



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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FROM CLEVELAND: 479-1260

Serving The Best Location in the Nation  
PERRY NUCLEAR POWER PLANT

January 8, 1993

U.S. Nuclear Regulatory Commission  
Washington, DC.

ATTN: Chief, LDLB

SUBJECT: Proposed Simulator Scenarios for Perry  
Regualification Examination

Dear Sirs:

Please find enclosed 7 dynamic simulator scenarios proposed for the 1993 licensed operator regualification examination. The examination will include 3 crews consisting of 4 operators per crew.

The proposed grouping of the scenarios:

Crew 1	OT-3058-ES-010E
	OT-3058-ES-02E
Crew 2	OT-3058-ES-09E
	OT-3058-ES-08A
Crew 3 *	OT-3058-ES-13E
	OT-3058-ES-09A
	OT-3058-ES-03E

\* Crew includes 3 SRO licensed operators.

If you have any questions, please call me at (216)259-3737, Ext. 5495.

Thank you,

Michael L. Wesley  
Acting Training Manager  
Perry Training Section

MLW:NHJ:mrk

9301120309 930108  
CE ADDGK 05000440

110075

X7 4/13

11003  
EX47.1

UPDATE RECORDOriginal Effective Date 2/10/92Page 1

All changes, additions and deletions to the item identified above must be indicated by the R.I. on this form according to the following categories

- |                          |                       |                                 |
|--------------------------|-----------------------|---------------------------------|
| - PROCEDURE CHANGE       | - DESIGN CHANGE       | - AREA OF WEAKNESS              |
| - PLANT LAYOUT CHANGE    | - EQUIPMENT CHANGE    | - INDUSTRY OPERATING EXPERIENCE |
| - REGULATION CHANGE      | - ORGANIZATION CHANGE | - PLANT OPERATING EXPERIENCE    |
| - INFORMATION CORRECTION | - TRAINEE FEEDBACK    |                                 |

Complete the form as follows:

- |                |  |
|----------------|--|
| SUMMARY -      | Categorize the item being changed and briefly summarize.<br>Number each item sequentially. |
| REFERENCES -   | List corresponding number, rev. level, title and section.                                  |
| APPROVAL -     | Initial by Lead or Unit Supervisor.  |
| DATE ENTERED - | Self explanatory.  |

All items on these sheets that refer to outside agency recommendations or PNPP commitments may not be deleted from the course material without written approval of the Training Unit Supervisor, with notification to the Reliability & Design Assurance Section.

SUMMARY	REFERENCE	APPR.	DATE ENTERED
1. Modify malfunction severity and add other editorial changes. Added tasks.	WIA	MA	5-18-92
2. Correct type, change setup to shorten run time.	NA	MW	11/1/92
3. Corrected task list.	NA	MA	12/2/92



PTS

# SCENARIO GUIDE COVER SHEET

NUMBER OT-3058-ES-010E-00

EFFECTIVE DATE

2/10/92

## SCENARIO GUIDE REFERENCES:

PEI-B13

PEI-T23

PEI-Emergency Depressurization

PEI-Level Power Control

ONI-C71-1

EPI-A1

IOI-3

ONI-J11-1

ONI-J11-3

## ADDITIONAL MATERIALS REQUIRED:

Working Copy of IOI-3

## APPROVAL:

PREPARED BY

*J. D. Pee*

DATE

2/5/92

REVIEWED BY

*M. J. Johnson*

DATE

2/7/92

APPROVED BY

*Michael Wesley*

DATE

2/10/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

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LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-010E-00

