NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT II OPERATIONS

02-REQ-009-1DY-2-13 Revision 5

TITLE: LARGE BREAK LOCA WITH PARTIAL LOSS OF ELECTRICAL POWER

	SIGNATURE	DATE
PREPARER	[signature]	3/7/91
VALIDATED BY	B Shift	3/7/91
UNIT OPERATIONS TRAINING SUPERVISOR	[signature]	3/8/91
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	[signature] FOR D. TOPLEY	3/8/91

Summary of Pages

(Effective Date: _____)

Number of Pages	Date	Pages
	March 1991	1 - 17

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

VERIFICATION: _____ _____

DATA ENTRY: _____ _____

RECORDS: _____ _____

19

4/29/90

I. TRAINING DESCRIPTION

A. Title of Lesson: Large Break LOCA with Partial Loss of Electric Power

B. Lesson Description: The scenario begins with a CRD low suction pressure due to a clogged suction filter. This results in a trip of the CRD pump. Once the suction filter is swapped the pump can be restarted.

Next, an SRV inadvertently opens but will close when the operator takes the SRV's keylock switch to close. The crew will review Technical Specifications and determine that the only requirement is to perform Drywell Vacuum Breaker Operability Surveillance.

The crew will enter the EOP's when a loss of coolant accident occur due to a recirculation loop rupture. The LOCA is complicated by a loss of line 6 and a failure of the Div. II diesel to start. The scenario is terminated when the crew determines that Primary Containment Flooding is required.

C. Estimate of the Duration of the Lesson: @ 50 minutes

D. Method of Evaluation, Grade Format, and Standard of Evaluation: Satisfactory completion of Simulator Evaluation performed in accordance with NTI-4.3.6.

E. Method and Setting of Instruction: Simulator Performance

F. Prerequisites:

1. Instructor:
   a. Qualified as a simulator instructor per NTP-16.1
2. Trainee:
   a. As required per NTP-11.

G. References:

1. N2-EOP's
2. N2-EOP-6
3. N2-OP-30, Control Rod Drive
4. N2-OP-31, Residual Heat Removal
5. N2-OP-34, Nuclear Boiler, Automatic Depressurization and Safety Relief Valves

6. N2-OP-70, Station Electrical Feed and 115 KV Switchyard
7. N2-OP-101C, Plant Shutdown
8. EAP-2, Classification of Emergency Conditions
9. EPP-20, Emergency Notifications
10. NMP2 Technical Specifications

H. Manipulations:

1. O2-REQ-MAN-A06-2-00, Large Loss of Coolant Inside Containment
2. O2-REQ-MAN-B10-2-00, Turbine of Generator Trip
3. O2-REQ-MAN-B13-2-00, Reactor Scram

II. REQUIREMENTS

A. 10CFR55.45 and 55.49

III. LEARNING OBJECTIVES/ISCT SUMMARY

A. ISCT Summary

ISCT #1 CSO/E	Manually close an open SRV following an inadvertent opening. (2000260501) K/A 239002 A4.01-4.4
ISCT #2 SSS/ ASSS	Determine that water level cannot be determined due to saturation conditions in the drywell. (3449400603) K/A 295028 EA2.03-3.9
ISCT #3 SSS/ ASSS	Direct the actions required per EOP-C2, Emergency Depressurization. (3449520603) K/A 295028 GEN.12-4.3
ISCT #4 CSO/E	Manually open 7 ADS valves. (2180030201) K/A 239002 A4.01-4.4
ISCT #5 SSS/ ASSS	Enter EOP-C4, RPV flooding. (3449560603) K/A 295028 GEN.12-4.3
ISCT #6 CSO/E	Manually inject feedwater/condensate during a large break LOCA inside the containment. (2009150501) K/A 259001 A4.01-3.6
ISCT #7 CSO/E	Energize Division II Switchgear from off-site line 5. (2000350501) K/A 295003 AA1.01-3.7
ISCT #8 CSO/E	Restore drywell cooling with a LOCA signal present. (2229020401) K/A 295024 EA.14-3.4
ISCT #9 SSS/ ASSS	Determine entry is required into EOP-C6, Containment Flooding. (3449550603) K/A 295028 GEN.12-4.3
ISCT #10 SSS/ ASSS	Classify emergency events requiring emergency plan implementation. (3440190303) K/A 294001 A1.16-4.7
ISCT #11 SSS/ ASSS	Ensure required notifications of on-site and off-site personnel during off-normal events. (3440390303) K/A 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 practices in accordance with Operations Department Instructions.

