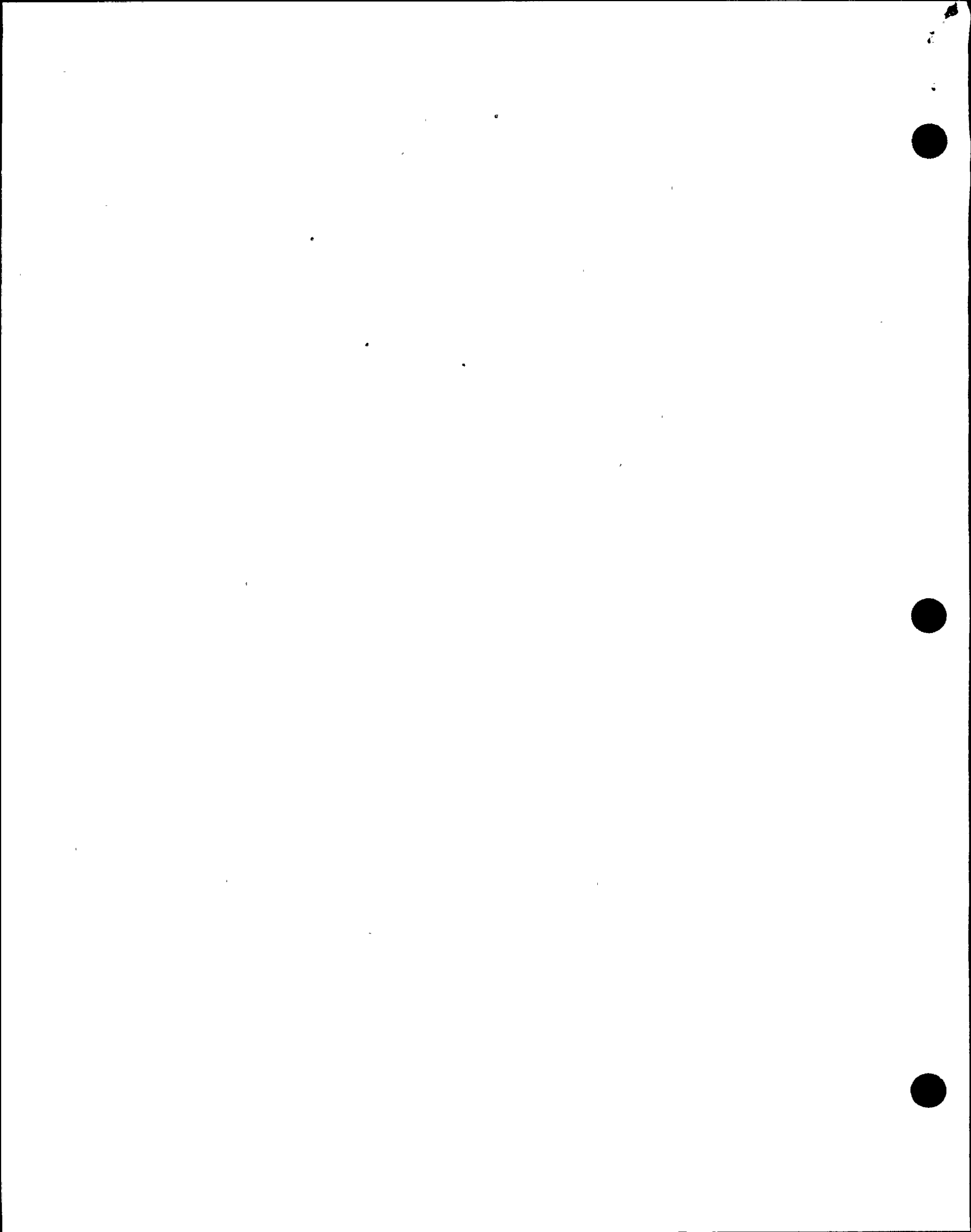


I. TRAINING DESCRIPTION

- A. Title of Lesson: Failure to Scram
- B. Lesson Description:
Using the Nine Mile Point Unit 2 Simulator, the Instructor will facilitate proper operator performance of all NMP-Unit 2 Procedures and guidelines for conduct of operations during each scenario. The Instructor may use freeze, backtrack and/or reset the Simulator from any point in this scenario to aid in the facilitation of this lesson.
- C. Estimate of the Duration of the Lesson: 40 minutes
- D. Method and Setting of Instruction: Simulator Performance
- E. Prerequisites:
 - 1. Instructor:
 - a. Qualified as a Simulator Instructor per NTP-16.1.
 - 2. Trainee:
 - a. Meet the eligibility requirements per 10CFR55, or
 - b. Be recommended for this training by the Operations Superintendent, his designee, or the Training Superintendent.
- F. References:
 - 1. N2-EOP's - Emergency Operating Procedures
 - 2. N2-EOP-6 - EOP Support Procedure
- G. Annual/Biennial:
O2-REQ-MAN-B08-2-00, "Failure of Reactor to Scram"
RO/CSO/SSS/ASSS/STA

