

Scenario Outline

Nine Mile Point 2	Scenario No. 1	Operating Test No. 1
Examiners:		Candidates:
<p><u>Objectives:</u> Evaluate candidates ability to perform routine operating tasks, raise and lower reactor power. Respond to fuel failures and rising plant radiation levels. Failure of a main steam line radiation monitor. Clogging of condensate demineralizers resulting in a loss of feedwater. Failure of the RCIC flow controller and an steam line break in the secondary containment. Ability to execute normal, abnormal and emergency procedures, and insure compliance with Technical Specifications.</p> <p>This scenario will be classified as a Site Area Emergency (3.4.1, 4.1.1, 4.2.1)</p>		
<p><u>Initial Conditions:</u> 90% Power (IC-20), normal power operations, power will be held at 90% until Reactor Engineering verifies acceptable thermal limits; HPCS has been out of service 16 hours and is inoperable due to injection valve CSH*MOV107 binding. Maintenance markup was issued, not expected back this shift.</p>		
<p><u>Turnover:</u> Hold power at 90% for Reactor Engineering and support maintenance recovery of HPCS. 14 day LCO, T.S. 3.5.1 for HPCS inop. Perform monthly Standby Gas Treatment surveillance.</p>		
Event No.	Malf. No.	Event Description
1		(BOP) Perform monthly Standby Gas Treatment surveillance.
2	RX01	(RO) Fuel element failure resulting in raised off-gas and main steam line radiation, requiring power reduction (N2-SOP-17).
3		(RO) Reduce power with recirculation flow (N2-SOP-101D).
4	MS15D	(BOP/RO) Main steam line radiation monitor fails high, diagnose to determine instrument has failed, check T.S. (3.3.1)

Scenario Outline

5	REM. FUNC.	C	(BOP/RO) Condensate demineralizers sequentially clog up requiring power reduction, placing more demineralizers in service and resulting in a loss of feedwater. <i>PRA (IPE: Loss of Feedwater)</i>
6	RC07	I	(BOP) RCIC flow controller fails high after initial operation, requiring manual control.
7	RC12	M	RCIC steam line break in the secondary containment, isolation valves fail to close, temperatures and radiation levels rise in secondary containment requiring RPV blowdown. <i>PRA (IPE: Emergency Depressurization), LER 99-010</i>

NMPC NMP SIMULATOR SCENARIO

SCENARIO # 1

REV. 0

No. of Pages: 20

FUEL FAILURE, MAIN STEAM LINE RADIATION MONITOR FAILURE, LOSS OF FEED, RCIC CONTROLLER FAILURE, STEAM LEAK IN SECONDARY CONTAINMENT

PREPARER

Edwin West

DATE 10/21/99

VALIDATED

G. Bohlen with crew

DATE 10/21/99

CONFIGURATION
CONTROL

NA Exam Security

DATE NA

GEN SUPERVISOR
OPS TRAINING

Steve Ryl

DATE 10/21/99

OPERATIONS
MANAGER UNIT 2

Math Malters

DATE 10-21-99

SCENARIO SUMMARY

Length: 60 minutes

SUMMARY

The scenario begins with the crew operating at 90% rated power. The crew will perform a Tech. Spec required functional test of Standby Gas Train A. Some accumulated material breaks loose in the reactor, reducing flow through some fuel bundles, then breaking up and passing down the steam lines. The first event is a small amount of fuel failure. Operators will lower power as Off-Gas and Main Steam radiation levels slowly rise. After power has been stabilized a Main Steam line Radiation Monitor will fail, requiring the crew to determine it's an instrument failure and consult Tech. Specs. Material will begin to build up in the Condensate Demineralizers requiring a further power reduction and eventually causing a trip of the feedwater system. The plant will be manually scrammed or automatically scram on level. RCIC will be initiated for level control but will experience a controller failure. RCIC may be operated in Manual to recover RPV level or the Feedwater System may be restarted. The fuel element failure will become worse and a steam leak will develop in the RCIC System resulting in high temperatures and radiation levels in the Reactor Building. The operators will attempt to isolate RCIC but the isolation valves will not work. The crew will be required to emergency depressurize to reduce the amount of energy released to the secondary containment.

EOPs exercised: RPV, SCC, RPV BLOWDOWN

Emergency Classification: SAE 3.4.1, 4.1.1, 4.2.1

Termination Criteria: RPV depressurized, RPV level stable

I. SIMULATOR SET UP

A. IC Number: IC-20, Lower power to 90% using RCS flow.

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|---|---------------|
| a. RC11, RCIC failure to isolate | Queued |
| b. RX01, Fuel Failure, 3%, ramp rate 7:00 minutes | F3 |
| c. MS15D, Main Steam line Radiation Monitor Fails High, TRUE | F4 |
| d. RC12, RCIC steam leak in Reactor Building, 35% 8 min. ramp | F7 |
| e. RX01, Fuel Failure 5%, triggered when mode switch is placed in SHUTDOWN | Queued |
| f. RC07, RCIC Flow Transmitter fails High, TRUE, 30 seconds after mode switch is placed in SHUTDOWN | Queued |

2. Remotes:

- | | |
|--|---------------|
| a. CS12, OPEN - Opens breaker for CSH*MOV107 | Queued |
| b. FW01A,B,C,D Cond. Demins A,B,C,D OFF | F5 |
| c. FW01E, after 3 min. F, After 6 additional min. G Cond. Demins OFF | F6 |

3. Overrides:

- | | |
|---|---------------|
| a. ICS*MOV121 control switch, OPEN, [34/36], P601-E51A-S2-A | Queued |
| b. ICS*MOV128 control switch, OPEN, [33/36], P601-E51A-S1-A | Queued |

4. Annunciators:

- | | |
|--|-----------|
| a. 851514, Condensate Demineralizer System Trouble, after 1 min. | F6 |
|--|-----------|

C. Equipment Out of Service

1. HPCS

- Place CSH*P1 HPCS Pump C/S in P-T-L, hang RMU
- Hang RMU on CSH*MOV107

D. Support Documentation

- N2-OSP-GTS-M001 for GTS Train A (single sided stamped working copy)

II. TURNOVER

SHIFT TURNOVER INFORMATION

REACTOR POWER	90%Rated
CORE LIFE	MOL
ROD LINE	>100%
SEQUENCE	A2DN
RWM STEP	29
SHIFT	DAYS/NIGHTS

A. Technical Specification LCOs in effect:

3.5.1, HPCS System inoperable 16 hours into 14 day LCO

B. Significant Problems/Abnormalities/Equipment Out of Service:

1. High Pressure Core Spray System inoperable due to Injection Valve CSH*MOV107 binding, maintenance marked up issued. Repairs are to be completed in about 24 hours.

C. Evolutions/Maintenance Scheduled for this Shift:

1. Hold power at 90% for Reactor Engineering to verify thermal limits then continue power ascension and support maintenance activities to restore HPCS
2. Perform N2-OSP-GTS-M001, GTS Functional Test for GTS Train A, for routine surveillance.

SHIFT COMPLEMENT

SRO	
RO	
BOP	

III. PERFORMANCE OBJECTIVES

A. Critical Tasks:

CT-1.0 Given the plant with the High Pressure Core Spray out of service and a Loss of Feedwater and RCIC malfunction, the crew will use RCIC, CRD, and/or Condensate/Feedwater to maintain RPV water level above -18 inches.

Tasks:

3449300503 Direct actions required for a Reactor Scram.

3449400603 Direct actions required per EOP-RPV, Section RL.

3449410603 Direct actions required per EOP-RPV, Section RP.

2010130101 Scram the Reactor manually and take immediate actions.

2009100501 Perform the actions for a Loss of Feedwater and HPCS.

CT-2.0 Given the plant with an unisolable steam leak in the Reactor Building, the crew will perform an emergency blowdown of the RPV IAW N2-EOP-C2, when more than one Reactor Building area temperature reaches 212°F.

Tasks:

3449570603 Direct actions required per EOP-C2, RPV Blowdown.

2180020101 Manually initiate the ADS System and monitor while activated.

B. Performance Objectives:

PO-1.0 Given the plant in any operating mode, the crew shall demonstrate effective communications in accordance with GAP-OPS-01 on verbal communication.

PO-2.0 Given plant conditions requiring use of the Emergency Plan, the crew shall demonstrate the roles and responsibilities of the SSS, ASSS, STA, and CSO and RO in accordance with the Site Emergency Plan Procedures and GAP-OPS-01. (NMP2 Requal Action Plan, Rev 02, 5.B.1, 6.B.6)

Tasks:

3440190303 Classify emergency events requiring Emergency Plan implementation.

3440230303 Direct emergency response as Site Emergency Director.

- 3440340303 Evaluate plant personnel safety hazards associated with the emergency event.
 - 3440390303 Ensure required notifications of onsite and offsite personnel during off normal events are performed.
 - 3449370503 Complete an SSS/SED checklist for emergency classification.
 - 3449360503 Prepare and approve a notification fact sheet for an emergency classification.
 - 3440050405 Ensure required notifications of onsite and offsite personnel during off normal events.
- PO-3.0 Given the plant in an emergency condition, SROs shall demonstrate an understanding of Command and Control, EOP placekeeping techniques and effective use of control room operators (NMP2 Requal Action Plan, Rev 02, 6.B.6).
- PO-4.0 Given the plant in any operating condition, the crew shall demonstrate "Self-Checking" work practice techniques for all control action in accordance with Operations Department instructions. (LER 50-410/88-50, NRC IR 50-410/88-01).
- PO-5.0 Given the plant in any operating condition, members of the Control Room Team shall notify Radiation Protection Personnel when dispatching personnel into areas of radiological concern or when required by procedure.
- PO-6.0 Given the plant during any operating condition, SROs shall direct appropriate conservative action stabilizing the plant within acceptable limits, including scrambling the reactor or tripping the turbine manually when necessary.
- PO-7.0 Given the plant after any transient or event, SROs shall establish and modify control bands for key plant parameters, to direct actions maintaining parameters within prescribed limits.

- PO-8.0 Given the plant in any operating condition, the SRO shall conduct crew updates to inform crew members of plant status, on-going or planned mitigation activities, and to solicit feedback from the team.
- PO-9.0 Given the plant in any operating condition, SROs shall prioritize crew actions to address plant conditions using a systematic process.
- PO-10.0 Given the plant in any operating condition, the crew shall monitor and communicate values and trends for key plant parameters and equipment status.
- PO-11.0 Given the plant in any operating condition, the crew shall focus personnel resources to maintain effective control board attention.
- PO-12.0 Given the plant in any operating condition, the crew shall remove plant equipment from service when approaching or exceeding the equipment's operating limits.
- PO-13.0 Given the plant following a reactor scram, the crew shall control RPV temperature to prevent exceeding Technical Specification allowed cool down rate, or avoid unnecessary safeguards actuation.
- PO-14.0 Given the plant in a condition requiring a rapid decrease in reactor power, the crew shall perform an emergency power reduction using recirculation and or manual rod insertion (if necessary) in accordance with approved procedures.
- PO-15.0 Given the plant in a condition requiring emergency classifications, the crew shall classify the events properly and discuss the bases for the classification in accordance with the emergency plan procedure.
- Tasks:
- 3440190303 Classify emergency events requiring emergency plan implementation.
- 3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.
- PO-16.0 Given the plant at power and indication of fuel failure the crew will enter and implement the actions required by N2-SOP-17, Fuel Failure.
- Tasks:
- 3440270303 Determine if indications of Fuel Element Damage are present.

- 3449750403 Direct Actions for a Fuel Clad Failure or High Activity in Reactor Coolant or Offgas.
- 3449440503 Respond to increasing Main Steam Line Radiation Levels.
- 3419140103 Direct power changes (>10%) using Recirc Flow or Control Rods.
- 2009060501 Perform the Actions Required for Fuel Cladding Failure.
- 2009170601 Perform the Actions required during a High Airborne Activity or High Radiation in a Local Area.
- 2009180601 Perform the Actions required during a High Airborne Activity or High Radiation in a General Area.
- PO-17.0 Given the plant at power and a Main Steam Line radiation monitor failure the crew will diagnose the instrument failure and apply Tech. Specs.
Tasks:
 - 3410180303 Apply Tech Specs Direction for Safety Limits, LCO's and LSSS's.
 - 2000610501 Perform the Actions required for a Radiation Monitoring System Alarm.
- PO-18.0 Given the plant at power, the crew will perform surveillance test N2-OSP-GTS-M001 for GTS Train A.
Tasks:
 - 3420240303 Authorize performance of Surveillance Tests on Shift.
 - 2610030101 Place the Standby Gas Treatment System in service from the Control Room.
- PO-19.0 Given the plant at power and an imminent loss of feedwater, the crew will direct and initiate a manual reactor scram.
Tasks:
 - 3449300503 Direct actions required for a Reactor Scram.
 - 3449400603 Direct actions required per EOP-RPV, Section RL.
 - 3449410603 Direct actions required per EOP-RPV, Section RP.
 - 2010130101 Scram the Reactor manually and take immediate actions.
 - 2009100501 Perform the actions for a Loss of Feedwater and HPCS.