A. Scenario Objectives

1.0 Given the plant operating at 100% power and indications of a clogged CRD pump suction filter, the crew will diagnose and respond in accordance with OP-30, "Control Rod Drive System".

1.1 Given indications of a clogged CRD pump suction filter the Control Room operates will direct the standby filter be placed in service.

1.2 Given indication that the standby CRD suction filter has been placed in service the Control Room operators will restore the CRD system to normal operation in accordance with OP-30.

2.0 Given the plant operating at 100% power and indications of an open safety relief valve, the crew will respond in accordance with OP-34, "Nuclear Boiler, Automatic Depressurization and Safety Relief Valves", to close the open relief valve.

2.1 The SSS/ASSS will enter OP-34 to direct operator actions.

2.2 The CSO/E will report to the crew which relief valve is open.

2.3 The SSS/ASSS will direct operator action to close the open relief valve.

2.4 The CSO/E will place the keylock switch for the open relief valve to close.

2.5 The CSO/E will report the relief valve closed based on:
-SRV position
-Plant indications, (i.e., stm flow/feed flow mismatch, MWE)
-Tailpiece temperatures

3.0 Given the plant in a scrammed condition and indications of a design bases loss of coolant accident, the crew will respond in accordance with the Emergency Operating Procedures.

3.1 CSO/E reports that all rods are in and power is less than 4%.

3.2 Crew will determine that a large break LOCA has occurred based on plant conditions.

3.3 SSS/ASSS identifies saturation conditions in the drywell and determines that RPV level indication is not available.

3.4 The SSS/ASSS enters EOP-C4, "RPV Flooding", and directs operator action to flood the vessel.

3.5 The CSO/E operates the safety relief system to open 7 SRV's.

3.6 The CSO/E inject to the RPV with all available injection sources as directed by the SSS/ASSS.

4.0 Given the plant in a design bases LOCA with a loss of off-site line 6 and a failure of the Div. II Diesel, the crew will respond in accordance with OP-70, "Station Electrical Feed and 115 KV Switch Yard", to power Div. II from line 5.

4.1 SSS/ASSS will direct Control Room operators to restore power to Div. II from line 5.

4.2 The CSO/E will perform actions to restore power to Div. II from line 5 in accordance with OP-70.

5.0 Given the plant in a design bases LOCA and power restored to Div. II switchgear the crew will diagnose plant conditions and enter EOP-C6, "Primary Containment Flooding".

5.1 SSS/ASSS directs operator action to inject with LPCI B and C when power restored.

5.2 CSO/E verifies LPCI B and C injecting to the vessel and reports.

5.3 SSS/ASSS determines that RPV pressure cannot be maintained 61 psig above suppression chamber pressure and directs entry into EOP-C6.

5.4 SSS/ASSS classifies the event as a General Emergency.

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.	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.	
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.	Ensure the participants understand that the evaluators will be taking extensive notes during the session and not to be concerned with the evaluators actions.	
4. Identify the roles of the participants. a. SSS b. ASSS c. CSO d. AOEs 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.		