II. REQUIREMENTS

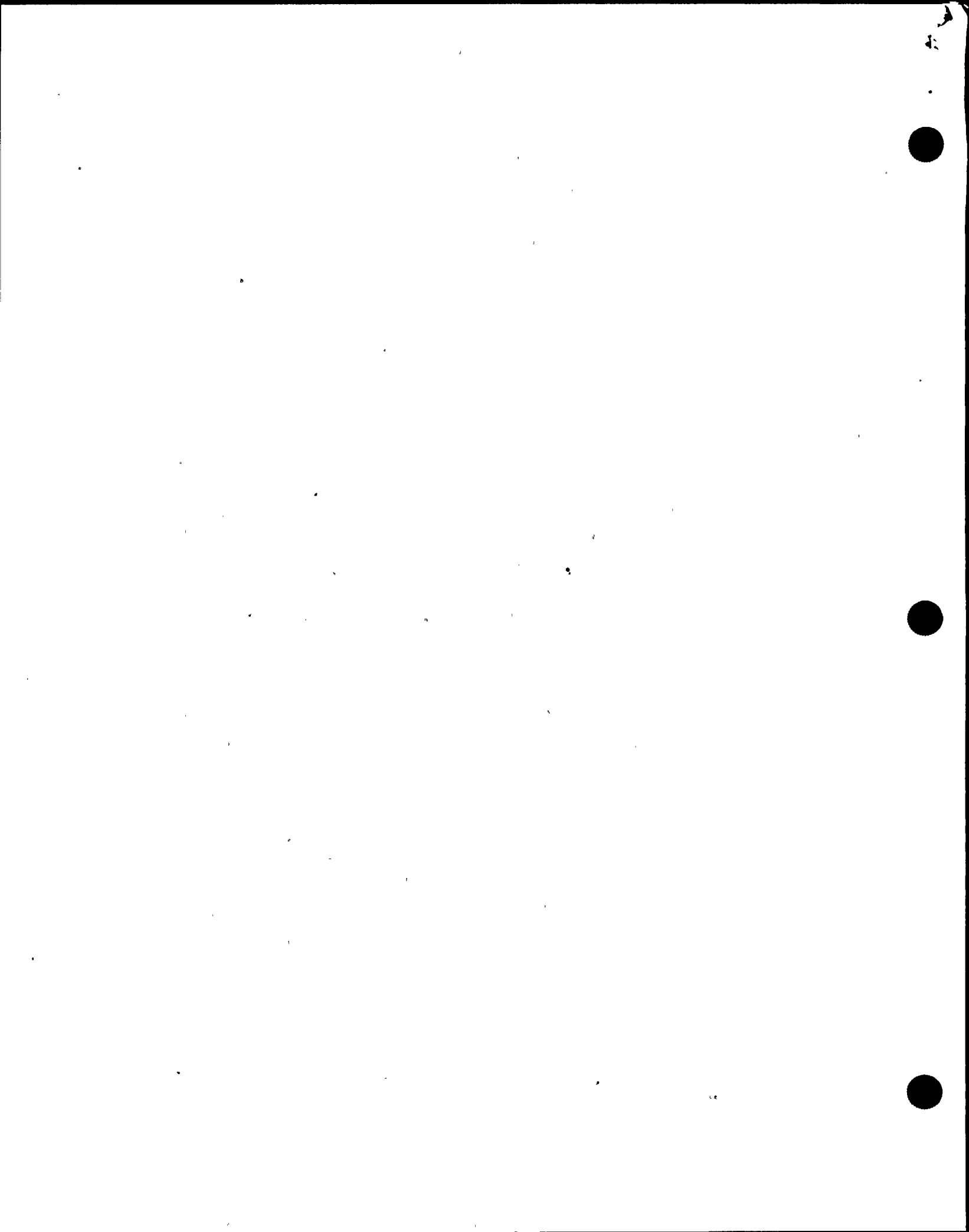
- A. AP-9, Administration of Training
- B. NTP-10, Training of Licensed Operator Candidates
- C. NTP-11, Licensed Operator Requalification Training



III. LEARNING OBJECTIVES

A. SSS/ASSS Objectives

- TO-1.0 3449390603 Direct the actions required per EOP-RPV Control, Section RQ.
- EO-1.1 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to monitor and control Reactor power.
- EO-1.2 Given N2-EOP-RPV control and the Simulator in the conditions established determine if the Reactor is shutdown.
- EO-1.3 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to terminate boron injection.
- EO-1.4 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to exit Section RQ and enter N2-OP-101C, Section H.1.
- EO-1.5 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to confirm or place the mode switch in shutdown.
- EO-1.6 Given the N2-EOP-RPV control and the Simulator in the conditions established determine if ARI has initiated.
- EO-1.7 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to initiate RRCS.
- EO-1.8 Given N2-EOP-RPV control and the Simulator in the conditions established determine if the turbine generator is on the line.
- EO-1.9 Given N2-EOP-RPV control and the Simulator in the conditions established determine if the MSIVs are open.
- EO-1.10 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to verify recirculation flow control runback to minimum.
- EO-1.11 Given N2-EOP-RPV control and the Simulator in the conditions established determine if Reactor power can be determined.



- EO-1.12 Given N2-EOP-RPV control and the Simulator in the conditions established determine if Reactor power is above 4%.
- EO-1.13 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to trip the recirculation pumps.
- EO-1.14 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to reset ARI, to include defeating ARI logic trips if necessary.
- EO-1.15 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to insert control rods in accordance with N2-EOP-6.
- EO-1.16 Given N2-EOP-RPV control and the Simulator in the conditions established determine the boron injection initiation temperature.
- EO-1.17 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to inject boron into the RPV with SLC and place the ADS logic inhibit switches in on.
- EO-1.18 Given N2-EOP-RPV control and the Simulator in the conditions established determine if boron can be injected with SLC.
- EO-1.19 Given N2-EOP-RPV control and the Simulator in the conditions established determine if RWCU is isolated.
- TO-2.0 3449400603 Direct the actions required per EOP-RPV Section RL.
- EO-2.1 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to monitor and control Reactor water level.
- EO-2.2 Given N2-EOP-RPV control and the Simulator in the conditions established determine if an RPV water level instrument may be used to determine RPV water level.



