

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

02-REQ-009-1DY-2-06 Revision 2

TITLE: STEAM LEAK IN THE DRYWELL

	<u>SIGNATURE</u>	<u>DATE</u>
PREPARED BY	<i>[Signature]</i>	<u>11/19/90</u>
VALIDATED BY	<u>A. Skiff (Rev. 1)</u>	<u>11/12/90</u>
UNIT OPERATIONS TRAINING SUPERVISOR	<i>[Signature]</i>	<u>11/19/90</u>
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	<i>[Signature]</i> <u>Responsible for M.S. Controls</u>	<u>11/17/90</u>

Summary of Pages

(Effective Date: 11/20/90)

Number of Pages: 18

<u>Date</u>	<u>Pages</u>
November 1990	1 - 18

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

VERIFICATION: _____

DATA ENTRY: _____

RECORDS: _____



4/29/04

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I. TRAINING DESCRIPTION

- A. Title of Lesson: Steam Leak in the Drywell
- B. Lesson Description: The scenario begins at 100% power, a reactor level instrument (Narrow Range C) fails down scale without alarms or automatic actions. The operator should recognize this failure, while monitoring his panel, and the SSS/ASSS should review Tech. Specs. for the impact of this failure. The loss of the instrument will not affect the scenario outcome.

Next, an isolable leak develops at the C circulating inlet water box. This provides an opportunity to evaluate team communication and procedure usage. The pump should be secured and isolated.

The major failure is a steam leak in the drywell with HPCS inoperable. This puts the operators in the EOPs and appropriate off normal procedures.

- 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 Nuclear Training Instruction 4.3.6.
- E. Prerequisites:
 - 1. Instructor:
Qualified as a Simulator instructor per NTP-16.1
 - 2. Trainee:
 - a. Meet 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-OP-10A Circulating Water
 - 2. N2-OP-31 RHR System
 - 3. N2-OP-61A Primary Containment Vent, Purge and Nitrogen System



4. N2-OP-64 Turbine Building Drains
5. N2-OP-101C Shutdown
6. N2-OP-101D Power Changes
7. N2-EOP's Emergency Operating Procedures
8. N2-EOP-6 EOP Support Procedures
9. NMP2 Technical Specifications
10. EAP-2 Classification of Emergency Conditions
11. EPP-20 Emergency Notifications

II. REQUIREMENTS

- A. 10CFR 55.45 and 55.49
- B. NUREG 1021



II. SCENARIO OBJECTIVES/ISCT Summary

Critical Task

- ISCT #1. Perform Actions for a high drywell pressure (2000700501).
(CSO/E) K/A 295024 EA1.20-3.5
- ISCT #2. Direct the actions required per EOP-RPV Section RL (3449400603).
(SSS) K/A 295024 SG12-4.5
Direct the actions required per EOP-RPV Section RP (3449410603).
K/A 295024 SG12-4.5
- ISCT #3. Direct the actions required per EOP-PC Section DWT (3449420603).
(SSS) K/A 295024 SG12-4.5
Direct the actions required per EOP-PC Section PCP (3449430603).
K/A 295024 SG12-4.5
- ISCT #4. Operate the Containment Spray System (2050150101).
(CSO/E) K/A 295024 EA1.12-3.8
- ISCT #5. Direct the actions required per EOP-PC Section PCP (3449430603).
(SSS) K/A 295024 SG12-4.5
- ISCT #6. Operate the Containment Spray System (2050150101)
(CSO/E) K/A 295024 EA1.11-4.2
- ISCT #7. Operate the Containment Spray System (2050150101).
(CSO/E) K/A 226001 Gen 13-3.5
- ISCT #8. Operate the Containment Spray System (2050150101).
(CSO/E) K/A 230000 Gen 13-4.1
- ISCT #9. Classify emergency events requiring emergency plan
(SSS/ASSS) implementation (3440190303).
K/A 294001 A1.16-4.7
- ISCT #10. Ensure required notification on on-site and off-site personnel
(SSS/ASSS) during off normal events (3440390303).
K/A 294001 A1.16-4.7