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES

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

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS

Special Instructions:

Markup as out-of-service:

RCIC (Mark up MOV 122,

MOV 120, 126, and 159;

push RCIC Turbine Trip)

Simulator Operation:

Initialize: IC-20

Preset Malfunctions:

1,RC01	RCIC trip (ODS)
2,DG01C	Div II D/G fails to start

Preset Remote Functions:

None

Preset Instructor Overrides:

1,E51A-535-C,,,OFF	RCIC MOV 122 Green Light OFF
2,E51A-53-A,,,OFF	RCIC MOV 120 Green Light OFF

Turnover Information

Initial Conditions:

100%, BOL, maintaining power

IAW OP-101D, RHM GP-147, above

the 100% rod line

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
		Out-of-Service equipment: RCIC-Maintenance is performing coupling re-alignment due to high vibrations			
		Surveillances scheduled: None			
		Allow not more than five minutes for panel walk down.		Walk down panels.	
T = 0		Begin the scenario		Assume the shift continue power operation per N2-OP-101D.	
T = 2	1	Enter Malfunction 3,RD18	On line CRD situation filter clogged.		
			CRD pumps suction filter Differential pressure high	CSO/E 1. Reports condition 2. Request AOE to swap filters	Sat/Unsat/NA Sat/Unsat/NA
		Role Play: As AOE report that it will take a few minutes. Wait a few minutes and then remove MF 3.		CSO/E 1. Identifies problem corrected	Sat/Unsat/NA

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
T = 4		Role Play: As AOE report that the suction filters have been transferred to the standby filters.		2. Starts standby CRD pump	
				a. Controller to manual	Sat/Unsat/NA
				b. Close FCV	Sat/Unsat/NA
				c. Start pump B/restart pump A	Sat/Unsat/NA
				d. Reset flow = 63 gpm	Sat/Unsat/NA
				e. Controller to auto	Sat/Unsat/NA
T = 12	2	Insert Malfunction 4,AD05G	SRV PSV-~~128~~ 132 opens	CSO/E	
				Report SRV PSV 132 is open	Sat/Unsat/NA
		Monitor operator actions; when the keylock switch is taken to OFF Clear HF;4		SSS/ASSS	
				Enters/directs OP-34, H.3.0	
				CSO/E	ISCT #1
				1. Place PSV 128 keylock to OFF.	Sat/Unsat/NA
				2. Report valve closure after keylock in OFF.	Sat/Unsat/NA
				3. Verify SRV closed (any of the following acceptable).	Sat/Unsat/NA
				a. Mainsteam line flows	
				b. Acoustic monitor	
				c. Tailpipe temperatures	

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				SSS/ASSS	
				1. Review Tech. Spec. 3.4.2 for safety/relief valves. Identify no action required.	Sat/Unsat/NA
				2. Recognize that within 2 hrs. N2-OSP-ISC-M@002 must be performed. (Vacuum breaker operability)	Sat/Unsat/NA
T = 19		Enter Malfunction 5RR20	-Reactor Recirc Loop Rupture - DBA LOCA -Reactor Scrams -RPV pressure lowers rapidly -Containment pressure rises rapidly -MSIV's close	CSO/E Performs actions of OP-101C, H.1.0	
				1. Mode switch to S/D	Sat/Unsat/NA
				2. Verify rods inserted	Sat/Unsat/NA
				3. Verify/report APRMs decreasing	Sat/Unsat/NA
				4. Report level and pressure	Sat/Unsat/NA
		One minute after Malf 5 enter: 6,ED02B	Loss of 115 KV line 6, Div. II diesel fails to start and SWG-103 is lost. Containment parameters indicates saturation conditions in the drywell.	SSS/ASSS	
				1. Enters EOP-RPV control: Exercise Sections RL, RP, and RQ.	Sat/Unsat/NA
				2. Enters EOP-PC control: Exercise Sections DWT, SPL, PCP, PCH, and SPT.	Sat/Unsat/NA