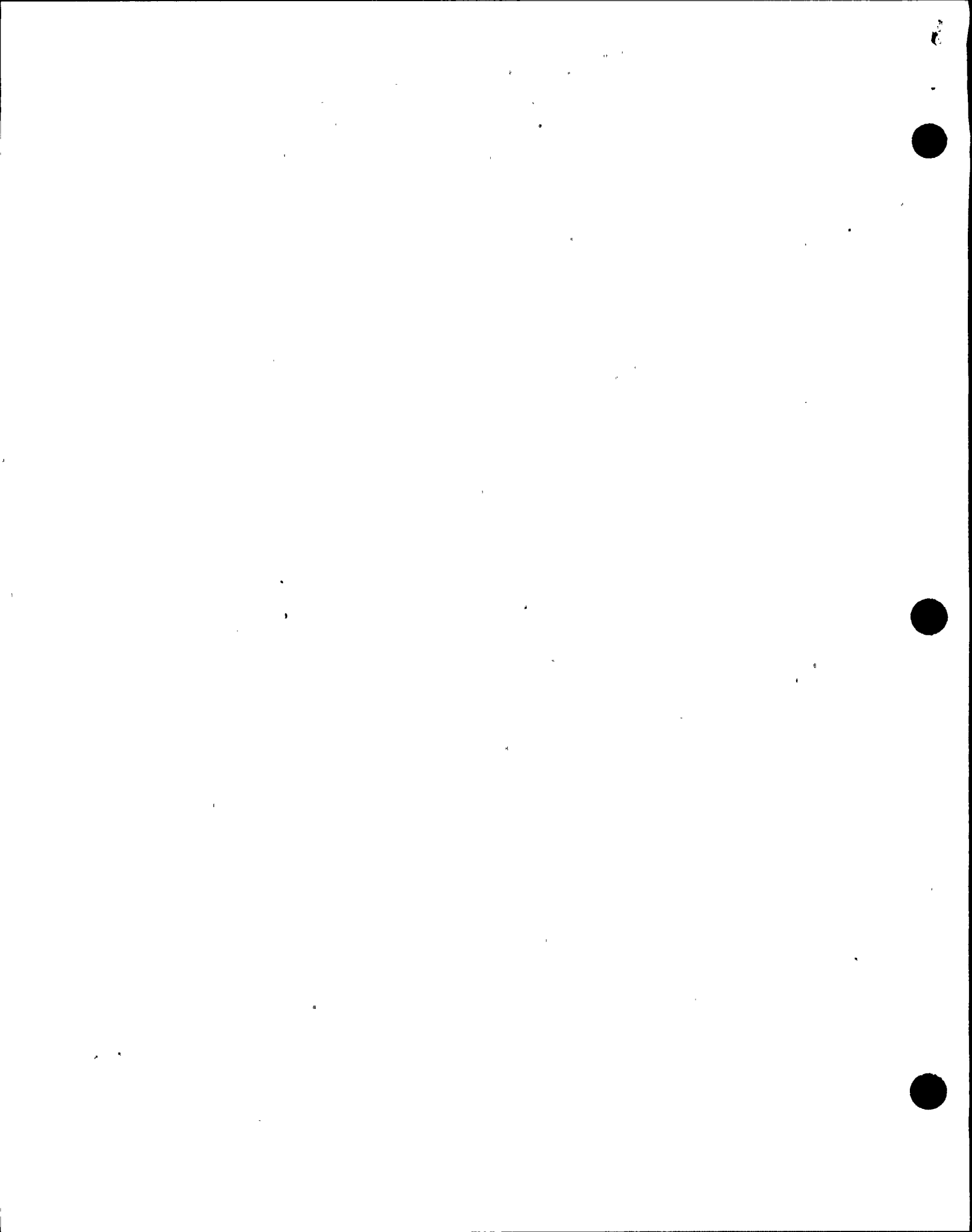
- EO-2.3 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to initiate any isolations or ECCS actuations that should have initiated but did not. (EOP-6)
- EO-2.4 Given N2-EOP-RPV control and the Simulator in the conditions established determine if the Reactor is shutdown.
- EO-2.5 Given N2-EOP-RPV control and the Simulator in the conditions stated, exit Section RL of RPV control and enter C5 (Level/Power Control)
- EO-2.6 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if RPV water level can be determined.
- EO-2.7 Given N2-EOP-RPV control and the Simulator in the conditions established direct Operators to restore and maintain water level between 159.3 in. and 202.3 in. Using the systems listed in Section RL of RPV control.
- EO-2.8 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if RPV water level can be restored and maintained above 159.3 in.
- EO-2.9 Given N2-EOP-RPV control and the Simulator in the conditions stated, direct Operators to place the ADS logic inhibit switches in on.
- EO-2.10 Given N2-EOP-RPV control and the Simulator in the conditions established exit Section RL of RPV control and enter N2-OP-101C.
- TO-3.0 3449410603 Direct the actions required per EOP-RPV Section RP.
- EO-3.1 Given N2-EOP-RPV control and the Simulator in the conditions stated, direct Operators to monitor and control Reactor pressure.
- EO-3.2 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if a high drywell pressure ECCS initiation signal exists.



- EO-3.3 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if emergency RPV depressurization is anticipated.
- EO-3.4 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if the Reactor is shutdown.
- EO-3.5 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if emergency RPV depressurization is required.
- EO-3.6 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if RPV water level can be determined.
- EO-3.7 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if any SRV is cycling.
- EO-3.8 Given N2-EOP-RPV control and the Simulator in the conditions stated, direct Operators to manually open SRVs until RPV pressure drops to 960 psig.
- EO-3.9 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine the suppression pool heat capacity temperature limit. (Figure RPV-8.)
- EO-3.10 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine the SRV tail pipe level limit. Figure RPV-9.
- EO-3.11 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if steam cooling is required.
- EO-3.12 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if boron injection is required.
- EO-3.13 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if the main condenser is available.
- EO-3.14 Given N2-EOP-RPV control and the Simulator in the conditions stated, determine if there has been gross fuel failure or a main steam line break.