PO-20.0 Given the plant in a post scram condition with an unisolable steam leak from RCIC, the crew will enter and implement N2-EOP-SC, Secondary Containment Control.

Tasks:

3449460603 Direct action required per EOP-SC, Section SCT.

2009130501 Perform the actions for a small break LOCA outside the Primary Containment.

PO-21.0 Given the plant in a post scram condition and more than 1 Reactor Building area temperature above 212°F, the crew will perform and Emergency Blowdown as directed by N2-EOP-C2.

Tasks:

3449520603 Direct actions required per EOP-C2, RPV Blowdown.

2180020101 Manually Initiate the ADS System and monitor while activated.

IV. SCENARIO

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Allow not more than 5 minutes for panel walkdown.

Begin the scenario.

OPERATOR ACTIONS

- Walkdown panels.
- SRO briefs the crew.
- Crew assumes the shift and continues with normal power operation.

SRO

- Direct crew to perform N2-OSP-GTS-M001 for GTS Train A.

BOP

- Perform N2-OSP-GTS-M001 for Train A
 - Complete prerequisites
 - Establish communication with Operator in GTS Room.
 - Record Initial timer reading for GTS A. (Report from AO).

Role Play: When asked, as AO report

- GTS*CH1A LOW AIR FLOW
Green light lit at GTS*PNL30A
- Report from RB North Aux Bay
GTS Timer reading is 7133.4

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: When asked as the AO, report

- 2GTS*CH1A Red heater light is on.
- CH1A LOW AIR FLOW green light and OVER TEMPERATURE green light are both off.

When directed by Lead Evaluator, insert the following malfunctions:

RX-01, FUEL FAILURE,

F3

3% ramp over 7 minutes

Radiation levels rise on offgas Rad monitors OFG-RE13A & B and MSL Rad monitors.

851245, TURB DLDG/MN STACK AREA RADN MON ACTIVATED

851253, PROCESS GAS RADN MONITOR ACTIVATED

- At P873, place Train A Initiation Control Switch in AUTO AFTER START.
- Observe GTS*FN1A starts and *MOV1A, 2A and 3A open.
- Receive surveillance data from AO at local panel.
- Allow GTS*FN1A to run for 10 hours.

BOP

- Responds to Annunciators, enters N2-ARP-01.
- Determines the source of the alarms from DRMS.
- Refers to EPIP-EPP-21, determines a Turbine Building evacuation is necessary.
- Enters N2-SOP-17, Fuel failure or high activity in Rx Coolant or Offgas, when OFG 13's alarm.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

INSTRUCTOR NOTE:

After power reduction begins, reduce the amount of
RX-01, FUEL FAILURE from 3% to 0.1%

Role Play: If requested respond as Chemistry
and Ops Management to perform expected actions.

*As power is lowered, Offgas Rad levels levels
stabilize and/or improve.*

SRO

- Directs power reduction per N2-SOP-101D, Sect. 4.3, to stabilize Offgas Rad levels.
- Notifies Ops Management of power reduction.
- Ensures Chemistry is notified to adjust chemical addition to CWS.
- Notify Chemistry and RP of increasing radiation levels.
- Notify Chemistry to obtain grab samples on Offgas to determine release rate.
- Notify Chemistry to obtain reactor coolant sample.

RO

- Lowers power by reducing Recirculation Flow to stabilize Offgas Rad levels.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When conditions have stabilized or when directed
insert Malfunction:

MS15D, Main Steam line

Radiation Monitor Fails High

F4

Expected Annunciators:

603133, MN STEAM LINE RADIATION HIGH

603407, RPS B MN STM LINE RADN HIGH TRIP

603410, RPS B AUTO TRIP

602224, DIVISION II NSSSS ISOL SIGNAL

RO

- Responds to annunciators and half scram and isolation.
- Verify half scram and half MSIV isolation.
- Determines cause of alarms and no scram condition exists

BOP

- Confirm reading on 2MSS*RE46D and observe Hi Hi indication.
- Diagnose monitor failure by observing other 3 MSL rad monitors reading normally.

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

When directed by lead evaluator, insert the following Remotes:

FW01A,B,C,D Condensate

Demins A,B,C,D OFF

FW01E, after 3 min. F,

After 6min. G Cond. Demins OFF

F5

F6

Expected Annunciators:

*851514, CONDENSATE DEMINERALIZER
SYSTEM TROUBLE*

*851533, CONDENSATE BOOSTER PUMPS SUCT
HDR PRES LOW*

SRO

- Enter Tech Specs. 3.3.1, Table 3.3.1-1, 3.3.1 action a.
- Enter Tech Spec 3.3.2 action b.1(b)
- Notify Ops Management of Tech Spec entry.

BOP

- Respond to Annunciator by notifying control room and sending an AO to the local panel.
- Monitor Booster Pump suction pressure

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Removal of the first four demins will NOT have noticeable effect on feed flow. When E is removed from service Condensate Pump discharge pressure will rise and Condensate Booster Pump suction pressure will lower as Condensate Demineralizer D/P rises

Role Play: As AO sent to investigate report that Condensate Demineralizer D/Ps are rising, a clean Demin is in Standby, request permission to place it in service.

If requested to place Standby Demin in service inform control room it will take a minimum of 20 minutes.

SRO

- Direct standby demineralizer be placed in service.
- Direct an emergency power reduction to maintain Condensate Booster Pump suction pressure
 - May direct emergency power reduction without entering Heightened Awareness Zone.
- Upon loss of Feedwater direct placing the mode switch in SHUTDOWN

RO

- Reduce recirc flow to value directed by SRO.
- When directed place the mode switch in SHUTDOWN.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

RX-01, Fuel Failure 5%, triggered when mode switch is placed in SHUTDOWN
RC-07, RCIC Flow Transmitter fails High, 30 seconds after mode switch is placed in SHUTDOWN

OPERATOR ACTIONS

- Perform Scram actions per N2-SOP-101C, Reactor Scram
 - Report level, pressure, power.
 - Verify all rods in using RWM and/or RSCS.

SRO

- Direct scram actions per N2-SOP-101C, REACTOR SCRAM
 - Direct RPV level restored to 160 – 200 inches, using RCIC and CRD.
 - Direct pressure maintained below 1052 psig.

CT-1.0

Sat/Unsat/NA

BOP

- Attempt to stabilize RPV Level with RCIC
 - Diagnose Flow Transmitter fails high by observing RCIC System Flow Meter

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

MSIV's automatically close on MSL hi radiation.

Allow the crew sufficient time to control RPV level and pressure before proceeding with the next malfunction.

- Take manual control by placing RCIC Flow Controller in Manual.
- Raise turbine speed to establish injection using RCIC Flow Controller.

CT-1.0

Sat/Unsat/NA

RO

- Report MSIV closure due to MSL hi rad.
- If directed, maximizes CRD injection
 - Start second CRD pump
 - Opens CRD Flow Control valve
 - Opens PV101 Drive Pressure Control valve.

CT-1.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When directed by Lead Evaluator, insert
malfunction:

**RC12 @ 35% 8 min ramp by depressing
function key**

F7

*RB temps rise and isolation setpoints are exceeded
RCIC leak in the Reactor Building*

Expected Alarms:

*851254 PROCESS AIRBORNE RAD MONITOR
ACTIVATED*

*601157 REACTOR BUILDING HIGH TEMP
ALARM*

BOP

- Reports Reactor Building High Temp Alarm to SRO.
- At P632 and P642 monitor and report RB temperatures
 - Identify WCS, RCIC, SDC should have isolated.
- Diagnoses RCIC line break and RCIC failure to isolate.
- Reports failure of RCIC to isolate.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: If directed to attempt to shut RCIC outboard isolation valve, report that you will attempt to do so. (After 5 minutes, inform the Control Room that the isolation valve is inaccessible due to steam).

INSTRUCTOR NOTE:

Malfunction RC12 may be raised as necessary to cause second Reactor Building area temperature to exceed 212°F.

SRO

- Enters EOP-SCC.
- Directs starting of area unit coolers.
- Directs evacuation of the RB per EPIP-EPP-21.
- Directs BOP to shut RCIC isolation valves.
- Directs BOP to monitor and report RB temps and trends.

RO

- Starts RB unit coolers.
- Makes evacuation announcement.
- **Monitors and restores RPV level between 159.3" and 202.3" by restarting a feedwater pump and controlling level with master controller in manual, if directed.**
- Reports RB temperatures and trends.
- Reports when second area temperature exceeds 212°F.

CT-1.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Reactor Building temperatures continue to rise.

SRO

- Prior to ANY RB area temperature reaching 212°F, enters RPV control.
- Directs level maintained between 159.3" and 202.3".
- Directs RPV pressure stabilized.

Reactor Building temperatures continue to rise until two areas exceed 212°F.

SRO

- **When second area temperature exceeds 212°F, directs emergency blowdown per N2-EOP-C2.**

CT-2.0

Sat/Unsat

- Directs RHR "A" placed in supp. Pool cooling.

Suppression pool water temp rises when SRVs discharge to pool.

RO

- **Opens 7 ADS valves**

CT-2.0

Sat/Unsat

RPV pressure lowers

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

- Arm and depress Div I and Div II
ADS Manual Initiation
pushbuttons.
- Places RHS is supp. pool cooling as
follows:
 - lines up SWP (7400 gpm).
 - starts RHS pump
 - throttles open FV38 to establish
7450 gpm
 - closes MOVs to maximize cooling
- Defeats LOCA isolations for N₂ to
SRVs/MSIVs.

SRO

- Classifies the event as a Site Area
Emergency 3.4.1, 4.1.1, 4.2.1 per post
scenario JPM.

Termination Cue:

RPV depressurized, RPV water level -18" to
202.3

NIAGARA MOHAWK POWER CORPORATION
OPERATOR JOB PERFORMANCE MEASURE

Title: Emergency Classification for Scenario 1 (SRO ONLY)

Revision: 0

Task Number: 344-019-03-03

Approvals:

Steve Kumpf 10/21/99
General Supervisor Date
Operations Training (Designee)

Math J. W. White 10-21-99
General Supervisor Date
Operations (Designee)

NA Exam Security
Configuration Control Date

Performer: _____ (RO/SRO/AO)

Trainer/Evaluator: _____

Evaluation Method: X Perform Simulate

Evaluation Location: Plant X Simulator

Expected Completion Time: 10 min Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Plant Control Room (Simulator)

Simulator Set-up:

Per Scenario 1, Conditions are:

- A loss of feedwater required/caused a scram.
- The RCIC steam line in the Secondary Containment ruptured and cannot be isolated.
- Rising radiation and temperature levels in the reactor building required an RPV Blowdown.

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SSS / CSO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SSS / CSO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SSS, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. EPIP-EPP-02, Rev. 08, Classification of Emergency Conditions at Unit 2
2. EPMP-EPP-0102, Rev. 03, Unit 2 Emergency Classification Technical Basis
3. EPIP-EPP-18, Rev. 06, Activation and Direction of the Emergency Plans
4. NUREG 1123, 2.4.29 (2.6/4.0), 2.4.40 (2.3/4.0), 2.4.41 (2.3/4.1)

Tools and Equipment:

1. None

Task Standard:

Scenario properly diagnosed and categorized as an Site Area Emergency

Initial Conditions:

- A loss of feedwater required/caused a scram.
- The RCIC steam line in the Secondary Containment ruptured and cannot be isolated.
- Rising radiation and temperature levels in the reactor building required an RPV Blowdown.

Initiating cue:

“(Operator’s name), assume the role of the Site Emergency Director and determine the emergency classification of this event.”