ATTACHMENT 1
PRE-EVALUATION BRIEFING

OBJECTIVES/
NOTES

IV. LESSON CONTENT
LESSON CONTENT

DELIVERY 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

OBJECTIVES/
NOTES

LESSON CONTENT

DELIVERY NOTES

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



TIME

EVENT

INSTRUCTOR ACTIVITY

ATTACHMENT

PLANT RESPONSE

OPERATOR ACTIONS

EVALUATOR COMMENTS

Special Instructions:

Markup as out-of-service:

HPCS (Place pump control
switch in PTL)

Simulator Operation:

Initialize: IC-20

100%, 80L

Preset Malfunctions:

None

Preset Remote Functions:

None

Distribute and discuss:

Turnover sheets

Initial Conditions:

100%, 80L, maintaining
power in accordance with
OP-101D

RWM GR-147 above the
100% rod line

Out-of-service equipment:

HPCS-Work in progress on
the HPCS pump motor breaker.
Breaker is currently racked
out. Pump has been marked
up for 3 days.



ATTACHMENT 2 (Cont'd)
 PLANT RESPONSE

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
		Surveillances scheduled: None			
		Allow not more than five minutes to walk down the panels.		Walk down panels.	
T = 0		Begin scenario		Assume the shift; continue power operation.	
T=3		Enter Malfunction: 1,CH05	Circ water exp joint leakage.	SSS/ASSS May review technical specifications for HPCS inoperability.	Sat/Unsat/NA
T = 4	1	Enter Malfunction: 2,FH29C	NR Level transmitter fails down scale.	TEAM Should recognize/report failure of instrument	2a,6a Sat/Unsat/NA



ATTACHMENT 2 (Continued)
 PLANT RESPONSE

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
		<p>ROLE PLAY: As I&C technician, report that you will assemble a work package to troubleshoot C narrow range.</p>		<p>SSS/ASSS</p> <p>Should review technical specifications for the inop. level transmitter. (T/S 3.3.9 Table 3.3.9-1 action 140, restore to operable within 7 days)</p>	<p>6b Sat/Unsat/NA</p>
T = 10	2	<p>Malfunction 2 effective</p> <p>ROLE PLAY: As RW Operator, if asked about local alarms state that 513226 just came in. (TB Cond Pit Sump 1 Level High; tell them the name only if they ask)</p>	<p>851-551 and 851-552 Annunciators actuate</p>	<p>CSO/E</p> <ol style="list-style-type: none"> 1. Report/respond to alarm 2. Refers to annunciator response. <p>CSO/E</p> <ol style="list-style-type: none"> 1. Contacts RW Operator to identify cause of alarm. 2. Dispatch plant operator to investigate cause of high sump level. 	<p>1a,b;6a Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p>
T = 13		<p>ROLE PLAY: As plant operator report a leak in the C circ water box inlet; it's coming out at about 25 gpm and increasing slowly.</p>			



ATTACHMENT 2 (Cont.)
 PLANT RESPONSE

TIME EVENT INSTRUCTOR ACTIVITY

OPERATOR ACTIONS

EVALUATOR COMMENTS

ROLE PLAY: Support with completed,
 timely, local operation, as requested.
 Note: When Control Room Operator
 reports he is taking MOV-5 to close,
 report 100 secs later that the valve
 is 85% shut.