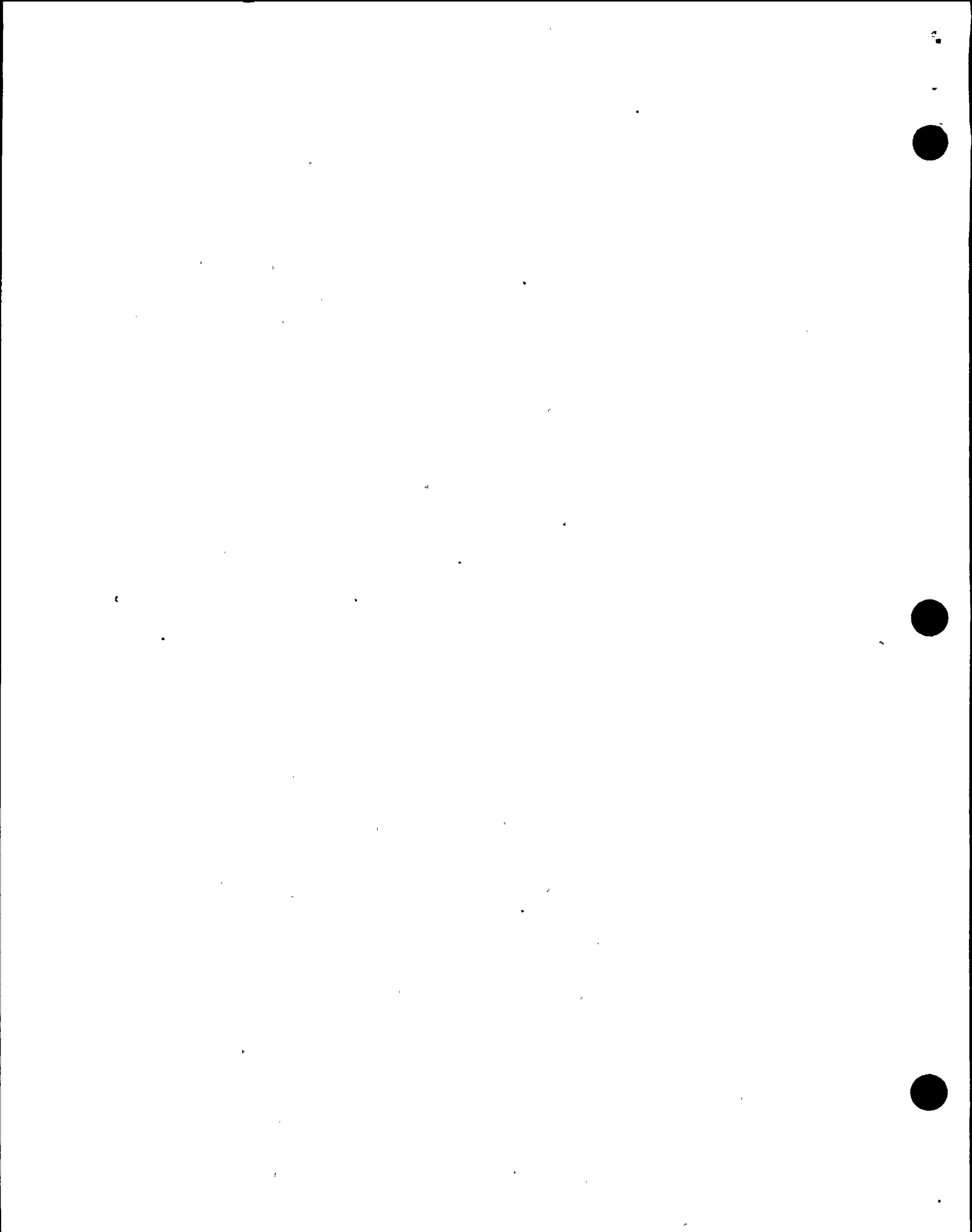
- EO-3.15 Given N2-EOP-RPV control and the Simulator in the conditions stated, direct Operators to stabilize RPV pressure below 1037 psig using the main turbine bypass valves. If necessary to include augmentation with systems listed in RPV control Section RP.
- TO-4.0 3449570603 Direct the actions required per EOP-C5, Level/Power Control.
- EO-4.1 Given N2-EOP-C5 and the Simulator in the conditions established determine if RPV water level can be determined.
- EO-4.2 Given N2-EOP-C5 and the Simulator in the conditions established determine if the Reactor is shutdown.
- EO-4.3 Given N2-EOP-C5 and the Simulator in the conditions established exit C5 and enter N2-EOP-RPV control Section RL.
- EO-4.4 Given N2-EOP-C5 and the Simulator in the conditions established determine the maximum Primary Containment water level limit.
- EO-4.5 Given N2-EOP-C5 and the Simulator in the conditions established direct Operators to place ADS logic inhibit switches in ON.
- EO-4.6 Given N2-EOP-C5 and the Simulator in the conditions established determine if Reactor power can be determined.
- EO-4.7 Given N2-EOP-C5 and the Simulator in the conditions established determine Reactor power level.
- EO-4.8 Given N2-EOP-C5 and the Simulator in the conditions established determine the boron injection initiation temperature.
- EO-4.9 Given N2-EOP-C5 and the Simulator in the conditions established determine drywell pressure.
- EO-4.10 Given N2-EOP-C5 and the Simulator in the conditions established determine if an SRV is open or opens.
- EO-4.11 Given N2-EOP-C5 and the Simulator in the conditions established determine RPV water level.



- EO-4.12 Given N2-EOP-C5 and the Simulator in the conditions established determine if all SRVs remain closed and drywell pressure remains below 1.68 psig.
- EO-4.13 Given N2-EOP-C5 and the Simulator in the conditions established determine if emergency RPV depressurization is required.
- EO-4.14 Given N2-EOP-C5 and the Simulator in the conditions established determine if RPV water level was deliberately lowered.
- EO-4.15 Given N2-EOP-C5 and the Simulator in the conditions established direct Operators to maintain RPV water between -14 in. and 202.3 in. Using those systems listed in N2-EOP-C5 to include defeating isolation interlocks if necessary.
- EO-4.16 Given N2-EOP-C5 and the Simulator in the conditions established determine if RPV water level can be maintained above -14 inches.
- EO-4.17 Given N2-EOP-C5 and the Simulator in the conditions established determine if RPV water level can be maintained above -45.2 inches.