Performance Steps	Standard	Grade	Comments
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper repeat back (GAP-OPS-01)	Sat/Unsat	
RECORD START TIME _____			
2. Obtain a copy of EPIP-EPP-02	EPIP-EPP-02, obtained.	Sat/Unsat	
3. Declares a Site Area Emergency based on RCIC outside the Primary Containment. A primary system is discharging into the RB and area temps. are >212°F and high radiation levels.	Site Area Emergency declared based on RCIC outside the Primary Containment. A primary system is discharging into the RB and area temps. are >212°F and high radiation levels.	Pass/Fail	

End of JPM

TERMINATING CUE: Determination of an Site Area Emergency Classification. (3.4.1, 4.1.1, 4.2.1)

RECORD STOP TIME _____

Scenario Outline

Nine Mile Point 2		Scenario No. 2		Operating Test No. 1	
Examiners:			Candidates:		
<p>Objectives: Evaluate candidates ability to lower power under normal and abnormal conditions; respond to instrument and component failures encountered during surveillance testing and normal operations which require a Technical Specification 3.0.3 shutdown. Respond to a stuck open SRV; feedwater controller failure, EHC failure and failure of control rods to fully insert which results in an ATWS condition; lower RPV level to reduce power and control RPV pressure; execute normal, abnormal and emergency procedures; ensure compliance with Technical Specifications.</p> <p>This scenario will be classified as a Site Area Emergency (2.2.2)</p>					
<p>Initial Conditions: 100% Power (IC-20), normal power operations, SWP*P1C out of service.</p>					
<p>Turnover: Continue normal power operations and return RCIC to operability following maintenance by performing of N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity (completed through step B.2.21). SWP*P1C removed from service last shift for discharge strainer replacement..</p>					
Event No.	Malf. No.	Type	Event Description		
1		N	(BOP) Perform N2-OSP-ISC-Q@002, RCIC Pump and Valve Operability Test and System Integrity		
2	OVER-RIDES	I	(BOP) RHR flow instrument fails downscale, preventing Minimum Flow Valve (RHS*MOV4A (4B) from opening		
3	AD05C	C	(BOP/RO) ADS Relief Valve opens, enter N2-SOP 34, pull fuses to close valve. Places plant in a condition requiring T.S. 3.0.3 shutdown <i>PRA (IPE: Inadvertent Open Safety Relief Valves)</i>		
4		R	(RO) Reduce power with recirculation flow		

Scenario Outline

5	FW14	I	(RO) Feedwater master controller fails low requiring manual control of feedwater. (N2-SOP-06) <i>PRA (IPE: Loss of Feedwater), LER 99-010</i>
6	OVER- RIDES	C	(BOP/RO) EHC system leak requiring power reduction per N2-SOP-101D
7	RD17Z	M	Control rods fail to fully insert, all turbine bypass valves fail closed as EHC pressure lowers from event 6. This requires the use of SRVs and lowering RPV level for pressure control. After control is established alternate methods must be used to scram the rods
8	RP08A RP08B	I	RRCS I and II 98 second timer failure, requiring manual SLC initiation

NMPC NMP SIMULATOR SCENARIO

SCENARIO # 2

REV. 0

No. of Pages: 24

FAILURE TO SCRAM WITH LOSS OF EHC PRESSURE

PREPARER

Edwin B. [Signature]

DATE 10/18/99

VALIDATED

G. Bohlen with crew

DATE 10/18/99

CONFIGURATION
CONTROL

N/A Exam Security

DATE NA

GEN SUPERVISOR
OPS TRAINING

Steve Kempf

DATE 10/18/99

OPERATIONS
MANAGER UNIT 2

Math J. Waldeck

DATE 10-19-99

SCENARIO SUMMARY

Length: 60 minutes

SUMMARY

While operating at rated power, the crew will prepare to perform RCIC full flow test surveillance. When RHR is initiated in Suppression Pool Cooling, for the test, the RHR flow Instrument will fail and the Minimum Flow Valve, MOV 4A(B), will cycle and NOT stay Closed when flow is established. This will make RHR Inoperative and the RCIC Test should be postponed while Tech. Specs. are checked.

After the Tech. Specs. are determined ADS/SRV*PSV137 opens due to a switch failure. Per SOP-34, fuses will be pulled. After the C and A fuses are pulled the SRV will shut. Again this will place the SRO in Tech. Specs. The loss of RHR and ADS will require a Tech. Specs. 3.0.3 Shutdown. When management is notified they will request the shutdown be started immediately. After conditions have stabilized the Feedwater Master Controller fails low, causing RPV level to lower. Feedwater Control must be placed in Manual. After conditions have stabilized the EHC System will develop a leak requiring a power reduction with Feedwater Control in Manual. After a power reduction, the EHC Pumps trip, and the reactor will either be manually scrammed or scram on high pressure.

When the reactor is scrammed the control rods fail to fully insert with a failure of the Redundant Reactivity Control System. The rods will not respond to manual scram signals until after the SDV is drained. Control Rods may be manually inserted. The operators enter and execute EOPs, RPV, PC and C5 as well as the appropriate off normal procedures.

EOPs Exercised: RPV, PCC, C5

Emergency Classification: SAE 2.2.2

Termination Criteria: RPV water level and pressure are under control. Suppression Pool temperature is stable or lowering. Actions have been taken or directed to insert rods in accordance with N2-EOP-6, Attachment 14.

I. SIMULATOR SET UP

A. IC Number: IC-20

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|--|---------------|
| a. RP08A, Div I RRCS 98 sec timer failed | Queued |
| b. RP08B, Div II RRCS 98 sec timer failed | Queued |
| c. RD17Z, 11, RD17 for all rod groups | Queued |
| d. FW14, FEEDWATER MASTER CONTROLLER
FAILURE -LOW (5 min. ramp to 100%) | F5 |

2. Remotes:

None

3. Overrides:

- | | |
|---|---------------|
| a. P601, P601-B22C-DS03A, Div I PSV137 light OFF | Queued |
| b. P628, P628-B22C-S1A, ADS Valve PSV137 Control Switch, OPEN | F4 |
| c. P851, F.W. Pump Discharge Hdr. Press. 0.0 | Queued |
| d. P851, EHC Fluid Pump 1B Pull to Lock-STOP | Queued |
| e. P851, 0-2000 psig EHC Fluid Press. 0.0 over 10 min. | F3 |
| f. P851, EHC Fluid Pump 1A Pull to Lock-STOP, 5 min. | F3 |
| g. P851, EHC Fluid Pump 1B Stop (Green) OFF, 2 min. | F3 |
| h. P851, EHC Fluid Pump 1B Auto (Red) ON, 2 min. | F3 |
| i. P851, EHC Fluid Pump Motor 2TMB-1B, 25%, 2 min. | F3 |
| j. P601, 0-10,000 gpm Flow Indicator for RHR A 0.0 | F6 |
| k. P601, RHR PUMP MIN FLOW MOV4A, OPEN | F6 |
| l. P601, 0-10,000 gpm Flow Indicator for RHR B 0.0 | F7 |
| m. P601, RHR PUMP MIN FLOW MOV4B, OPEN | F7 |

4. Annunciators:

- | | |
|---|---------------|
| a. 851128, TUR GEN HYDR FL PMP 1A/BAUTO START, ON, 2 min. | F3 |
| b. 851138, TUR GEN HYDR FLUID SYS TROUBLE, ON, 1 min. | F3 |
| c. 851118, TUR GEN HYDR FL PMP 1A/1B LCK OUT, OFF | Queued |

C. Equipment Out of Service

Service Water Pump 1C, Place control switch in PTL and place a red markup tag on the switch

D. Support Documentation

N2-OSP-ICS-Q@002

E. Miscellaneous

None

II. TURNOVER

SHIFT TURNOVER INFORMATION

REACTOR POWER	100%
CORE LIFE	MOL
ROD LINE	>100%
SEQUENCE	A2DN
RWM SREP	29
SHIFT	DAYS/NIGHTS

A. Technical Specification LCOs in effect:

None

B. Significant Problems/Abnormalities/Equipment Out of Service:

Service Water Pump 1C, SWP*P1C, removed from service last shift for discharge strainer replacement. Work has NOT been started yet.

C. Evolutions/Maintenance Scheduled for this Shift:

1. Perform RCIC Full Flow Test, Surveillance Test currently completed through step 8.2.21
2. Continue power operations

SHIFT COMPLEMENT

SSS	
RO	
BOP	

III. PERFORMANCE OBJECTIVES

A. Critical Tasks:

CT-1.0 Given an operating reactor plant with a stuck open SRV, the crew will take the necessary action to close the valve prior to exceeding a time period of five minutes or Suppression Pool temperature exceeding 110°F.

3449430503 Respond to an inadvertent lifting or safety/relief valve.

2000260501 Perform the actions required for a safety/relief valve opening.

2189030401 Close a stuck open safety/relief valve.

3410180303 Apply Tech Spec directions for Safety Limits, LCOs, and Limiting Safety System Settings.

3449580403 Report abnormal parameters to the Operations Manager, the Plant Manager, and the Vice-President Nuclear Generation.

CT-2.0 Given the plant with a failure of the reactor to scram the crew will take the necessary actions to terminate and prevent injection into the core to lower RPV water level as directed by EOP-C5 to reduce power, to prevent exceeding HCTL.

Tasks:

2000200501 Perform the actions required for an anticipated trip without a scram.

3449570603 Direct the actions required per EOP-C5, Failure to Scram

3520060505 Inform the EOP director when approaching or meeting EOP overrides.

3520120505 Confirm appropriate "terminate and prevent" injection operator actions during EOP execution (PRA).

CT-3.0 Given the plant with a scram required and control rods failing to insert the crew will execute N2-RPV-C5, FAILURE TO SCRAM by manually injecting boron and inserting control rods to prevent exceeding HCTL.

3449570603 Direct the actions required per EOP-C5, Failure to Scram.

2009360501 Manual Control Rod Insertions IAW EOP-6, Attachment 14.

B. Performance Objectives:

- PO-1.0 Given the plant in any operating mode, the crew shall demonstrate effective communications in accordance with GAP-OPS-01 on verbal communication.
- PO-2.0 Given plant conditions requiring use of the Emergency Plan, the crew shall demonstrate the roles and responsibilities of the SSS, ASSS, STA, and CSO and RO in accordance with the Site Emergency Plan Procedures and GAP-OPS-01. (NMP2 Requal Action Plan, Rev 02, 5.B.1, 6.B.6)
- Tasks:
- 3440190303 Classify emergency events requiring Emergency Plan implementation.
- 3440230303 Direct emergency response as Site Emergency Director.
- 3440340303 Evaluate plant personnel safety hazards associated with the emergency event.
- 3440390303 Ensure required notifications of onsite and offsite personnel during off normal events are performed.
- 3449370503 Complete an SSS/SED checklist for emergency classification.
- 3449360503 Prepare and approve a notification fact sheet for an emergency classification.
- 3440050405 Ensure required notifications of onsite and offsite personnel during off normal events.
- 3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.
- PO-3.0 Given the plant in an emergency condition, SROs shall demonstrate an understanding of Command and Control, EOP placekeeping techniques and effective use of control room operators (NMP2 Requal Action Plan, Rev 02, 6.B.6).
- PO-4.0 Given the plant in any operating condition, the crew shall demonstrate "Self-Checking" work practice techniques for all control action in accordance with Operations Department instructions. (LER 50-410/88-50, NRC IR 50-410/88-01).

- PO-5.0 Given the plant in any operating condition, members of the Control Room Team shall notify Radiation Protection Personnel when dispatching personnel into areas of radiological concern or when required by procedure.
- PO-6.0 Given the plant during any operating condition, SROs shall direct appropriate conservative action stabilizing the plant within acceptable limits, including scrambling the reactor or tripping the turbine manually when necessary.
- PO-7.0 Given the plant after any transient or event, SROs shall establish and modify control bands for key plant parameters, to direct actions maintaining parameters within prescribed limits.
- PO-8.0 Given the plant in any operating condition, the SRO shall conduct crew updates to inform crew members of plant status, on-going or planned mitigation activities, and to solicit feedback from the team.
- PO-9.0 Given the plant in any operating condition, SROs shall prioritize crew actions to address plant conditions using a systematic process.
- PO-10.0 Given the plant in any operating condition, the crew shall monitor and communicate values and trends for key plant parameters and equipment status.
- PO-11.0 Given the plant in any operating condition, the crew shall focus personnel resources to maintain effective control board attention.
- PO-12.0 Given the plant in any operating condition, the crew shall remove plant equipment from service when approaching or exceeding the equipment's operating limits.
- PO-13.0 Given the plant during high reactor pressure conditions, the crew shall control RPV pressure manually to stop and prevent SRV cycling.
- PO-14.0 Given the plant following a reactor scram, the crew shall control RPV temperature to prevent exceeding Technical Specification allowed cool down rate, or avoid unnecessary safeguards actuation.

- PO-15.0 Given the plant in a condition requiring a rapid decrease in reactor power, the crew shall perform an emergency power reduction using recirculation and or manual rod insertion (if necessary) in accordance with approved procedures.
- PO-16.0 Given the plant following an inadvertent safety initiation, SROs shall provide direction to maintain system parameters within normal operating limits.
- PO-17.0 Given the plant in a condition requiring emergency classifications, the crew shall classify the events properly and discuss the bases for the classification in accordance with the emergency plan procedure.
- Tasks:
- 3440190303 Classify emergency events requiring emergency plan implementation.
- 3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.
- PO-18.0 Given a situation warranting Technical Specification investigation and application, the ASSS and/or STA shall perform an independent review of Technical Specifications and compare/verify applicable specifications and appropriate LCO actions with those chosen by the SSS.
- Tasks:
- 3410180303 Apply Tech. Spec. directions for Safety Limits, LCOs, and Limiting Safety System Settings.
- 3410320303 Evaluate Plant System's performance and coordinate appropriate actions per Tech. Specs., if LCO entered.
- 3520280505 Independently assess and advise the SSS/ASSS in making Tech. Spec. decisions.
- PO-19.0 Given the plant at power and direction to perform RCIC Surveillance N2-OSP-ICS-Q@002, the crew will lineup RHR in Suppression Pool Cooling and determine minimum flow valve malfunction requires RHR loop to be declared inoperable.
- Tasks:
- 2009170101 Operate RHR in the Suppression Pool Cooling Mode.