	FAILURE/OVERRIDE	STATUS	DESCRIPTION
1.	RD15	ACT	INCOMPLETE SCRAM SET AT 65% SEVERITY
2.	MV04:1C41F0001B	ACT	B SLC SUCTION FAILS TO OPEN
3.	TH15	PENDING E1	GROSS FUEL FAILURE SET AT 80% SEVERITY WITH 7 <sup>th</sup> MIN. RAMP - 1 MIN. DELAY
4.	RD01R 22-31	PENDING E4	CONTROL ROD 22-31 STUCK
5.	RD02R 22-31	PENDING E4	CONTROL ROD 22-31 UNCOUPLED
6.	MS05A	PENDING E6	MSIV F022A FAILS CLOSED
7.	MS05B	PENDING E6	MSIV F022B FAILS CLOSED
8.	MS05C	PENDING E6	MSIV F022C FAILS CLOSED
9.	MS05D	PENDING E6	MSIV F022D FAILS CLOSED
10.	MS05E	PENDING E6	MSIV F028A FAILS CLOSED
11.	MS05F	PENDING E6	MSIV F028B FAILS CLOSED
12.	MS05G	PENDING E6	MSIV F028C FAILS CLOSED
13.	MS05H	PENDING E6	MSIV F028D FAILS CLOSED
14.	BS01:1E31N0685A	PENDING E3	RCIC LP ISOL BS FAIL TO TRIP
15.	BS01:1E31N0685B	PENDING E3	RCIC LP ISOL BS FAIL TO TRIP
16.	AN:1H13P6808A[16]	PENDING E1	LOOSE PARTS ALARMS - OVERRIDE ALARM ON

PTS

## SCENARIO GUIDE OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-010E-00

### A. TERMINAL OBJECTIVE:

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

### B. ENABLING OBJECTIVES:

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evolutions in progress
2. Using plant installed instrumentation, plant instructions and system response, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operatc. actions from memory, in response to the following plant transient.
  - a. Gross Fuel Cladding Failure
  - b. Reactor Scram
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

PTS	OBJECTIVES
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5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - e. Direct plant operators.
  - f. Inform US when actions completed.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's or ONI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.



PTS	OBJECTIVES
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SCENARIO NUMBER: OT-3058-ES-010-00

8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.
9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with TAP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.



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## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-010E-00

### INITIAL CONDITIONS

α  
①

The plant is operating at approx. 85% power (EOL), SLC 'A' is out of commission due to a bent suction valve stem. An increase to 100% planned to occur this shift.

### SEQUENCE OF EVENTS

While at power, a high radiation signal causes a MSIV closure and subsequent reactor scram, however all rods do not insert. As suppression pool temperature increases toward the BIIT, SLC is initiated, but fails to inject. RPV water level is lowered to control power while control rods are manually inserted. Emergency Depressurization may be required if reactor pressure is not maintained below the Heat Capacity Limit. After the reactor is shutdown and efforts are being made to restore the plant, the scenario is terminated.

### FINAL PLANT CONDITIONS

The plant is shutdown by control rod insertion with reactor pressure being controlled by SRV operation. Plant recovery actions are in progress.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP - 7

US - 7

SS - 1

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## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Insert/verify the following remote functions:

RFSL09 OPEN  
RFSL011 OPEN  
(SLC pump A and suction valve A disconnects.)

Assign Triggers:

E6-ZD1C71S1 <sup>NF.O</sup> 0.2  
(modeswitch)

Assign expert command to triggers:

E1-DMF RD01R2231  
(~~must be done after each RESET~~)

Time: 00

## I. Initialize to IC-19.

- A. Insert/verify the failures listed on Page 3 are on the failure summary (Active or Pending).

② | Insert rods backwards in E.O.L. pull sheet to Step 7~~1~~2 (inclusive) lower R.R. flow to <sup>5</sup>75% power.

- B. Place a red switch cap on the SLC Pump 'A' control switch.

- C. Insert rod 22-31 to "16", activate trigger E4, withdrawal mechanism back to "42".

- D. Place simulator in "RUN" and allow plant conditions to stabilize and annunciators to clear/reset. Verify conditions in Step E.

- E. Allow the crew members to enter the room and provide them with the applicable portions of the turnover as listed below and on Page 7.