B. RO/CSO OBJECTIVES

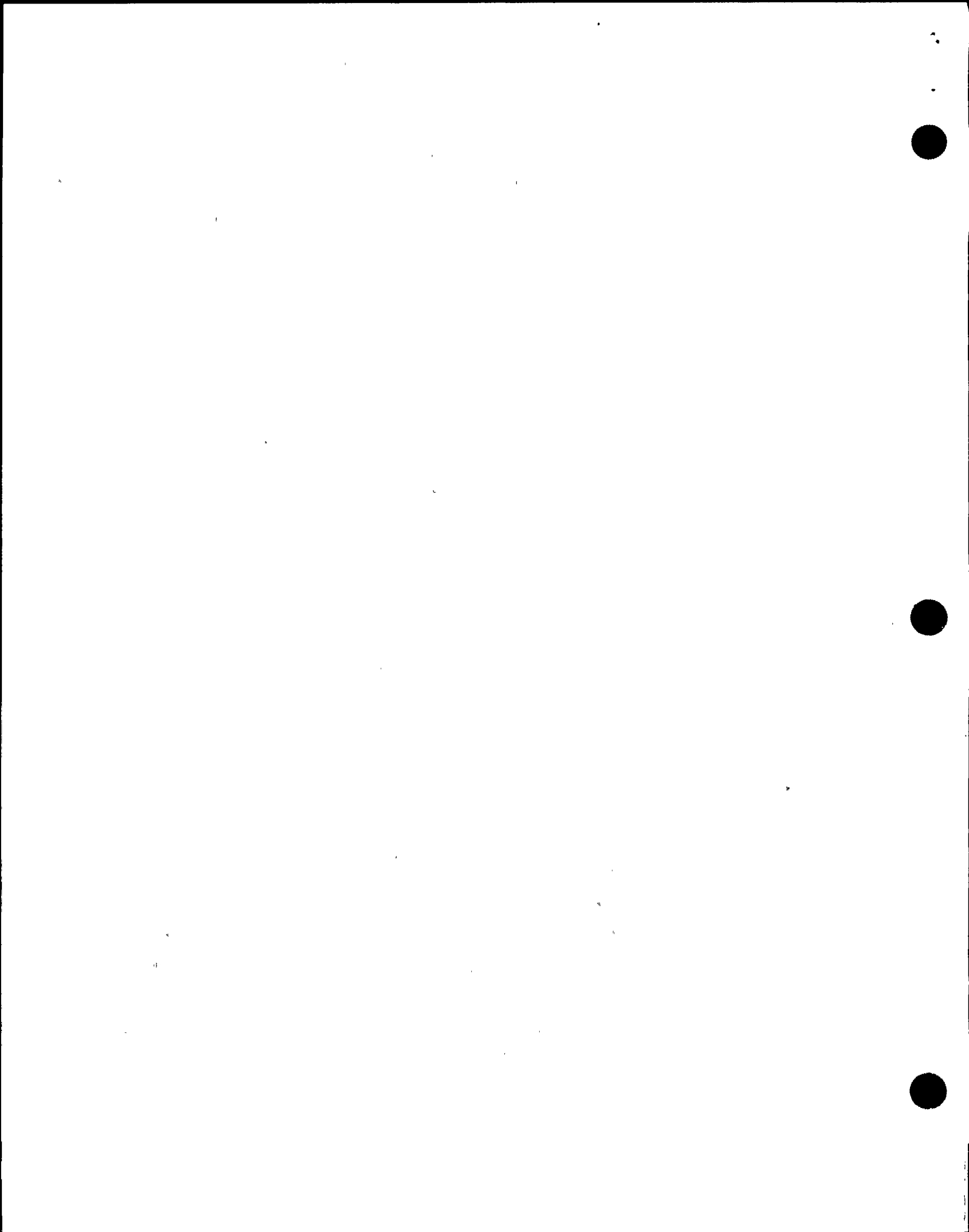
- TO-5.0 2000200501 Perform the actions required for an anticipated transient without scram (ATWS).
- EO-5.1 Given NMP-2 operating procedures and the Simulator in the conditions established perform the actions required for an anticipated transient without scram (ATWS) as directed by the SSS.
- TO-6.0 2019250101 Perform post scram recovery actions in accordance with N2-OP-101C.
- EO-6.1 Given NMP-2 operating procedures and the Simulator in the conditions established perform post scram recovery actions in accordance with N2-OP-101C as directed by the SSS.
- TO-7.0 2000180501 Perform the actions required for a high Reactor pressure.



- EO-7.1 Given NMP-2 operating procedures and the Simulator in the conditions established perform the actions required for a high Reactor pressure as directed by the SSS.
- TO-8.0 2000260501 Perform the actions required for a safety/relief valve opening.
- EO-8.1 Given NMP-2 operating procedures and the Simulator in the conditions established perform the actions required for a safety/relief valve opening as directed by the SSS.
- TO-9.0 2110040101 Monitor the SLC System
- EO-9.1 Given NMP-2 operating procedures and the Simulator in the conditions established monitor the SLC System as directed by the SSS.
- TO-10.0 2949060401 Verify operation of the RRCS auto initiation for high Reactor pressure.
- EO-10.1 Given the NMP-2 operating procedures and the Simulator in the conditions established, verify operation of the RRCS auto initiation for high reactor pressure as directed by the SSS.

C. Team Objectives

- TO-11.0 Demonstrate effective communication in accordance with the Operating Department instruction on verbal communications (NMP2 Requal Action Plan, Rev. 2, 4.B.1).
- TO-12.0 Demonstrate the use of the Emergency Plan, an understanding of the roles and responsibilities of an SSS, ASSS/STA, CSO/NAOE in accordance with the Operating Department instruction on Roles and Responsibilities (NMP2 Requal Action Plan, Rev. 2, 5.B.1, 6.B.6).
- TO-13.0 Demonstrate an understanding of command and control, EOP place keeping techniques and effective use of Control Room Operators during emergency conditions (NMP2 Requal Action Plan, Rev. 2, 6.B.6, SRO only).
- TO-14.0 Demonstrate "self-verification" work practices techniques in accordance with the Operating Department Instructor for all control actions. (LER 50-410/88-50) (NRC IR 50-410/88-01)



ATTACHMENT 1
PRE-EXERCISE BRIEFING

IV. LESSON CONTENT
LESSON CONTENT

DELIVERY NOTES

OBJECTIVES/
NOTES

A. EXERCISE OVERVIEW

Present the following:

During this session, plant conditions begin at 100% power operation. A turbine trip occurs with a failure to scram resulting in entry into RPV control EOPs as well as EOP-C5.

Discuss plant conditions.

B. PREREQUISITE KNOWLEDGE REVIEW

The Rev. 4 RPV Control, and C5 Power/Level Control EOPs have been presented in classroom training and should be reviewed prior to the exercise.

Discuss prior classroom coverage.

Review the performance and knowledge objectives with participants as the scenarios are discussed.

Discuss performance and knowledge objectives while describing scenarios.

C. SCENARIO PREVIEW

1. The following is an overview of the conditions and actions that will occur during the listed scenario(s).

- a. Recognize/respond to turbine trip.
- b. Recognize/respond to failure to scram.