3410080303 Apply Tech Spec Directions for Safety Limits, LCO's and LSSS's.

PO-20.0 Given the plant at power and an inadvertent opening of MSS*PSV137, the crew will enter and implement N2-SOP-34 to close the SRV.

Tasks:

3449430503 Respond to an inadvertent lifting of a safety/relief valve.

2189030401 Close a stuck open relief valve.

3410080303 Apply Tech Spec Directions for Safety Limits, LCO's and LSSS's.

PO-21.0 Given the plant at power with an RHR loop and an ADS valve inoperable, the crew will enter Tech Spec 3.0.3 and commence a normal shutdown within 1 hour per N2-OP-101C&D.

PO-22.0 Given the plant at power with a Feedwater Level Control Master Controller failed low, the crew will take manual control of feedwater and inject to prevent an automatic scram on low RPV water level per N2-SOP-06.

3449030403 Respond to a Feedwater Controller malfunction.

2000310501 Perform the actions required for a Reactor water level low.

2569060101 Perform the actions required for a Loss of Feedwater of System Failure.

IV. SCENARIO

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Allow no more than five minutes for the panel walkdown.

Begin the scenario.

NOTE: Depending on RHR loop selected insert:

P601, 0-10,000 gpm Flow Indicator
for RHR A 0.0

F6

P601, 0-10,000 gpm Flow Indicator
for RHR B 0.0

F7

Walkdown panels.

CRS briefs the crew.

Crew assumes the shift and continues with normal power operation.

BOP

Initiates RHR A(B) in Suppression Pool cooling per N2-OP-31, Sect. F.4.0.

- Directs SW Radiation Monitor be placed in service.
- Open SWP*MOV90A(B)
- Throttle open SWP*MOV33A(B)
- Start RHS*P1A(B)
- Throttle open RHS*FV38A(B)
- Monitor RHS*MOV4A(B)
- Reports and responds to failure of RHR Flow instrumentation.
- Restores system to standby lineup or as directed.

Role Play: **If requested**, place SWP radiation monitors 23A and/or 23B in service, by activating. Remote RM, Page 4

RM44, SWP23A1 Final Value = 1E-9

RM45, SWP23B1 Final Value = 1E-9

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

SRO

Obtains N2-OSP-ICS-Q@002 RCIC
Pump and Valve Operability Test and
System Integrity.

- Declares RHR loop selected for
Suppression Pool Cooling inoperable
- Acknowledge report of instrument
failure.
- Direct shutdown of the RHR pump to
stop the cycling of MOV4A(B)
- Directs I&C be contacted to
troubleshoot.
- Enters Tech. Specs.3.3.1,
Table 3.3.3-1 A.1.j (B.1.h) Action 31,
trip within 24 hours, restore within 7
days.
- Enters Tech. Specs. 3.5.1, Action a.2
Cont Spray 3.6.2.2 Action a 7 days,
Supp Pool Cooling
- 3.6.2.3 Action a, Supp Pool Cooling
72 hours.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When directed by the Lead Instructor **activate** the following override:

P628-B22C-S1A-A,
ADS VALVE PSV137 OPEN (F4)

Expected Annunciator

601548, SAFETY/RELIEF VALVE OPEN

At P603 FWLC steam flow/feed flow mismatch occurs.

MWe lowers as Turbine CV throttles closed.

NOTE: If the crew does NOT get the fuses removed in time or is going to scram the plant remove the ADS Valve override and allow the valve to close.

BOP

Determines *PSV137 has opened
Enters N2-SOP-34, STUCK OPEN
SAFETY RELIEF VALVE

- Records Time
- Places switch in OFF
- **Using Att. 1 removes fuses**
 - **P628 Strip K, removes F19 and F20 for PSV 137**
 - **P628 Strip K, removes F3A and F4A for PSV137**
- Places RHR in Supp. Pool Cooling if directed.
- Notifies SRO of Drywell Vacuum meter surveillance requirements.

CT-1.0

Sat/Unsat/NA

RO

Confirms SRV Open by

- Steam/Feed Flow indications
- Reduced electrical output

Confirms SRV Closed

- Rx power
- Electrical output
- SF/FF mismatch to normal

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: As I&C start investigating SRV problem. As plant management request that a normal plant shutdown be commenced immediately.

SRO

Direct N2-SOP-34 actions.

- Determines inoperable ADS Valve and RHR Loop places plant in Tech. Specs. 3.0.3.
- Goes to OPS Manual 3.8.6.
- Enters Tech Spec 4-6.4.b.1 for DW vacuum breaker surveillance requirements.
- Notifies plant management.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

Plant Shutdown commenced in accordance with N2-OP-101D, Rate determined by G.1.9, Note 10% to 15% per hour max.

OPERATOR ACTIONS

SRO

Conducts SRO Reactivity Brief using GAP-OPS-05, REACTIVITY MANAGEMENT, Attachment 2, Reactivity Brief Checklist

- Purpose of the evolution, method of performance
- Impact on Core Power, Rodline and thermal limits
- Potential problems and contingencies
- Definition of mispositioned rod
- Industry experience/lessons learned
- Need to believe instrument indications
- Need to monitor redundant indications
- Ramp rate limitations
- Use of Self Checking and 3 way communication
- Roles and Responsibilities

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

RO

Lowers power with recirculation flow in accordance with GAP-OPS-05 and N2-OP-101D

- Verbalize actions and receive confirmation.
- Monitor nuclear instrumentation and recirc flow instrumentation.
- Periodically monitor rodline using OD-3.

BOP

Monitor FWLC malfunction.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

After the reactivity manipulation is underway
and/or when directed enter Malfunction:

**FW14, MASTER FEEDWATER
CONTROLLER FAILURE – LOW**

F5

Feedwater Flow lowers and RPV level lowers.

RO

Recognize FWLC system not responding properly.

- Enters N2-SOP-06, Feedwater Failures.
- Stop power reduction.
- Notify SRO.
- Place Feedwater controller in Manual
 - Manually position LCVs to maintain reactor water level 178.3" to 187.3"
- Exits N2-SOP-6, when level is under control.

SRO

Stop power reduction pending investigation of Feedwater failure.

- Notify I&C.
- Notify plant management.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When directed insert:

EHC leak

F3

Expected Annunciators:

851138, TUR GEN HYDR FLUID SYS TROUBLE

851128, TUR GEN HYDR FL PMP 1A/BAUTO
START

Turbine fails to trip on low EHC pressure

BOP

Respond to FWLC failure as directed.

BOP

Respond using N2-ARP-01

- Verify EHC System pressure 1300-1600
 - Verify Stby pump starts at 1300 psig
 - Dispatch an AO to check the EHC sys
 - Verify low press. Alarm – 1300 psig
- Enter N2-OP-23, Sect. H.4.0, EHC Sys Fluid Loss.
- Notify SRO.
 - Begin Rapid Power reduction per N2-SOP-101D.
 - Recognize Turbine failure to trip at EHC system pressure = 1100 psig.
 - Enters N2-SOP-21, TURBINE TRIP
 - Manually trip turbine

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

RO

Begin Rapid Power reduction per
N2-SOP-101D

When total loss of EHC fluid is imminent,
places Reactor Mode Switch to
SHUTDOWN and enters
N2-SOP-101C, REACTOR SCRAM.

SRO

- Request Assistance from I&C and Mechanical Maintenance.
- Notify RE.
- Direct Rapid Power reduction per N2-SOP-101D.
- When total loss of EHC fluid is imminent, directs Reactor Mode Switch to SHUTDOWN and entry into N2-SOP-101C, REACTOR SCRAM.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

Reactor scrams but Rods fail to fully insert.
Reactor Press rises as EHC pressure lowers.

OPERATOR ACTIONS

RO

- Performs actions of N2-SOP-101C
 - Mode switch to "shutdown"
 - Ensure scram by verifying rod position
- Reports failure to scram.
- Reports Reactor power not downscale.
- Reports RPV level and pressure.
- Controls Level with feedwater level control in MANUAL to prevent feed pump trip.
- If feedpumps trip at 202", restart feedpump by placing LV10 in manual and closed, then restarts feedpump.

SRO

- Enters RPV Control.
- Exits RPV Control and enters C-5.
 - Directs ADS logic inhibit switches to "on".
 - Directs HPCS control SW placed in Pull to Lock.
 - Directs action per C-5, LEVEL LEG, to stabilize level, 50" - 80" with power >4%.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Suppression Pool Temp rises above 90EF

- Directs actions of C5, PRESSURE LEG, and that pressure be maintained below 1052 psig (800-1000 psig band preferred) using SRVs.
- Directs actions of C5, POWER LEG
 - Manually initiate RRCS
 - Reduce Recirc to minimum
 - Trip the Recirc Pumps
 - Insert control rods per EOP-6 Attachment 14 after level and pressure are stabilized.
 - Verify SLS injection/ manually initiate SLS.
- Enter PC Control when Suppression Pool temp exceeds 90EF, execute DWT, SPL, PCP, PCH and SPT legs concurrently.
 - Directs Suppression Pool cooling initiated
- **Directs SLS initiated prior to exceeding 110EF in the Suppression Pool, such that HCTL is not exceeded.**

CT-3.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

If requested, place SWP radiation monitors 23A and/or 23B in service, by activating Remote RM,
Page 4

RM44, SWP23A1 Final Value = 1E-9

RM45, SWP23B1 Final Value = 1E-9

BOP

- Monitors power, level and pressure in RPV.
- Reports SRVs are cycling
- Recognizes and reports failure of RRCS to initiate SLS and attempts to manually initiate when directed by SRO.
- Reports bypass valves are not open.
- Trips Recirc Pump when directed
- Places ADS logic inhibit switches to "ON" when directed by SRO.
- Stabilizes RPV pressure within ordered band using SRVs.
- Initiates Suppression Pool cooling using both loops.
- **Manually initiates SLC.**
- Verifies WCS isolation, throttles WCS-MOV110.
- Stabilizes RPV water level using manual control, maintains level band ordered.
- Places HPCS in PTL when directed by SRO.

CT-3.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Suppression Pool temp exceeds 110°F

Crew

- Recognizes and reports suppression pool temperature greater than 110°F.

SRO

- **Directs injection into the RPV be terminated and prevented with the exception of CRD and Boron.**

CT-2.0

Sat/Unsat/NA

RPV water level drops

Reactor power lowers

BOP

- **Terminates and prevents injection at Panel 603 by shutting all LV-10s.**
- Terminates and prevents injection at Panel 601.
 - MANUAL initiate ECCS Systems
 - Override inj valves on all
 - P-T-L CSL, RHR C
- Monitors reactor power and water level.
- Reports when RPV water level reaches TAF (-18"). [Must use C5, Figure Z, Fuel Zone Correction Curve].

CT-2.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

RPV water level at TAF

SRO

- Directs injection into the vessel restored using feedwater/RCIC and level to be maintained between TAF (-18") and MSCWL (-42") inches. [must use C5, Figure Z, Fuel Zone Correction Curve].
- Directs using N2-EOP-6, Attachment 14, Alternate Control Rod Insertions be implemented.
- Uses Attachment 14.4 to determine alternate control rod method.
 - Manually initiate additional scrams
 - Drive control rods

NOTE: When installing jumpers, the operator shall wear eye protection. When pulling fuses <300 volts, eye protection is required, gloves are not required.

When requested to defeat ARI **activate** the following malfunction:

RP14A, RRCS ARI Failure (Div 1) = TRUE

RP14 B RRCS ARI Failure (Div 2) = TRUE

ARI function defeated

BOP

- Restores injection into the vessel and controls RPV level between TAF and MSCWL inches using Feedwater.
- Defeats ARI by pulling fuses.
- Defeats RPS interlocks by installing jumper in P609 and P611.
- Resets RPS.
- Verifies SDV unisolated

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When requested to defeat RPS **activate** the following malfunction:

RP02 "RPS Failure to Scram" = TRUE

When RPS is reset AND annunciator 603306 is off, clear malfunction:

2,RD17Z

RPS auto trips defeated

When requested to defeat RSCS **activate** the following malfunction:

RW02 "RSCS failure" = TRUE

Individual rods are inserted into the core

Termination Cue:

RPV water level and pressure are under control.
Suppression Pool temperature is stable or lowering.
Actions have been taken or directed to insert rods in accordance with N2-EOP-6, Attachment 14.

RO

- Commences individual rod insertion using CRD IAW EOP-6 Attachment 14.
- Verifies both CRD pumps running
- Places CRD flow control in manual and fully opens 2RDS-FV6A (B)
- Maximize drive water pressure by closing 2RDS-PV101.
- Bypasses the RWM
- Defeats RSCS by installing jumpers
- Commences rod insertion using "Continuous Insert" and Attachment 14.1 and 14.2 as a guide.