SSS/ASSS/CSO

- | | | |
|---|----|--------------|
| 1. Decide to isolate leak | 6c | Sat/Unsat/NA |
| a. Direct power reduction per OP-10A | | Sat/Unsat/NA |
| 2. Direct actions to secure the C CH pump | 6b | Sat/Unsat/NA |

CSO/E

- | | | |
|---|---------|--------------|
| 1. Reduce power in accordance with OP-101D. | | Sat/Unsat/NA |
| 2. Isolates the C CH pump. | 4a,5a,b | Sat/Unsat/NA |

TEAM

- | | | |
|--|----|--------------|
| Monitor affected processes for change. | 4c | |
| 1. Condenser vacuum | | Sat/Unsat/NA |
| 2. Reactor power | | Sat/Unsat/NA |

T = 14

T = 18

Set Malfunction Steam Leakage
 Inside the Primary Containment
 MF; 14,HS03,,20



ATTACHMENT 2 (Continued)
 PLANT RESPONSE

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
T = 20	3	Raise Malfunction 14 on Simulator Control console until Drywell Pressure starts to increase (3%).	851254 "Process Airborne Rad Mon Activated" CMS 10A/B in alarm		
T = 21		Note: Leave leak rate at 3% until GTS is placed in service.	Drywell pressure/temp rising. Drywell floor drains leak rate rising.	TEAM Interprets alarms; takes actions	1b
		Note: Will need to continue to monitor Drywell pressure and adjust Malfunction MS03 to increase DW pressure as Operators take action to decrease Drywell pressure. After the scram, raise leak rate to 100%.		1. Checks drywell leak rate recorders 2. Monitor containment parameters.	4a Sat/Unsat/NA Sat/Unsat/NA
				SSS/ASSS 1. Check TS for containment leakage 3.4.3.2 (>5 gpm unidentified, reduce to within limits within 4 hours or hot shutdown within 12 hours) 2. Check TS for containment pressure 3.6.1.5 (return pressure to within the limits in 1 hour or be in at least hot shutdown within next 12 hours).	Sat/Unsat/NA Sat/Unsat/NA



TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
T = 22			603140 alarm at .8 psig (DW pressure)	<p>SSS/ASSS</p> <ol style="list-style-type: none"> Determines validity of alarm and that drywell pressure is increasing Directs SPGT placed on the drywell. Orders power reduction. <p>CSO/E</p> <ol style="list-style-type: none"> Reduce power per OP-101D. Place SBGT on the drywell per OP-61A. <ol style="list-style-type: none"> Start SGTS train Open 2GTS*SOV102 Open 2IAS*SOV168/180 Open 2CPS*AOV108/110 <p>SSS/ASSS</p> <ol style="list-style-type: none"> Directs imminent scram actions. Carries out actions of OP-101C, 	<p>1a,b Sat/Unsat/NA</p> <p>4b Sat/Unsat/NA</p> <p>6b Sat/Unsat/NA</p> <p>ISCT#1</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p>
T=23			Scram and isolate Gps. 3, 4, 8 and 9 from high Drywell pressure.	<p>CSO/E</p> <p>Performs actions of OP-101C</p> <ol style="list-style-type: none"> Mode switch to S/D 	<p>3b</p> <p>H.1.0</p> <p>5a,b Sat/Unsat/NA</p>



ATTACHMENT 2 (Continued)
 PLANT RESPONSE

TIME	EVENT	INSTRUCTOR ACTIVITY	OPERATOR ACTIONS	EVALUATOR-COMMENTS
			2. Ensure scram a. Full core display b. RSCS c. RWM d. OD-7	4a Sat/Unsat/NA
			3. Report all rods in and power is decreasing by APRMs	4a Sat/Unsat/NA
			4. Insert SRM/IRM	5a,b Sat/Unsat/NA
			5. Verify/transfer house loads	4a,5a,b Sat/Unsat/NA
			SSS	
			1. Enter EOP-RPV control: execute Sections RL, RP and RQ concurrently. a. Directs level maintained 159.3" and 202.3". b. Direct pressure maintained less than 1037.	ISCT#2 Sat/Unsat/NA Sat/Unsat/NA Sat/Unsat/NA