ATTACHMENT 1
PRE-EXERCISE BRIEFING

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES
c. Control reactor pressure using MTBV's and SRV's.	EOP's exercised: RQ	
d. Utilize EOP-RPV control (all sections).	RL	
e. Utilize EOP-C5.	RP	
f. Attempt to insert control rods using EOP-RPV control Section RQ and EOP-6.	C5	
g. Recognize SBLC initiation.		
h. Recognize/respond to all rods fully inserted.		
2. Initial conditions		
Plant status is given in shift turnover information, listed below.		
3. Expected actions		
The participants, acting as a team, will:		
- respond to appropriate annunciators		
- use the appropriate annunciator response procedures		
- make appropriate reports to the SSS		
- perform indicated operations		
- use the Instructor as all plant personnel to perform local Operator Actions (LOAs)		
- observe system indications		
- use appropriate emergency operating procedures		
- place the plant in a stable shutdown depressurized condition		



ATTACHMENT 1
PRE-EXERCISE BRIEFING

LESSON CONTENT

DELIVERY NOTES

OBJECTIVES/
NOTES

The Instructors perform all LOAs when requested by the participants.

D. OPERATING CONCERNS

Reviews with the participants any NRC/INPO operating concerns that relate to the training session as directed by the Training Program Coordinator.

E. PERFORMANCE REVIEW

1. Obtain and discuss with the participants those areas documented on the Post Training Summary from previous Simulator Training. Reinforce good performances and areas for improvement.

F. GROUND RULES

Discuss performance expectations relative to:

1. Professionalism
2. Realism
3. Log keeping
4. Team work
5. Communication
6. Procedure use
7. Notifications
8. Self verification techniques



ATTACHMENT 1
PRE-EXERCISE BRIEFING

<u>LESSON CONTENT</u>	<u>DELIVERY NOTES</u>	<u>OBJECTIVES/ NOTES</u>
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G. SHIFT TURNOVER INFORMATION

1. Plant status

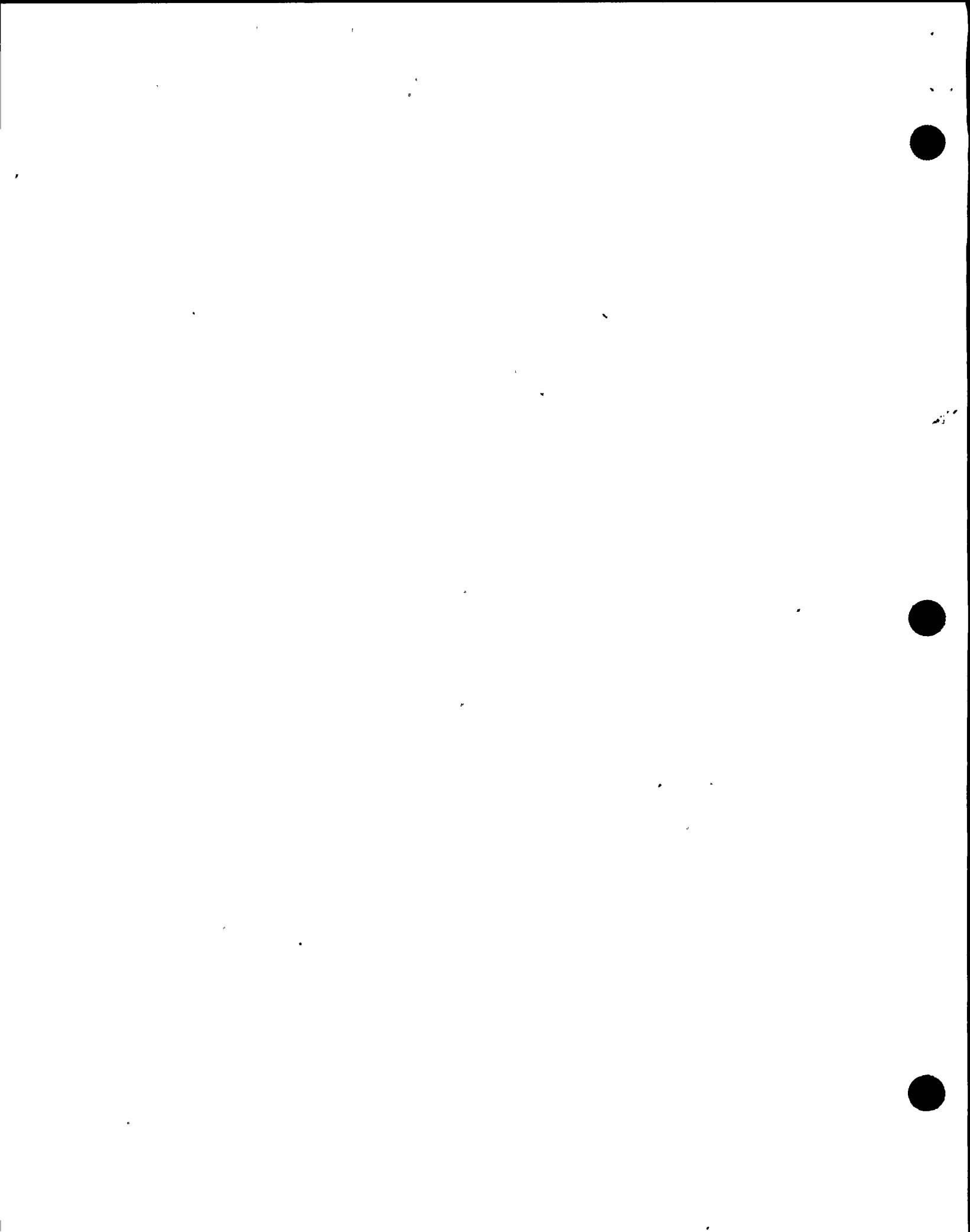
The plant is operating at 100% Reactor power.

All systems are operating normally. No equipment is marked up. No maintenance is in progress.

H. SEQUENCE OF EVENTS

Conduct Simulator activities as prescribed by the attached floor instructor and console operators guide, Attachment 2.