SRO

- Activates the Emergency Plan IAW EPIP-EPP-18.
- Classifies the event as a Site Area Emergency per EPIP-EPP-02 (Attachment 1, Section 2.2.2)

NIAGARA MOHAWK POWER CORPORATION
OPERATOR JOB PERFORMANCE MEASURE

Title: Emergency Classification for Scenario 2 (SRO ONLY)

Revision: 0

Task Number: 344-019-03-03

Approvals:

Steve Rayburn 10/21/99
General Supervisor Date
Operations Training (Designee)

Michael J. Watteel 10-21-99
General Supervisor Date
Operations (Designee)

NA Exam Security
Configuration Control Date

Performer: _____ (RO/SRO/AO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform ☐ Simulate

Evaluation Location: ☐ Plant ☒ Simulator

Expected Completion Time: 10 min Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Plant Control Room (Simulator)

Simulator Set-up:

Per Scenario 2, Conditions are:

- A loss of EHC caused a turbine trip or required a Manual Scram.
- The Control Rods do NOT insert during the scram.

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SSS / CSO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SSS / CSO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SSS, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. EPIP-EPP-02, Rev. 08, Classification of Emergency Conditions at Unit 2
2. EPMP-EPP-0102, Rev. 03, Unit 2 Emergency Classification Technical Basis
3. EPIP-EPP-18, Rev. 06, Activation and Direction of the Emergency Plans
4. NUREG 1123, 2.4.29 (2.6/4.0), 2.4.40 (2.3/4.0), 2.4.41 (2.3/4.1)

Tools and Equipment:

1. None

Task Standard:

Scenario properly diagnosed and Categorized as a Site Area Emergency

Initial Conditions:

1. A loss of EHC caused a turbine trip or required a Manual Scram.
2. The Control Rods do NOT insert during the scram.

Initiating cue:

“(Operator’s name), assume the role of the Site Emergency Director and determine the emergency classification of this event.”

Performance Steps	Standard	Grade	Comments
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper repeat back (GAP-OPS-O1)	Sat/Unsat	
RECORD START TIME _____			
2. Obtain a copy of EPIP-EPP-02	EPIP-EPP-02, obtained.	Sat/Unsat	
3. Declares a Site Area Emergency based on exceeding RPS setpoint and failure to scram and power above 4% (2.2.2)	Site Area Emergency declared based on exceeding RPS setpoint and failure to scram and power above 4% (2.2.2)	Pass/Fail	

End of JPM

TERMINATING CUE: Determination of a Site Area Emergency classification.

RECORD STOP TIME _____

Scenario Outline

Nine Mile Point 2	Scenario No. 3	Operating Test No. 1	
Examiners:		Candidates:	
<p>Objectives: Evaluate candidates ability to raise and lower reactor power; respond to power monitoring instrument failures, generator failures, recirculation system problems, and electrical plant failures; maintain core coverage with a LOCA; control containment parameters, execute normal, abnormal and emergency procedures; ensure compliance with Technical Specifications.</p> <p>This scenario will be classified as an Alert (3.1.1)</p>			
<p>Initial Conditions: 85% Power (IC-20), Holding power for Reactor Engineering during a startup from a maintenance outage for unplanned main generator work, RCIC Tagged Out for coupling alignment.</p>			
<p>Turnover: Transfer station NPS-SWG001 from Reserve Station Transformer to Normal Station Transformer, Technical Specification LCO in effect, 3.7.4, RCIC inoperable, 4 hours into 14 day LCO</p>			
Event No.	Malf. No.	Type	Event Description
1		N	(BOP) Transfer station NPS-SWG001 from Reserve Station Transformer to Normal Station Transformer
2	NM11	I	(RO) APRM Failure Upscale, Consult T.S., Bypass APRM
3	RR32	C	(RO) HPU A Oil Temp High, causing A FCV Lockup, restore and reset, check T.S. (3.4.1.3) <i>DER 2-99-3370</i>
4	EG04	C	(BOP) Main Generator Overheating, enter N2-OP-68, Sect. H, Off-Normal Operation. <i>PRA, (IPE: Turbine Trip)</i>
5		R	(RO) Lower power with recirc flow

Scenario Outline

6	ED02A DG02A	C	Loss of Line 5, EDG 1 fails to start, resulting in a loss of power to bus 101, enter N2-SOP-3 and N2-SOP-11, requires a manual scram <i>PRA, (IPE: Divisional AC Failure) (IPE: Partial loss of Off-Site Power) (IPE: Operation of Service Water)</i> <i>LER-99-010</i>
7	RR20	M	"A" FCV ruptures, HPCS is available to restore level, only 1 RHR pump is available for Suppression Pool cooling and Drywell Sprays.

NMPC NMP SIMULATOR SCENARIO

SCENARIO # 3

REV. 0

No. of Pages: 21

LOCA WITH LOSS OF HIGH PRESSURE INJECTION AND LINE 5

PREPARER	<u>Edwin W. Bowles</u>	DATE <u>10/21/99</u>
VALIDATED	<u>G. Bolin with crew</u>	DATE <u>10/21/99</u>
CONFIGURATION CONTROL	<u>NA EXAM SECURITY</u>	DATE <u>NA</u>
GEN SUPERVISOR OPS TRAINING	<u>Steve Kemp</u>	DATE <u>10/21/99</u>
OPERATIONS MANAGER UNIT 2	<u>W. H. J. Willett</u>	DATE <u>10-21-99</u>

SCENARIO SUMMARY

Length: 60 minutes

SUMMARY

The scenario begins with the plant at 85% power and continuing a power ascension following a forced outage to repair main generator seals. The crew will transfer station switchgear NPS-SWG001 from Reserve Station Transformer to Normal Station Transformer for a transformer outage. Crew will begin power rise and #2 APRM will fail upscale. After completing the diagnosis and taking the appropriate actions the oil cooler on the A Recirc HPU fails, the backup also fails causing a recirc FCV Lockup.

After taking action for the FCV lockup, the Main Generator will begin overheating requiring a power reduction. As power is reduced Line 5 will be lost and EDG 1 will fail to start. This will require a manual scram. The Recirc FCV will rupture at this time (on a slow ramp) and Condensate Pump B will trip. All feedwater will be lost. HPCS will initiate and restore RPV level. RHR B must be used for Containment Spray.

EOPs Exercised: RPV, PCC

Emergency Classification: Alert 3.1.1

Termination Criteria: RPV level restored, Primary Containment parameters under control

I. SIMULATOR SET UP

A. IC Number: IC 20, Reduce power to 85% with Recirc. Flow

B. Transfer switchgear NPS-SWG001 from the Normal Station Transformer to the Reserve Transformer.

C. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|--|---------------|
| a. RC01, RCIC Auto Start Fail | Queued |
| b. NM11B, APRM Failure Upscale | F3 |
| c. RR32, HPU A Oil Temp High | F5 |
| d. EG04 Main Generator Overheating (at 50%) | F6 |
| e. EG04 Main Generator Overheating (at 30%) | F10 |
| f. ED02A, Loss of Line 5 | F7 |
| g. DG02A, EDG 1 trip | F7 |
| h. RR20 @ 15% over 5 min ramp, DBA LOCA, Triggered when
Mode Switch is placed in SHUTDOWN | Queued |
| i. FW01B, Condensate Pump B trip, triggered when
Mode Switch is placed in SHUTDOWN | Queued |

2. Remotes:

None

3. Overrides:

- a. P601, Lamp, ICS*MOV122 Green = OFF
- b. P601, Lamp, ICS*MOV120 Green = OFF
- c. P601, Lamp, ICS*MOV126 Green = OFF
- d. P601, Lamp, ICS*MOV129 Green = OFF
- e. P601, Lamp, ICS*MOV136 Green = OFF
- f. P601, Lamp, ICS*MOV129 INOP Amber = ON
- g. P601, Lamp, ICS*MOV126 INOP Amber = ON
- h. P601, Lamp, ICS*MOV136 INOP Amber = ON
- i. P601, Lamp, ICS*MOV120 INOP Amber = ON
- j. P601, Lamp, ICS*MOV122 Full Closed Amber = ON
- k. P601, Lamp, ICS*P2 Green = OFF

4. Annunciators:

- a. AN601305, RCIC INOP = ON
- b. AN601319, RCIC MOV Overload = ON

C. Equipment Out of Service

1. RCIC

- a. Close ICS*MOV122, Turb Exh to Supp Pool and hang RMU
- b. Close ICS*MOV129, Suct from CST and hang RMU
- c. Hang RMU on ICS*MOV120
- d. Hang RMU on ICS*MOV126
- e. Hang RMU on ICS*MOV136
- f. Stop ICS*P2, WTR LEG PUMP and hang RMU
- g. Depress both Div 1 and Div 2 RCIC Manually Out of Service pushbuttons

D. Support Documentation

None

E. Miscellaneous

None

II. TURNOVER

SHIFT TURNOVER INFORMATION

REACTOR POWER	85%
CORE LIFE	MOL
ROD LINE	>100%
SEQUENCE	A2UP
RWM STEP	29
SHIFT	DAYS/NIGHTS

A. Technical Specification LCOs in effect:

1. 3.7.4, RCIC inoperable, 4 hours into 14 day LCO

B. Significant Problems/Abnormalities/Equipment Out of Service:

1. RCIC is marked up for coupling alignment.
2. NPS-SWG001 is being powered from Reserve Transformer A. Normal Station Transformer breaker has been returned to service.

C. Evolutions/Maintenance Scheduled for this Shift:

1. Remain at 85% power for Reactor Engineering
2. Support maintenance on RCIC System and return the Station to 100% power when directed.
3. Transfer NPS-SWG001 from Reserve Station Transformer to Normal Station Transformer using normal operating procedures following breaker repair for the normal supply breaker.

SHIFT COMPLEMENT

SRO	
RO	
BOP	

III. PERFORMANCE OBJECTIVES

A. Critical Tasks:

CT-1.0 Given the plant with an over-heating main generator, the crew will lower reactor power as necessary to prevent a turbine and reactor trip.

Tasks:

3419140103 Direct reactor power changes (>10%) using recirc flow or control rods.

2020020101 Adjust the recirc flow using loop manual control

2459260101 Perform the actions required for a generator core monitor alarm.

CT-2.0 Given the plant shutdown with a LOCA in the Primary Containment, the crew will initiate Suppression Chambers and Drywell sprays in accordance with N2-EOP-PC to prevent exceeding pressure suppression pressure and/or RPV saturation temperature.

3449420603 Direct actions required per EOP-PC, Section DWT

3449430603 Direct actions required per EOP-PC, Section PCP

3449510603 Direct actions required per EOP-RPV, Level Control

3449900403 Direct the Operator actions for an increasing drywell pressure

2000070501 Perform actions for a high drywell pressure

2000210501 Perform the actions required for high drywell temperature

2050150101 Operate the Containment Spray System

2050050101 Operate the RHR Heat Exchanger

2059170101 Operate RHR in Supp. Pool Cooling mode

2060020101 Monitor the automatic initiation of the HPCS System during a LOCA with normal power available and/or not available

2239240401 Monitor the containment atmosphere following a LOCA

B. Performance Objectives:

PO-1.0 Given the plant in any operating mode, the crew shall demonstrate effective communications in accordance with GAP-OPS-01 on verbal communication.

PO-2.0 Given plant conditions requiring use of the Emergency Plan, the crew shall demonstrate the roles and responsibilities of the SSS, ASSS, STA, and CSO and RO in accordance with the Site Emergency Plan Procedures and GAP-OPS-01. (NMP2 Requal Action Plan, Rev 02, 5.B.1, 6.B.6)

Tasks:

- 3440190303 Classify emergency events requiring Emergency Plan implementation.
- 3440230303 Direct emergency response as Site Emergency Director.
- 3440340303 Evaluate plant personnel safety hazards associated with the emergency event.
- 3440390303 Ensure required notifications of onsite and offsite personnel during off normal events are performed.
- 3449370503 Complete an SSS/SED checklist for emergency classification.
- 3449360503 Prepare and approve a notification fact sheet for an emergency classification.
- 3440050405 Ensure required notifications of onsite and offsite personnel during off normal events.
- 3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.

PO-3.0 Given the plant in an emergency condition, SROs shall demonstrate an understanding of Command and Control, EOP placekeeping techniques and effective use of control room operators (NMP2 Requal Action Plan, Rev 02, 6.B.6).

PO-4.0 Given the plant in any operating condition, the crew shall demonstrate "Self-Checking" work practice techniques for all control action in accordance with Operations Department instructions. (LER 50-410/88-50, NRC IR 50-410/88-01).

PO-5.0 Given the plant in any operating condition, members of the Control Room Team shall notify Radiation Protection Personnel when dispatching personnel into areas of radiological concern or when required by procedure.