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				3. Decide that RPV water level cannot be determined, RPV flooding is required.	ISCT #2 Sat/Unsat/NA
				4. Exit RP enter C-2 and order 7ADS valves to be opened.	ISCT #3 Sat/Unsat/NA
				CSO/E Open 7ADS valves	ISCT #4 Sat/Unsat/NA
		Role Play: As AOE when contacted report that you can find no reason for the failure of Div. II D.G.		Crew Recognize/report the loss of line 6 and failure of Div. II D.G. to start.	Sat/Unsat/NA
				SSS/ASSS	
				1. Direct operators to restore power to Div. II switchgear.	Sat/Unsat/NA
				2. Exit C2 and enter C4.	ISCT #5 Sat/Unsat/NA
				3. Direct injection of: a. Feedwater/condensate b. LPCS c. LPCI d. HPCS e. CRP f. SLC from the test tank	Sat/Unsat/NA

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
		If requested to make MOV 24's throttle valves go to page RH2 lines 10, 11, 12.		CSO/E	
		If requested to defeat the HPCS high level isolation go to page CS2 line 14.		1. Initiate injection using feedwater/condensate.	ISCT #6 Sat/Unsat/NA
				2. Verify LPCS injection and report.	Sat/Unsat/NA
				3. Verify LPCI A injection and report.	Sat/Unsat/NA
				4. Verify HPCS injection and report.	Sat/Unsat/NA
				5. Start the second CRD pump.	Sat/Unsat/NA
		Role Play: Power control reports that the line 6 fault is in the scriba yard.		6. Direct AOE to lineup SLC for injection from the test tank.	Sat/Unsat/NA
				7. Restore power to Div. II switchgear.	
				a. Isolate line 6	
				1) Open MDS4	Sat/Unsat/NA
				2) Open MDS2	Sat/Unsat/NA
				b. Reset lockouts	
				1) Breaker 17-2 LO reset	Sat/Unsat/NA
				2) Breaker 103-4 LO reset	Sat/Unsat/NA
				c. Power the Resv. B transformer from line 5	Sat/Unsat/NA

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				1) Close MDS20	Sat/Unsat/NA
				2) Close MDS4	Sat/Unsat/NA
				3) Close BKR 17-2	Sat/Unsat/NA
				4) Close BKR 103-4	Sat/Unsat/NA
				8. Div. II switchgear	ISCT #7
				energized.	Sat/Unsat/NA
				SSS/ASSS	
				1. Direct actions to restore	Sat/Unsat/NA
				DW cooling.	
				2. Direct injection with LPCI	Sat/Unsat/NA
				B and C.	
				CSO/E	
				1. Restore DW cooling	
				a. DW unit cooler WTR LOCA	Sat/Unsat/NA
				overrides to override.	
				b. Open 2CCP*MOV124, 122,	Sat/Unsat/NA
				265, and 273.	
				c. Unit cooler fans GR 1/2	Sat/Unsat/NA
				LOCA override switches	
				to override.	
				d. Start all DW units	Sat/Unsat/NA
				coolers.	
				1) UC1A,B,C running	Sat/Unsat/NA
				2) UC2A,B,C running	Sat/Unsat/NA
				3) UC3A,B running	Sat/Unsat/NA

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				2. DW cooling restored per EOP-6, Att. 24.	ISCT #8 Sat/Unsat/NA
				3. Verify/report LPCI B and C injecting.	Sat/Unsat/NA
				SSS/ASSS	
				1. Enter EOP-C6 containment flooding based on the inability to maintain RPV pressure 61 psig above Supp. Chamber pressure.	ISCT #9 Sat/Unsat/NA
				2. Classifies event as a site area emergency.	ISCT #10
				3. Makes notifications.	ISCT #11
		Termination Cue: SSS/ASSS have entered EOP-C6 containment flooding.			

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES

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.
5. 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 Attachment 10 and 11.
6. Following the evaluation (if NRC is present) the results of evaluation should be given to the NRC examiners.
7. 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	OBJECTIVES/ NOTES
b. Participant Self-Evaluation Discuss 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. Instructor assessment and performance recommendations. (NCTS-2)	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.	
8. Session and program feedback.	1. Distribute Simulator Training Evaluation Feedback Form, NTI-4.4 Attachment 13. 2. Provide students with time to complete form.	
9. 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)	