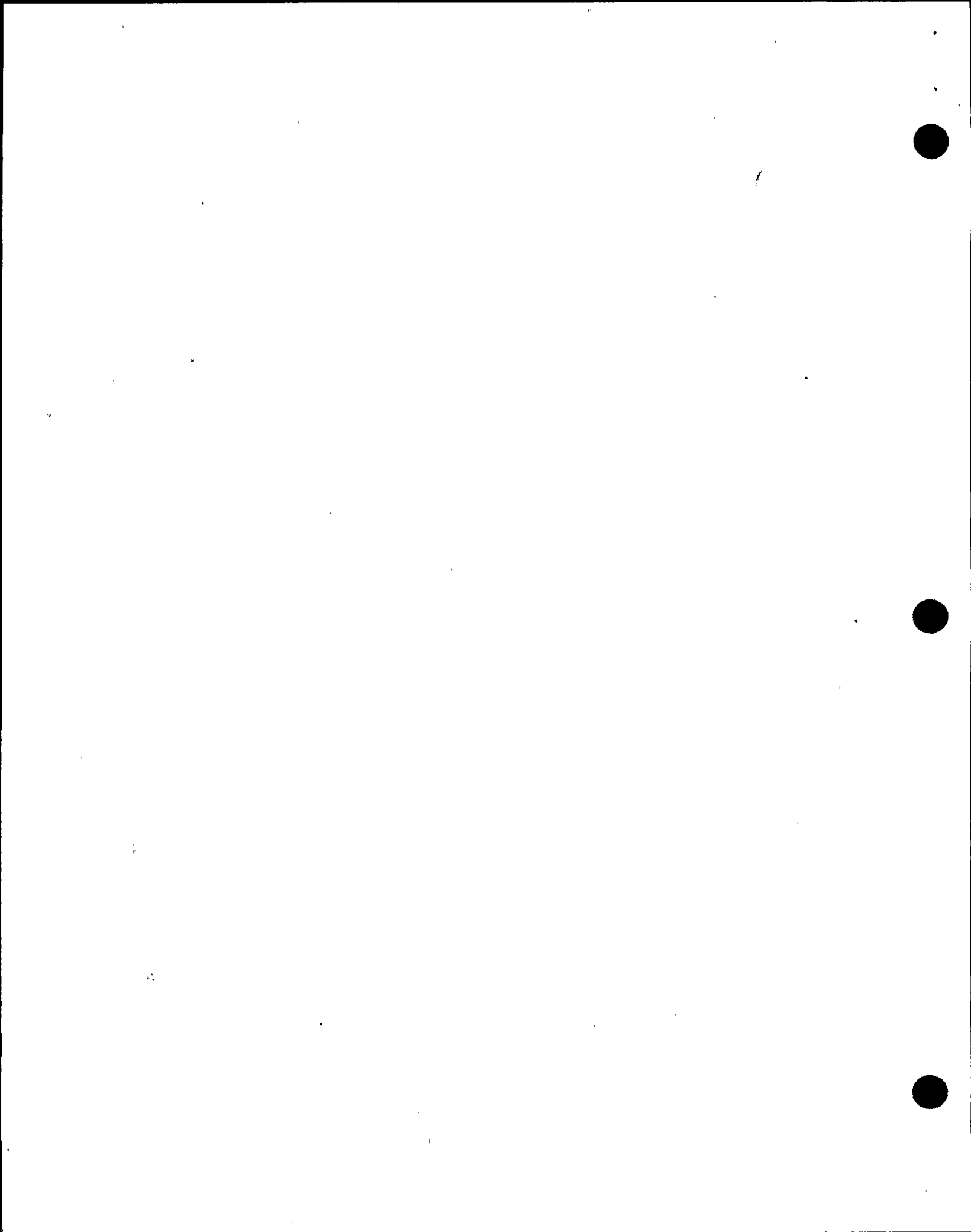
Ensure video taping is conducted for all sessions to allow for its use in the post exercise assessment, if necessary.



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
		Special Instructions:			
		None			
		Simulator Operation:			
		Initialize: IC-20	100% BOL		
		Preset malfunctions:			
		1, RD17, 30	- All rods stuck out		
		2, RD073035	on scram (hydraulic lock)		
			- Rod 30-35 stuck individually		
		Preset remote functions:			
		None			
		Distribute and discuss turnover sheets			
		Initial conditions:			
		100% BOL			
		RWM GR-147			



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
		Out of service equipment: None			
		Surveillances scheduled: None			
		Allow not more than 5 minutes to walkdown panels.			
T=0		Begin scenario		Assume the shift	
T=3	1	Insert malfunction: 3, TU07	Spurious turbine trip RPS scram activated, rods fail to insert.	<u>SSS</u> Direct scram actions	
			SRV's lift to control pressure	<u>RO/CSO</u> Recognize failure to scram. T0-5.0 Reports failure to scram to SSS. T0-6.0 Performs actions of OP-101C. Respond to high Reactor pressure T0-7.0 by use of MTBV's and SRV's. T0-8.0	



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
				<u>CREW</u> Recognize EOP entry conditions	
				<u>SSS/ASSS</u> Enters EOP RPV control	T0-1.0
				Directs recirc pumps tripped	T0-2.0
				Directs ARI defeated per EOP-6.	T0-3.0
				Directs line up of supp. pool cooling.	
				Directs actions to insert rods per EOP-6.	
				<u>RO/BOP</u> Lines up supp. pool cooling Controls pressure using SRV's. Trips or verifies tripped recirc. pumps.	
T=98 sec after RRCS initiation			Automatic SLC initiation	<u>SSS/ASSS</u> Enters EOP-C5 (level/power control)	T0-4.0 T0-9.0



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
				<u>RO/BOP</u> Places ADS logic inhibit switches to ON.	
		If/when requested to reset/defeat ARI interlocks: Insert malfunction: 4, RP14	RRCS failure/defeated	<u>RO/BOP</u> Resets the scram.	TO-10.0
		If/when requested to install RPS jumpers: Insert malfunction: 5, RP02	RPS failure to scram-auto		
		If/when requested to bypass RSCS Insert malfunction: 6, RW02	RSCS failure - does not enforce notch logic.		