- PO-6.0 Given the plant during any operating condition, SROs shall direct appropriate conservative action stabilizing the plant within acceptable limits, including scramming the reactor or tripping the turbine manually when necessary.
- PO-7.0 Given the plant after any transient or event, SROs shall establish and modify control bands for key plant parameters, to direct actions maintaining parameters within prescribed limits.
- PO-8.0 Given the plant in any operating condition, the SRO shall conduct crew updates to inform crew members of plant status, on-going or planned mitigation activities, and to solicit feedback from the team.
- PO-9.0 Given the plant in any operating condition, SROs shall prioritize crew actions to address plant conditions using a systematic process.
- PO-10.0 Given the plant in any operating condition, the crew shall monitor and communicate values and trends for key plant parameters and equipment status.
- PO-11.0 Given the plant in any operating condition, the crew shall focus personnel resources to maintain effective control board attention.
- PO-12.0 Given the plant in any operating condition, the crew shall remove plant equipment from service when approaching or exceeding the equipment's operating limits.
- PO-13.0 Given the plant during high reactor pressure conditions, the crew shall control RPV pressure manually to stop and prevent SRV cycling.
- PO-14.0 Given the plant following a reactor scram, the crew shall control RPV temperature to prevent exceeding Technical Specification allowed cool down rate, or avoid unnecessary safeguards actuation.
- PO-15.0 Given the plant in a condition requiring a rapid decrease in reactor power, the crew shall perform an emergency power reduction using recirculation and or manual rod insertion (if necessary) in accordance with approved procedures.
- PO-16.0 Given the plant following an inadvertent safety initiation, SROs shall provide direction to maintain system parameters within normal operating limits.

PO-17.0 Given the plant in a condition requiring emergency classifications, the crew shall classify the events properly and discuss the bases for the classification in accordance with the emergency plan procedure.

Tasks:

3440190303 Classify emergency events requiring emergency plan implementation.

3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.

PO-18.0 Given the plant at power, the crew will transfer NPS-SWG001 from Reserve Station Transformer to Normal Station Transformer in accordance with N2-OP-71A.

Tasks:

3410460303 Authorize and direct energizing/deenergizing of

2629020101 Transfer Station Service from Reserve to Normal and back to Reserve.

PO-19.0 Given the plant at power, the crew will respond to a failure of APRM#2 in accordance with N2-OP-92.

Tasks:

2009040501 Perform the actions required for an APRM/LPRM failure.

3449860403 Respond to an inoperable APRM channel.

PO-20.0 Given the plant at power, the crew will respond to an A Recirc HPU high oil temperature, using N2-ARP-01.

Task:

2029340101 Respond to a failure of a Flow Control Valve Hydraulic Power Unit.

PO-21.0 Given the plant at power, the crew will respond to and reset a Recirc FCV motion inhibit, in accordance with N2-OP-29.

Task:

2029340101 Respond to a failure of a Flow Control Valve Hydraulic Power Unit.

PO-22.0 Given the plant at power, the crew will respond to main generator overheating in accordance with N2-ARP-01 and N2-OP-68.

Tasks:

2009170501 Perform the actions required for a Normal Electrical System Failure.

3419140103 Direct Reactor Power changes (>10%) using Recirc Flow or Control Rods.

2450040101 Operate the voltage regulator.

2459160101 Perform the actions required for a Gen. Core Monitor alarm.

PO-23.0 During a plant power reduction, the crew will respond to a loss of 345KV line 5 in accordance with N2-SOP-03.

Tasks:

2000350501 Perform the actions required for a Loss of Off-site power (PRA)

2769110401 Operate the Service Water System with a loss of one division of off-site power (PRA).

PO-24.0 Given a loss of power to 2ENS*SWG101, the crew will scram the reactor and perform the actions dictated in N2-SOP-101C.

Task:

2010130101 Scram the Reactor manually and take immediate actions.

PO-25.0 Given a loss of power to 2ENS*SWG101, the crew will respond to a loss of Service Water in accordance with N2-SOP-11.

Task:

2769110401 Operate the Service Water System with a loss of one division of offsite power (PRA).

PO-26.0 Given indications of an RCS leak into the Drywell, the crew will perform the actions of N2-EOP-RPV and N2-EOP-PC.

Tasks:

3449900403 Direct the operator actions for an increasing drywell pressure.

3449510603 Direct actions required per EOP RPV Control.

3449430603 Direct actions required per EOP-PC, Section PCP.

3449400603 Direct actions required per EOP-RPV, Section RL.

2000310501 Perform the actions required for a Reactor Water Level
Low.

2009250501 Perform the actions required for a Loss of Coolant
Accident.

IV. SCENARIO CONTENT

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Special instructions:

Allow no more than 5 minutes for crew to walkdown panels.

Begin Scenario

OPERATOR ACTIONS

- Complete panel walkdown.
- SRO briefs crew.
- Crew assumes the shift and commences power ascension.

SRO

- Directs NPS-SWG001 transferred from Reserve to Normal Station Transformers.
- Conducts pre-evolution brief.

Crew

- Obtains N2-OP-71A, 13.8 KV AC Power Distribution, Section F.2.0.

BOP

- Review N2-OP-71A, Section F.2.0.
- Dispatches AO to Relay Room to check lockout relays.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: As Operator dispatched to Relay Room, report lockouts on PNL812, 813, 864 865, 866, and 867 are reset and all relay flags are reset.

Role Play: As AO sent to Bkr. 1-1, report positive interlock switch is made up.

When directed insert Malfunction

NM-11; APRM, Failure Upscale

F3

Expected Annunciators:

603202, MAIN TRIP SYSTEM UPSCALE/INOP

603208, APRM TRIP SYSTEM UPSCALE

- Transfers NPS-SWG001 to Normal Transformer A.
 - Places 1-3 sync switch ON.
 - Verify voltage and frequency are matched.
 - Adjusts transformer voltage if needed.
 - Closes breaker 1-3 and observe amps rise on Normal Station Service prime current meters.
 - Places 1-3 sync switch OFF.
 - Open breaker 1-1.
 - Directs AO to verify positive interlock for Bkr. 1-1 is made up.

RO

- Reports and responds to alarm.
 - determine APRM #2 has alarmed
 - Check other APRM channels to verify NO SCRAM should have occurred.
- Checks back panel for additional indication/information.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

- Enter N2-OP-92, Neutron monitoring, Bypass the APRM using Sect. H.2.0
 - Verify NO other APRM in bypass.
 - Place APRM Bypass joystick to APRM #2.
 - Verify APRM #2 Bypass light on P603 is lit.
 - Verify BYP is displayed in inverse video on APRM #2 Chassis (P608).
 - Verify blue BYPASSED LED on 2/4 Module is lit (P608).
- Reset the 2/4 Mod per OP-92, Sect. F.8.0.
 - Depress TRIP MEMORY RESET pushbutton (P608).
 - Verify all red and yellow LEDs are extinguished.

SRO

- Acknowledge report of alarm.
- Directs I&C be contacted to troubleshoot APRM #2.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When conditions are stable and directed, activate
Malfunction:

RR32, HPU A Oil Temp High F5

Expected Annunciators:

602103, RECIRC FCV A HYDR INOPERABLE

*602101, RECIRC FCV A BACKUP HYDRAULICS
INOPERABLE*

602105, RECIRC FCV A MOTION INHIBIT

Role Play: As AO state that plastic sheeting that
had been placed to catch drips from painting had
fallen over the HPU radiators. The sheeting has
been removed and the temperatures are starting to
lower.

Clear Malfunction RR32, HPU A Oil Temp High

- Checks Tech Specs to determine minimum required channels.

3.3.1 Table 3.3.1-1, No action required at this time.

RO

- Respond using N2-ARP-01.
- Monitor FCV positions, Loop flows.
- Dispatch AO to check the "A" HPU.

BOP

- Determine cause of alarms and conditions to be OIL HOT by checking indications on P634.
- When OIL HOT and OIL WARM conditions have cleared, restore HPU to service and reset the motion inhibit using N2-OP-29, Section E.1.0.
 - Verify open 2RCS-V2011A AND V2011C, Return Filter Isolation.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: As AO dispatched to RCS hydraulic power unit report RCS-V2011A and V2011C are open.

- Momentarily depress BOTH READY pushbuttons.
 - Verify READY light lit.
 - Verify MAINTENANCE light out.
 - Verify 602103, RECIRC FCV a BACKUP HYDR INOPERABLE clears.
- Reduce % SERVO error to zero (0) using 2RCS-HC1603A, RECIRC LOOP A FLOW CONTROL
- Start Subloop
 - Depress pump/fan motor run
 - ◆ Verify pump/fan motor stop light out
 - ◆ Verify pump/fan motor run light lit.
 - ◆ Verify selected loop LEAD light lit.
 - ◆ Verify pressurized light on
 - ◆ Verify 602/01, RECIRC FCV a HYDRAULICS INOPERABLE, clear
- At P602, verify 602105 RECIRC FCVA MOTION INHIBIT, in alarm.
- At P602, depress FCV MOTION INHIBIT RESET
 - Verify LEAD Subloop OPERATIONAL light lit.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

After condition is diagnosed and conditions are stable activate malfunction:

EG04 Main Generator Overheating (50%) F6

Expected Annunciators:

851112, GENERATOR AUXILIARIES TROUBLE

851156, MAIN GENERATOR TEMPERATURE
TROUBLE

NOTE: After annunciators are energized reduce EG04 Main Generator Overheating to 30% to prevent a Generator Trip by depressing **F10** key.

Role Play: As AO sent to Monitor Temps that:
Stator Cooling Outlet Temp. is 65°F and rising
Generator Gas Temp. is 70°C

- At P602, verify 602105, RECIRC FCV A MOTION INHIBIT, clears.

BOP

- Respond using N2-ARP-01 and N2-OP-68 Sect. H.2.0 to check Core Monitor
- Direct an AO to check local indications
- Notify Power control and reduce/maintain Main Generator reactive load approximately 0 MVAR.

SRO

- **Direct a power/load reduction to clear high temperature conditions.**

CT-1.0

Sat/Unsat/NA

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

While procedure is being reviewed or after 10 min.
or when directed activate malfunction:

ED02, Loss of Line 5

F7

DG02A, EDG 1 trip

F7

Response:

Bus 101 trips,

SW Hdr. A is lost

Div I RHR Valves and LPCS are lost

RO

- **Lower power/load as directed using recirculation flow and monitoring for entry into restricted area.**
- Monitor Main Generator Core Monitor
 - Depress and hold FILTER pushbutton (1 minute or until recorder returns to normal
 - Interpret core Monitor as “actual overheating is occurring.”

CT-1.0

Sat/Unsat/NA

BOP

- Determine that 2ENS*SWG101 has lost power and the EDG has NOT closed in to supply power.
- Dispatch an AO to the Div I EDG.
- Take appropriate actions to establish SW flows
 - Verifies SWP Division II non essentials are isolating (*MOV19B, 93B and 3B).

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: Act as various plant operators and Electrical Maintenance personnel as necessary. Report directed actions completed after appropriate time periods.

- Establish service water flow to RHR HX B by opening SWP*MOV90B and SWP*MOV33B to >2000 gpm.
- Dispatches operators to monitor D/Gs.

SRO

- Enters N2-SOP-03, LOSS OF AC POWER, Sect. D.1.7 and directs a Manual Scram
- Reviews and executes subsequent actions per N2-SOP-3 as time permits.
- Enters N2-SOP-11, LOSS OF SW
 - Directs trip recirc pumps.
 - Directs trip WCS pumps.
 - Directs trip turbine.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

RR20, a 15% LOCA and FW01B, Condensate Pump B trip, are triggered when the mode switch is placed in SHUTDOWN after an 5 minute delay.

Drywell pressure begins to rise.

RO

- Manually scram the reactor by placing the mode switch in SHUTDOWN
 - Trip turbine
 - Trip Recirc pumps
 - Trip WCS pumps

RO

- Enters N2-SOP-101C, Reactor Scram, Verifies automatic responses per immediate actions

SRO

- Enters N2-SOP-101C, Reactor Scram, determines scram automatic actions are complete.
- Enters RPV Control and Primary Containment Control on RPV level (<159") and Containment pressure (>1.68 psig).

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Drywell pressure exceeds 1.68 psig.

- Directs
 - Suppression Pool Sprays
 - Trip Drywell Cooling
 - Initiate Drywell sprays above 10 psig Drywell pressure
- Directs outboard MSIVs closed if cooldown rate will be exceeded prior to RPV pressure <410 psig.

RO

- Reports loss of feedwater, starts a second CRD pump
- Monitors Reactor power, level and pressure and takes actions as directed.
- Monitors reactor pressure to ensure pressure remains above 410 psig
 - If directed, closes outboard MSIVs to prevent exceeding cooldown rate

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

BOP

- Reports rising containment temperature and pressure
- Verifies HPCS injection
- Verifies RCS Pumps tripped
- Verifies Unit Coolers tripped
- Lines up SW to RHR H/X
- Initiates Supp Chamber and DW spray
- Verifies restoration of RPV level and inhibits injection as necessary to control RPV level

SSS

- Classifies event as an "Alert" 3.1.1.
- Completes Notification Fact Sheet.