- SLC Pump 'A' RTO (bend stem on suction valve). Continue startup. Pull to all rods out, maintain power <90% with R/R flow then raise R/R flow to achieve 100% power.

- IOI-3 Step 4.3.27 PTI-B02 Step 71, E.O.L. (case 4) pull sheet.

- F. When the crew members inform you that they are comfortable with plant conditions, proceed with lead in portion of the scenario.

## II. Lead-In Portion

If asked, acting as the Reactor Engineer, inform crew to increase rod line to all rods out, then use the Reactor Recirculation System to obtain full power.

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STUDENT DIRECTION

INSTRUCTOR NOTES

- I. Crew members walkdown the control room panels, become familiar with the plant conditions and assume the shift.

II. Lead-In Portion

- A. Unit Supervisor directs RO to continue power increase.
- B. RO/BOP increases power IAW IOI-3.

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 10

III. Rod Drop/MSL High Radiation

Approx. 1 min after crew recognizes uncoupled rod, set Trigger E1 to True which will delete failure RD01-2231, activate Loose Parts alarm, and activate failure TH15 to severity of 60% over a 7.0 min. ramp (goal is to get to hi rad isolation in approx. 7 minutes after rod drop).

This will cause rod 22-31 to drop, resulting in fuel failure. MSL radiation levels will slowly increase until a MSIV isolation occurs.

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STUDENT DIRECTION

INSTRUCTOR NOTES

III.Rod Drop/MSL High Radiation

- Crew responds to uncoupled control rod.
- US enters ONI-C11-2.

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INSTRUCTOR NOTES

If crew starts to manually scram the plant, event trigger E6 goes true. (Mode switch) This will activate failure MS05A thru MS505H to cause an immediate MSIV Isolation, proceed to Step IV of scenario.

SIMULATOR SCENARIO GUIDANCE

Function as R.E./Chemistry/H.P./others as necessary to support control room actions.



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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## A. RO/BOP Actions

1. Acknowledge annunciators indicating fuel failure, a received and informs US.
2. Suspends all control rod movements in progress upon entry into ONI-J11-1.
3. Takes the appropriate actions outlined in ARI's.
4. Investigates the cause of Power/Radiation level change.
5. Reduces reactor power using R/R flow to lower MSL radiation levels.

Crew may also enter ONI-C11-3 if crew identifies dropped rod.

202002- GEN 15  
3.8/3.9

## B. US Actions

1. Initiates investigations of abnormal annunciators/radiation increase.
2. Directs RO/BOP actions IAW ONI-J11-1 when ONI entry is made.
3. Informs Shift Supervisor of plant status/power reduction.

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

NOTE: Internal Notifications:

- Ops Manager
- Reactor Engineer
- STA

External Notifications:

- SOC
- NRC

Time; 17

IV. MSIV Isolation/Scram

~~Time: 17~~

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## STUDENT PAGE

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## C. SS Actions

1. Ensure proper plant operation.
2. Initiate actions to make internal and external notifications required by OAP-0201, PAP-0606, and PAP-0201.

## D. STA Actions

1. Provide assistance to US/SS (per TAP-0101) to ensure compliance with Tech Specs/comprehensive trouble shooting/proper notifications.

## IV. MSIV Isolation/Scram

## A. Crew Actions

1. RO/BOP informs US of reactor scram and MSIV isolation places mode switch in "shutdown".
2. RO/BOP informs US of failure to scram.
- ① 3. US enters PEI-B13 due to a high reactor pressure or ATWS condition.

295037-GEN 11  
4.4/4.7

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## INSTRUCTOR NOTES

When sent to analyzers as PPO, use Remote function PC28 to acknowledge local alarms.

NOTE: In this scenario, both SLC trains fail. Since there is no Safety Significance to SLC initiation, it is not an ISCT.

## SIMULATOR SCENARIO GUIDANCE

## V. PEI-B13 Actions

## A. Entry Actions

NOTE: Startup of hydrogen analyzers require starting ESW & ECC, and dispatching a PPO to verify local operation.