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
		<p>If/when requested to shut the charging water header isolation valve: RDS V28</p> <p>Remote #6 on page RD2.</p>	<p>RDS*V28 will be shut.</p>	<p><u>RO/CSO</u></p> <p>Takes action to insert control rod's IAW EOP-6.</p>	
		<p>Clear Malfunction: I<CR></p>	<p>If scram is inserted, all rod's except 30-35 will go full in.</p>	<p><u>RO/CSO</u></p> <p>Reports all rods in except 30-35.</p>	
		<p>I=When scram has been reset, SDVs drained but <u>before</u> 2nd scram inserted.</p>			



ATTACHMENT 2

FLOOR INSTRUCTOR AND CONSOLE OPERATORS GUIDE

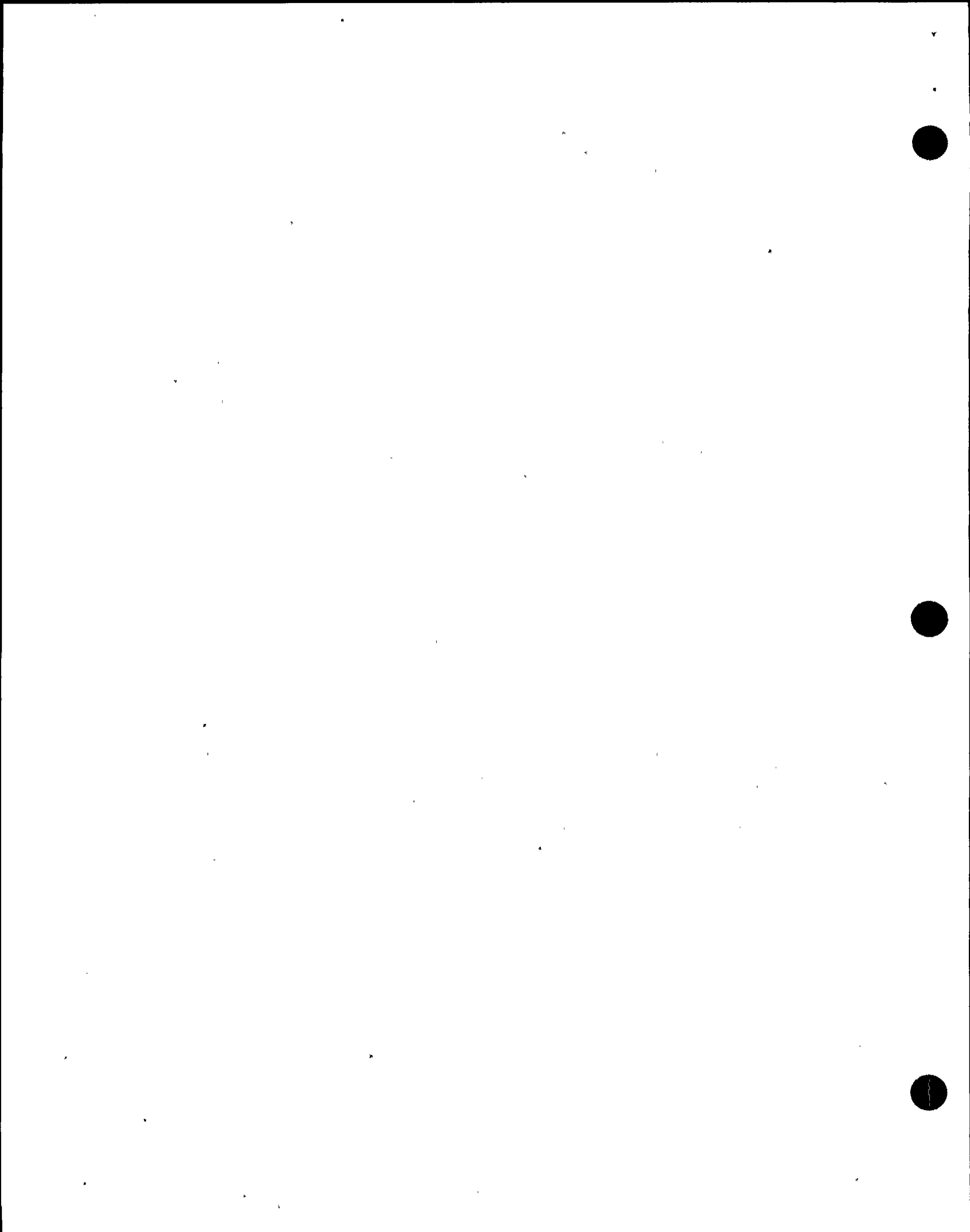
TIME	SCENARIO	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	INSTRUCTOR COMMENTS
		1=When all rods except 30-35 are full in	The Reactor will remain shutdown without boron.	<u>SSS</u> Exit EOP-C5 and enter RPV control at A. Order boron injection terminated. Exit RQ and enter N2-OP-101C, Section H.1. <u>RO/BOP</u> Terminate boron injection.	

Termination Cue:

When boron injection is secured.

End scenario

Freeze simulator



ATTACHMENT 3
POST EXERCISE ASSESSMENT

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES
<p>I. Post Exercise Assessment (Classroom)</p> <ol style="list-style-type: none">1. Review the Learning Objectives<ol style="list-style-type: none">a. The crew/individuals should state how each was met during the session.2. Participant's Self-Evaluation<ol style="list-style-type: none">a. Discussion should focus on measurable behaviors and how these contributed to or detract from meeting the objectives3. Instructors assessment and performance recommendations. (NCTS)	<p>Allow participants to evaluate themselves against learning objectives and tasks for the session.</p> <p>Discussion should center on performance and not personal feelings or interpretation of actions.</p>	
<ol style="list-style-type: none">4. Session and program feedback.5. Document Session	<ol style="list-style-type: none">1. Assess participants performance for those objectives and tasks not included in the crew self-assessment. Use the video tape in the assess to more effectively assess communications, teamwork, and prioritization, if necessary.2. Provide feedback on ways to improve performance.1. Distribute Simulator Training Evaluation Feedback Form.2. Provide students with time to complete form.1. Complete Post Training Summary, Attachment 4.	



ATTACHMENT 3
POST EXERCISE ASSESSMENT

LESSON CONTENT

DELIVERY NOTES

OBJECTIVES/
NOTES

2. Place in file for next training session.
3. Document any NRC/INPO operating concerns as an items list attached to the training record. (TR)



ATTACHMENT 4

POST TRAINING SUMMARY

The area below is reserved for instructor's notes regarding the implementation of this session.

1. Training Program: _____
2. Lesson Plan Number: _____
3. Date: _____
4. Instructor(s): (floor) _____
(Console) _____
5. Participants: (SSS) _____
(ASSS) _____
(CSO) _____
(NAOE) _____
(NAOE) _____
(SPEC) _____
(OTHER) _____
(OTHER) _____