ATTACHMENT 2 (Cont'd)
PLANT RESPONSE

TIME	EVENT	INSTRUCTOR ACTIVITY	PLANT RESPONSE	OPERATOR ACTIONS	EVALUATOR COMMENTS
				CSO/E Takes appropriate action to maintain pressure/level within the prescribed band.	Sat/Unsat/NA
				SSS 1. Enters EOP-PC: Execute DWT, SPL, PCP, PCH and SPT concurrently.	ISCT#3 Sat/Unsat/NA
				a. Directs drywell cooling restored.	Sat/Unsat/NA
				b. Directs suppression chamber sprays be placed in service.	Sat/Unsat/NA
				c. Directs H ₂ /O ₂ analyzers restored to service.	Sat/Unsat/NA
				CSO/E 1. Restores drywell cooling.	Sat/Unsat/NA



ATTACHMENT 2 (Continued)
 PLANT RESPONSE

TIME EVENT INSTRUCTOR ACTIVITY

OPERATOR ACTIONS

EVALUATOR COMMENTS

- | | |
|--|--|
| <ol style="list-style-type: none"> 2. Places RHR in suppression chamber sprays per OP-31. <ol style="list-style-type: none"> a. Start/verify RHR pumps. b. Open FV 38 to establish min of 7450 gpm. c. Open MOV 33 to establish SP spray flow. 3. Restores H₂/O₂ analyzers to service. | <p>ISCT#4
Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> <p>Sat/Unsat/NA</p> |
|--|--|

Team

- | | |
|---|---------------------|
| <ol style="list-style-type: none"> 1. Continue to monitor and report plant parameters. | <p>Sat/Unsat/NA</p> |
|---|---------------------|

Drywell pressure continues increasing.

ASSS/CSO/E

- | | |
|---|---------------------|
| <ol style="list-style-type: none"> 1. Verify isolation groups 3,4,8 and 9 have isolated. | <p>Sat/Unsat/NA</p> |
|---|---------------------|

Note: SSS may decide to commence a cooldown to lower RPV pressure.



TIME

EVENT

INSTRUCTOR ACTIVITY

ATTACHMENT 2 (Continued)
PLANT RESPONSE

When suppression chamber exceeds 10 psig or before drywell temperature is above 340°F.

OPERATOR ACTIONS

EVALUATOR COMMENTS

SSS

ISCT#5

1. Direct actions for drywell spray.

Sat/Unsat/NA

a. Orders recirc pumps and drywell unit coolers tripped.

Sat/Unsat/NA

b. Directs a loop of RHR to be placed in drywell sprays.

Sat/Unsat/NA

CSO/E

ISCT#6

1. Initiate DW sprays

Sat/Unsat/NA

a. Close FV 38 (if open)

b. Open MOV 15

c. Open MOV 25

2. When DW pressure drops below 1.68 psig, terminate DW sprays.

ISCT#7

Sat/Unsat/NA

3. When suppression chamber pressure drops below 1.68, terminate suppression chamber sprays.

ISCT#8

Sat/Unsat/NA



ATTACHMENT 2 (Cont'd)
PLANT RESPONSE

TIME

EVENT

INSTRUCTOR ACTIVITY

OPERATOR ACTIONS

EVALUATOR COMMENTS

Termination Cue: Drywell pressure
below 1.68 psig. RPV pressure and
level being controlled in ordered
bands.

SSS/ASSS

1. Classify event as an alert condition.
2. Initiate actions per the emergency plan.
3. Make notifications.

ISCT#9

Sat/Unsat/NA

Sat/Unsat/NA

ISCT #10

Sat/Unsat/NA



ATTACHMENT 3
POST EVALUATION ASSESSMENT

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
<p>b. Participant Self-Evaluation</p> <p>Discuss should focus on measurable behaviors and how these contributed to or detract from meeting the objectives.</p>	<p>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.</p>	
<p>c. Instructor assessment and performance (NCTS-2) recommendations.</p>	<ol style="list-style-type: none"> 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. 	
<p>8. Session and program feedback.</p>	<ol style="list-style-type: none"> 1. Distribute Simulator Training Evaluation Feedback For, NTI-4.4 Attachment 13. 2. Provide students with time to complete form. 	
<p>9. Document session.</p>	<ol style="list-style-type: none"> 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) 	