Termination Cue:

- RPV level restored and controlled
- Containment parameters under control

NIAGARA MOHAWK POWER CORPORATION
OPERATOR JOB PERFORMANCE MEASURE

Title: Emergency Classification for Scenario 3 (SRO ONLY)

Revision: 0

Task Number: 344-019-03-03

Approvals:

Steve Rumpf 10/21/99
General Supervisor
Operations Training (Designee) Date

Matthew J. Waldeck 10-21-99
General Supervisor
Operations (Designee) Date

NA Exam Security
Configuration Control Date

Performer: _____ (RO/SRO/AO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform ☐ Simulate

Evaluation Location: ☐ Plant ☒ Simulator

Expected Completion Time: 10 min Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Plant Control Room (Simulator)

Simulator Set-up:

Per Scenario 3, Conditions are:

A loss of line 5 with a failure of it's associated EDG to start required a manual scram. A line break in the drywell has required HPCS injection and raised drywell temperature and pressure requiring containment sprays.

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SSS / CSO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SSS / CSO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SSS, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

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2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. EPIP-EPP-02, Rev. 08, Classification of Emergency Conditions at Unit 2
2. EPMP-EPP-0102, Rev. 03, Unit 2 Emergency Classification Technical Basis
3. EPIP-EPP-18, Rev. 06, Activation and Direction of the Emergency Plans
4. NUREG 1123, 2.4.29 (2.6/4.0), 2.4.40 (2.3/4.0), 2.4.41 (2.3/4.1)

Tools and Equipment:

1. None

Task Standard:

Scenario properly diagnosed and categorized as an Alert

Initial Conditions:

A loss of line 5 with a failure of it's associated EDG to start required a manual scram. A line break in the drywell has required HPCS injection and raised drywell temperature and pressure requiring containment sprays.

Initiating cue:

“(Operator’s name), assume the role of the Site Emergency Director and determine the emergency classification of this event.”

Performance Steps	Standard	Grade	Comments
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper repeat back (GAP-OPS-01)	Sat/Unsat	
RECORD START TIME _____			
2. Obtain a copy of EPIP-EPP-02	EPIP-EPP-02, obtained.	Sat/Unsat	
3. Declares an Alert based on exceeding 1.68 psig in the containment (3.1.1).	Alert declared based on exceeding 1.68 psig in the primary containment.	Pass/Fail	

End of JPM

TERMINATING CUE: Determination of an Alert Emergency Classification.

RECORD STOP TIME _____

Scenario Outline

Nine Mile Point 2	Scenario No. Alternate	Operating Test No. 1
Examiners:		Candidates:
<p>Objectives: Evaluate candidates ability to lower reactor power. Respond to a trip of a CRD Pump and failure of the on-line CRD flow controller. A Closed Cooling Water leak in the drywell. An un-isolatable steam line break in the drywell. The RHR Pump Suction Filters clog preventing the use of Drywell Sprays (unless SW is used). This may cause the containment to exceed PSP, prior to exceeding PSP the crew may elect to Alternate Depressurize. If PSP is exceeded it will require RPV Blowdown. Provides the ability evaluate normal, abnormal and emergency.</p> <p>This scenario will be classified as an Alert (3.1.1)</p>		
<p>Initial Conditions: 100% Power (IC-20), normal power operations, RHR Injection Valve under markup</p>		
<p>Turnover: ,Normal operations. Assist maintenance as necessary with RHS*MOV24A</p>		
Event No.	Malf. No.	Event Description
1	TC03A	(BOP) EHC Pressure Regulator Oscillation.
2		(RO) Power reduction to 90%
3		(BOP) Shift operating pressure regulators
4		(RO) Low suction trip of the operating CRD Pump.
5	RD14 A or B	(RO) Failure of the CRD flow controller. Valve fails closed.
6	CW06	(BOP) Closed cooling water (CCP) leak in the drywell, requires shutting down drywell coolers, entering N2-SOP-60
7	MS04	Steam line break in drywell, causing rising primary containment pressures and temperatures.

Scenario Outline

8	RH18 A/B/C	C	RHR Pump Suction Filters Clog. If operators continue to operate the pumps they will trip. This is a total loss of RHR and may cause the containment to exceed PSP, requiring Alternate Depressurization or RPV Blowdown unless SW is cross-connected to the RHR system and the drywell sprayed in a timely manner.
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NMPC NMP SIMULATOR SCENARIO

Alternate Scenario

REV. 0

No. of Pages: 21

STEAM LINE BREAK IN THE PRIMARY CONTAINMENT
WITH FAILURE OF DRYWELL SPRAY

PREPARER	<u>Edwin W. Baul</u>	DATE	<u>10/21/99</u>
VALIDATED	<u>G. Bobba with crew</u>	DATE	<u>10/21/99</u>
CONFIGURATION CONTROL	<u>NA Exam Security</u>	DATE	<u>NA</u>
GEN SUPERVISOR OPS TRAINING	<u>Steve Dumph</u>	DATE	<u>10/24/99</u>
OPERATIONS MANAGER UNIT 2	<u>Walt J. Waldeck</u>	DATE	<u>10-21-99</u>

SCENARIO SUMMARY

Length: 60 minutes

SUMMARY

The scenario begins with the plant at 100%. The "A" EHC Pressure Regulator will start oscillating. This will require a power reduction to 90% power. Reactor pressure control must be transferred to the "B" EHC Regulator. After the transfer the operating CRD Pump will fail on low suction pressure caused by a clogged suction filter, this will require shifting suction filters to restart the system. After placing the CRD system back in service the on-line flow controller will fail requiring operation of CRD flow control in manual.

A CCP break occurs in the Drywell, requiring shutting down the Drywell Coolers. After taking action for the CCP break a Steam Break occurs in the Drywell, raising Drywell pressure and temperature. The RHR pumps will not be available for containment control, this causes the containment to exceed PSP requiring RPV Blowdown. Primary Containment parameters will be brought under control by cross-connecting SW and RHR and spraying the containment with SW.

EOPs Exercised: RPV, PCC, RPV FLOODING

Emergency Classification: Alert 3.1.1

Termination Criteria: RPV depressurized, water level restored, Primary Containment under control by spraying the containment with SW.

I. SIMULATOR SET UP

A. IC Number: IC 20

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|---|-----------|
| a. TC02A, EHC System Pressure Transmitter A Failure – Low | F7 |
| b. TC03A, EHC System Pressure Regulator Failure – Oscillation | F3 |
| c. RD18, On Line Suction filter Clogged | F4 |
| d. CW06, CCP Break in the Drywell | F5 |
| e. MS04, Steam Line Break 25% over 10 min. | F6 |
| f. RH18, RHR Pump A Suction Strainer clogged | F6 |
| g. RH18, RHR Pump B Suction Strainer clogged | F6 |
| h. RH18, RHR Pump C Suction Strainer clogged | F6 |
| i. RD14B, CRD Flow Controller B Failure, Closed | F8 |

2. Remotes:

- | | |
|-------------------------|---------------|
| a. RH22 RHS&MOV24A Open | Queued |
|-------------------------|---------------|

3. Overrides:

None

4. Annunciators:

- a. AN601305, RHS INOP = ON

C. Equipment Out of Service

1. RHS

D. Support Documentation

None

E. Miscellaneous

None

II. TURNOVER

SHIFT TURNOVER INFORMATION

REACTOR POWER	<u>100% RATED</u>
CORE LIFE	<u>MOL</u>
ROD LINE	<u>>100%</u>
SEQUENCE	<u>A2UP</u>
RWM STEP	<u>1</u>
SHIFT	<u>DAYS/NIGHTS</u>

A. Technical Specification LCOs in effect:

1. 3.5.1, RHS (LPCI) inoperable, One day left of a 7 day LCO

B. Significant Problems/Abnormalities/Equipment Out of Service:

1. RHS*MOV24A, Injection Valve is marked up for limitorque valve actuator motor replacement.

C. Evolutions/Maintenance Scheduled for this Shift:

1. Support maintenance on RHS.

SHIFT COMPLEMENT

SRO	
RO	
BOP	

III. PERFORMANCE OBJECTIVES

A. Critical Tasks:

CT-1.0 Given a reactor coolant leak in the drywell and suppression chamber the crew will line up RHR for containment sprays and recognize RHR pump cavitation, secure the RHR pumps and initiate crosstie with the service water system.

3449430603 Direct the actions required per EOP-PC, Primary Containment Pressure.

3449900403 Direct the actions for increasing drywell pressure

3520020505 Identify EOP entry conditions, monitor EOP implementation and assist in prioritizing EOP actions.

3449510603 Direct actions required per EOP-RPV, Level Control

3449900403 Direct the Operator actions for an increasing drywell pressure

2000070501 Perform actions for a high drywell pressure

2000210501 Perform the actions required for high drywell temperature

2059010501 Respond to a loss of the RHR system.

CT-2.0 Given a reactor coolant leak in the drywell, and suppression chamber pressure exceeds 10 psig, the crew will initiate drywell sprays using service water to lower and control containment pressures and prevent exceeding Pressure Suppression Pressure.

3449430603 Direct the actions required per EOP-PC, Primary Containment Pressure.

3449900403 Direct the actions for increasing drywell pressure

3520020505 Identify EOP entry conditions, monitor EOP implementation and assist in prioritizing EOP actions.

3449510603 Direct actions required per EOP-RPV, Level Control

3449900403 Direct the Operator actions for an increasing drywell pressure

2000070501 Perform actions for a high drywell pressure

2000210501 Perform the actions required for high drywell temperature

2050150101 Operate the Containment Spray System

2050050101 Operate the RHR Heat Exchanger

2060020101 Monitor the automatic initiation of the HPCS System during a LOCA with normal power available and/or not available

2239240401 Monitor the containment atmosphere following a LOCA

B. Performance Objectives:

PO-1.0 Given the plant in any operating mode, the crew shall demonstrate effective communications in accordance with GAP-OPS-01 on verbal communication.

PO-2.0 Given plant conditions requiring use of the Emergency Plan, the crew shall demonstrate the roles and responsibilities of the SSS, ASSS, STA, and CSO and RO in accordance with the Site Emergency Plan Procedures and GAP-OPS-01. (NMP2 Requal Action Plan, Rev 02, 5.B.1, 6.B.6)

Tasks:

3440190303 Classify emergency events requiring Emergency Plan implementation.

3440230303 Direct emergency response as Site Emergency Director.

3440340303 Evaluate plant personnel safety hazards associated with the emergency event.

3440390303 Ensure required notifications of onsite and offsite personnel during off normal events are performed.

3449370503 Complete an SSS/SED checklist for emergency classification.

3449360503 Prepare and approve a notification fact sheet for an emergency classification.

3440050405 Ensure required notifications of onsite and offsite personnel during off normal events.

3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.

PO-3.0 Given the plant in an emergency condition, SROs shall demonstrate an understanding of Command and Control, EOP placekeeping techniques and effective use of control room operators (NMP2 Requal Action Plan, Rev 02, 6.B.6).

- PO-4.0 Given the plant in any operating condition, the crew shall demonstrate "Self-Checking" work practice techniques for all control action in accordance with Operations Department instructions. (LER 50-410/88-50, NRC IR 50-410/88-01).
- PO-5.0 Given the plant in any operating condition, members of the Control Room Team shall notify Radiation Protection Personnel when dispatching personnel into areas of radiological concern or when required by procedure.
- PO-6.0 Given the plant during any operating condition, SROs shall direct appropriate conservative action stabilizing the plant within acceptable limits, including scramming the reactor or tripping the turbine manually when necessary.
- PO-7.0 Given the plant after any transient or event, SROs shall establish and modify control bands for key plant parameters, to direct actions maintaining parameters within prescribed limits.
- PO-8.0 Given the plant in any operating condition, the SRO shall conduct crew updates to inform crew members of plant status, on-going or planned mitigation activities, and to solicit feedback from the team.
- PO-9.0 Given the plant in any operating condition, SROs shall prioritize crew actions to address plant conditions using a systematic process.
- PO-10.0 Given the plant in any operating condition, the crew shall monitor and communicate values and trends for key plant parameters and equipment status.
- PO-11.0 Given the plant in any operating condition, the crew shall focus personnel resources to maintain effective control board attention.
- PO-12.0 Given the plant in any operating condition, the crew shall remove plant equipment from service when approaching or exceeding the equipment's operating limits.
- PO-13.0 Given the plant during high reactor pressure conditions, the crew shall control RPV pressure manually to stop and prevent SRV cycling.
- PO-14.0 Given the plant following a reactor scram, the crew shall control RPV temperature to prevent exceeding Technical Specification allowed cool down rate, or avoid unnecessary safeguards actuation.

PO-15.0 Given the plant in a condition requiring a rapid decrease in reactor power, the crew shall perform an emergency power reduction using recirculation and or manual rod insertion (if necessary) in accordance with approved procedures.

PO-16.0 Given the plant following an inadvertent safety initiation, SROs shall provide direction to maintain system parameters within normal operating limits.

PO-17.0 Given the plant in a condition requiring emergency classifications, the crew shall classify the events properly and discuss the bases for the classification in accordance with the emergency plan procedure.

Tasks:

3440190303 Classify emergency events requiring emergency plan implementation.

3520260505 Perform an independent assessment of Emergency Plan classifications during accident conditions.

PO-18.0 Given a situation warranting Technical Specification investigation and application, the ASSS and/or STA shall perform an independent review of Technical Specifications and compare/verify applicable specifications and appropriate LCO actions with those chosen by the SSS.

Tasks:

3410180303 Apply Tech. Spec. directions for Safety Limits, LCOs, and Limiting Safety System Settings.

3410320303 Evaluate Plant System's performance and coordinate appropriate actions per Tech. Specs., if LCO entered.

PO-19.0 Given an oscillating EHC pressure regulator the crew will lower power and take action in accordance with N2-SOP-23.

Task:

3449290503 Direct actions required for a malfunction in the reactor pressure control system (EHC).

3459070103 Direct adjustment of the EHC pressure regulating system.

2009050501 Perform the required actions for an EHC failure.

PO-20.0 Given a loss of CRD pump suction the crew will restore CRD pump suction, restart a CRD pump and restore the CRD system to operation in accordance with N2-SOP-30.

Tasks:

3449730403 Respond to a loss of CRD pumps during plant operations.

2019310101 Respond to a CRD high temperature

PO-21.0 Given a failure of the CRD flow controller the crew will recognize the failure and operate the CRD system in manual.

PO-22.0 Given a failure of CCP piping in the drywell the crew will recognize the failure and taken accordance with N2-SOP-60

Tasks:

2220020101 Secure the drywell cooling system.

2229040301 Operate the drywell cooling system with a loss of cooling water.

IV. SCENARIO CONTENT

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Special instructions:

Allow no more than 5 minutes for crew to walkdown panels.

Crew lowers power.

When directed activate malfunction:

TC03A, EHC Press Reg Oscillations F3

Reactor pressure begins to oscillate.

Reactor power oscillates with pressure.

Expected Annunciators:

*851148, B PRESS REGULATOR IN CONTROL
intermittently alarms as B REG attempts to take
control.*

Role Play: Respond as directed.

- Complete panel walkdown.
- ASSS briefs crew.
- Crew assumes the shift and continues with normal plant operation.

Crew

- Identify power and pressure oscillations.
- Determine oscillations being caused by EHC regulator oscillations.
- Report oscillations to SRO.

SRO

- Direct entry into N2-SOP-23.
- Direct power reduced to 90%.
- Direct a licensed operator to Relay Room to EHC panel (2CEC-PNL843) (Key 16).
 - Attempt to stabilize pressure
 - Shift to the "B" Press. Reg.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Plant Shutdown commenced in accordance with N2-OP-101D, Rate determined by G.1.9, (10% to 15% per hour max).

Power is lowered to 90%

Role Play: Call the Control Room as operator sent to relay room report that you are ready to shift from "A" Pressure Regulator to "B" Pressure Regulator.

Cue: "B Regulator set at 6.57"

When directed by Control Room clear malfunction TC03A and activate malfunction:

TC02A, EHC Reg A Fails downscale F7

Expected Annunciator:

*851148 B PRESS REGULATOR IN CONTROL
alarms*

Reactor pressure rises by 5 to 10 psig.

RO

- When directed, lowers power to 90% (or value directed by SRO).
- Lowers power with recirculation flow in accordance with GAP-OPS-05 and N2-OP-101D
 - Verbalize actions and receive confirmation.
 - Monitors Nuclear Instruments as power is reduced.

SRO

- Direct operator in the relay room to shift from "A" Pressure Regulator to "B" Pressure Regulator.

BOP

- Report B regulator is in control by observing annunciator 851148 and B REG in control. Red light on P851 EHC section.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Crew should continue to lower power to $\leq 90\%$.

After regulators are transferred and notifications
have been made activate Malfunction:

RD18, Online CRD Suction Filter Clogged

F4

SRO

- Notifies I&C to determine cause.
- Notifies OPS Management.
- Directs BOP operator to lower reactor pressure to ≤ 1020 psig, using the pressure setpoint station on Panel 851.

BOP

If required, lowers reactor pressure to ≤ 1020 psig

- Panel 851
 - Depress lower pushbutton
 - Verifies pressure with RO

RO

- Report alarm
- Dispatch AO to CRD suction filters to report.
- Report RDS-P1A, CRD pump tripped.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

After approx. 30 sec:

Expected Annunciator:

603318, "CRD Pumps Suction Fltr D/P High"
activated.

After approx 2 min:

RDS pump trips on low suction pressure.

Expected Annunciators:

603309, CRD PUMP 1A SUCTION PRESS LOW

603308, CRD PUMP 1A/1B AUTO TRIP

SRO

- Direct entry into N2-SOP-30.
- Determine if any accumulators inop.
- Notify Maintenance and Rad Protection to get suction filter changed.
- Restore CRD Pump when filter is restored.
- Notify Chemistry.
- Notify Ops. Management.

After a few minutes

Expected Annunciators:

602220, RECIRC PUMP 1A/1B MOT TEMP HIGH

603316, CONTROL ROD TEMPERATURE HIGH

RO

Implements SOP-30 actions.

- Determines no accumulators are Inop.
- Determines trip caused by low suction pressure.
- Places CRD Flow Controller to Manual and closes CRD FCV.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Role Play: As operator dispatched wait until the RDS pump has tripped prior to reporting back that D/P indicates zero and no RDS pumps appear to be stopped.

- Throttles closed WCS-MOV200 (at P602) and trips WCS pumps.
- Directs CRD pump suction filters swapped.
- Directs level instrumentation backfill isolated by closing 2RDS-V2058.
- Sends operator to shift seal cooling to CCP.
- Dispatches operator to CRD temperature monitoring panel.

BOP

- Assists RO.
- May throttle closed WCS-MOV200 (at P602) and trip WCS pumps.
- Communicate with AOs.

Role Play: As operator dispatched to CRD Temp. Monitoring Panel, report Rod 18-31 is in alarm and indicating 255°F.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Clear Malfunction **RD18**.

Report: CRD Suction Filters are swapped.

RO

- Acknowledges reports CRDM temp.
- After receiving report of filter swap, restore RDS System as follows:
 - Starts RDS pump.
 - Opens FCV to establish 63 gpm.
 - Adjust controller needle to green band.
 - Shifts controller to auto.
- If directed commence recovery of WCS.

Immediately after CRD Flow Controller is restored enter:

**RD14A, CRD Flow Controller Failure,
Closed**

F8

RO

Determines CRD Flow Controller failed

- Notifies Crew
- Places controller back in Manual and establishes flow
- Directs AO to investigate controller.

Role Play: As operator dispatched to CRD Flow Controller report the valve is closed with no indication why.

- Directs AO to come to the control room for the procedure and brief.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

When directed activate Malfunction:

CW06, CCP Break in the Drywell F5

Expected Annunciator:

601260, DRYWELL UNIT COOLERS LEAKAGE
HIGH.

SRO

- Acknowledges report of controller failure.
- Notify I&C to investigate.
- Directs shifting to alternate Flow Control Valve.

BOP

Respond using ARP.

- Monitor Computer point for indication of leakage.
 - CCP FA04 CCP From Coolers
 - CCP FA05 CCP To Coolers
- Monitor DW FLR drain at P873.
- Report DW FLR DRN TK Level rises.
- DFR-P1A/B start.
- Isolate DW Cooling CCP valves
 - CCP*MOV265
 - CCP*MOV273
 - CCP*MOV122
 - CCP*MOV124
 - Trips DW Unit Coolers
- Monitors DW temp and press.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

SRO

Enter N2-SOP-60

- Monitor Drywell temperature and pressure.
- Determine leakage exists.
- Direct isolation of CCP isolation valves.
- Direct placing keylock LOCA override switches, GR1(2), in the override position and restarting drywell cooling.
- Enter TS 3.4.3.2, Action b.
- Notifies Ops management.
- Directs Shutdown.

RO

Lowers power.

BOP

- Place keylock override switches, GR1(2), in OVERRIDE.
- Start DRS Unit Coolers.
- Monitor Drywell parameters.

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Activate malfunction:

MS04, Steam Line Break in the Drywell
Ramp to 25% over 10 min **F6**

Expected Annunciator:

851254, PROCESS AIRBORNE RADN MON
ACTIVATED

Drywell pressure begins to rise.

Drywell pressure exceeds 1.68 psig.

Crew

Determine Drywell pressure rising.

SRO

- Enters N2-SOP-101C, Reactor Scram, determines scram automatic actions are complete.
- Enters RPV Control and Primary Containment Control on Containment pressure (>1.68 psig).
- Directs
 - Maintain level 159" to 202" with feedwater
 - Maintain pressure with Bypass Valve
 - Suppression Pool Sprays
 - Initiate Drywell sprays above 10 psig Drywell pressure
 - Trip Recirc Pumps
 - Trip Drywell Coolers

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

RO

- Monitors Reactor power, level and pressure and takes actions as directed.
 - Maintain level 159" to 202" with feedwater
 - Maintain pressure with Bypass Valve
- Monitors reactor pressure to ensure pressure remains above 410 psig.

BOP

- Reports rising containment temperature and pressure.
- Verifies restoration of RPV.
- Verifies HPCS initiation, places it in PTL.
- **Lines up and starts containment cooling systems as directed.**
- **Determines RHR pump(s) cavitating and report.**
- **Trip RHR Pump(s).**

RHR Pump amps and flow oscillating

CT-1.0

Sat/Unsat/NA

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

SRO

- **Acknowledges RHR Pump cavitation and directs tripping the pump and starting a different pump if available.**

CT-1.0

Sat/Unsat/NA

- **Monitors Primary Containment**
 - **RPV Saturation**
 - **PSP**
- **Directs the use of external spray sources per N2-EOP-6, Attachment 5 and 6**

CT-2.0

Sat/Unsat/NA

RO

Restores and maintains RPV water level using Feedwater/Condensate.

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

SRO

Directs efforts to establish Drywell

**Sprays with external sources, N2-EOP-
6, Attachments 5 and 6.**

CT-2.0

Sat/Unsat/NA

BOP

Executes N2-EOP-6, Att 5.

- **Obtains tools keys, jumpers**
- **Closes**
 - **RHS*MOV8B, H/X Inlet B/P**
 - **RHS*MOV12B, H/X Outlet**
- **Opens**
 - **RHS*MOV116, SW Inj.**
 - **RHS*MOV115, SW inj.**

Verify SW Press

- **Opens**
 - **RHS*MOV15B, DW Spray**
 - **RHS*MOV25B, DW Spray**

CT-2.0

Sat/Unsat/NA

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Termination Criteria:

RPV depressurized, water level restored, Primary
Containment under control by spraying the Drywell
with SW.

SRO

- Classifies event as an Alert 3.1.1 per
post scenario JPM.

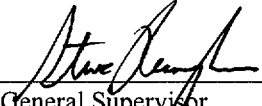
NIAGARA MOHAWK POWER CORPORATION
OPERATOR JOB PERFORMANCE MEASURE

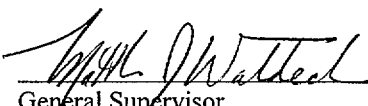
Title: Emergency Classification for Alternate Scenario (SRO ONLY)

Revision: 0

Task Number: 344-019-03-03

Approvals:

 10/21/99
General Supervisor Date
Operations Training (Designee)

 10-21-99
General Supervisor Date
Operations (Designee)

NA Exam Security
Configuration Control Date

Performer: _____ (RO/SRO/AO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform ☐ Simulate

Evaluation Location: ☐ Plant ☒ Simulator

Expected Completion Time: 10 min Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Plant Control Room (Simulator)

Simulator Set-up:

Per Alternate Scenario, Conditions are:

- A steam line break in the drywell has raised drywell pressure and temperature
- RHR is un-available for containment spray
- Containment pressure may require RPV Blowdown.

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SSS / CSO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SSS / CSO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SSS, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. EPIP-EPP-02, Rev. 08, Classification of Emergency Conditions at Unit 2
2. EPMP-EPP-0102, Rev. 03, Unit 2 Emergency Classification Technical Basis
3. EPIP-EPP-18, Rev. 06, Activation and Direction of the Emergency Plans
4. NUREG 1123, 2.4.29 (2.6/4.0), 2.4.40 (2.3/4.0), 2.4.41 (2.3/4.1)

Tools and Equipment:

1. None

Task Standard:

Scenario properly diagnosed and categorized as an Alert

Initial Conditions:

- A steam line break in the drywell has raised drywell pressure and temperature
- RHR is un-available for containment spray
- Containment pressure may require RPV Blowdown.

Initiating cue:

“(Operator’s name), assume the role of the Site Emergency Director and determine the emergency classification of this event.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>	<i>Comments</i>
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper repeat back (GAP-OPS-01)	Sat/Unsat	
RECORD START TIME _____			
2. Obtain a copy of EPIP-EPP-02	EPIP-EPP-02, obtained.	Sat/Unsat	
3. Declares an Alert based on exceeding 1.68 psig in the containment. (3.1.1)	Alert declared based on exceeding 1.68 psig in the containment. (3.1.1)	Pass/Fail	

End of JPM

TERMINATING CUE: Determination of an Alert Emergency Classification.

RECORD STOP TIME _____