## B. Power Control Actions

The following 2 ISCT Criteria apply to both the US directing the actions and the RO/BOP performing the actions when directed. (Critical steps for each).

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Prevention of uncontrolled feedrate reactivity addition.

## 2. Cues:

- Procedural

## 3. Measured by:

- Both ADS keylock switches are taken to Inhibit, prior to automatic initiation.

## 4. Feedback:

- RPV level decreasing.
- Level 1 and timer running alarms.

\*\*\*\*\*

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## V. PEI-B13 Actions

## A. Entry Actions

1. RO arms and depresses manual scram pushbuttons and places mode switch in "SHUTDOWN", initiates ARI.
2. BOP places Hydrogen Analyzers in service on Panel P800.
3. US verifies/directs actions and proceeds to power, level, and pressure actions concurrently.

## B. Power Control Actions

1. US verifies ARI initiated.
2. RO verifies B33 pumps tripped, inserts control rods using PEI-SPI Section 1.0.
3. US directs SLC initiation.
4. RO/BOP initiates SLC when directed by US.
- \*5. U.S. directs ADS inhibited.
- \*6. RO/BOP inhibits ADS when directed by US.

295037-GEN 6  
4.2/4.1

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance;

- Recognize a failure of an ESF component.

2. Cues:

- Procedural steps required to be verified.

3. Measured by:

- Announcement
- Taking switch back to "OFF"
- Commence of troubleshooting/investigation.

4. Feedback:

- Lack of running indications.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Control reactivity and take actions to shutdown the reactor.

2. Cues:

- Procedural steps

3. Measured by:

- US directs control rod insertion per SPI sect. 1.0, and RO/BOP aligns systems as necessary and commences rod insertion.

4. Feedback:

- All rods not in following a scram
- Rx at power following a scram

\*\*\*\*\*



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## STUDENT DIRECTION

## INSTRUCTOR NOTES

7. RO shuts down main turbine when less than 90 MW.
8. RO inserts neutron monitors when power is less than 4%.
9. US directs or verifies RO/BOP actions for power control.
- \*10. RO/BOP recognizes SLC pump 'B' failure to start/inject, informs US.
- \*11. US directs control rod insertion per SPI Section 1.0.
- \*12. RO/BOP performs the following:
  - Re-energize stub bus.
  - Re-start CRD.
  - Commences control rod insertion.

295037 - GEN 12  
3.9/4.6

(Only ISCT if SLC  
ordered to be  
started)

295037 - EA1.04  
4.5/4.5

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

C. Pressure Control Actions

NOTE: US may use override step to lower RPV pressure to maintain RPV pressure less than HCL.

D. Level Control Actions

VI. Level/Power Control Actions

If directed, use RF HP09 and RH 25 to defeat the seal in logic for HPCS and RHR 'C' injection valves.

NOTE: Crew's ability to properly terminate and prevent injection is evaluated during Emergency Depressurization steps.

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STUDENT DIRECTION

INSTRUCTOR NOTES

C. Pressure Control Actions

1. RO/BOP stabilizes RPV pressure below 900 psig using SRV's.
2. RO/BOP reduces RPV pressure as directed by US.
3. US directs/verifies pressure control actions.

D. Level Control Actions

1. RO/BOP verifies automatic isolations/initiations.
2. US determines that the reactor is not shut down and proceeds to level/power control flow chart.

VI. Level/Power Control Actions

- A. RO/BOP aligns PEI bypass switches for at least 2 injection systems.
- B. RO/BOP verifies ADS inhibited.
- C. When suppression pool temperature is greater than 110°F, RO/BOP Terminates and prevents injection as directed.

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## INSTRUCTOR NOTES

NOTE: Crew's ability to establish and maintain adequate core cooling, is also evaluated following E.D., per these criteria.

## SIMULATOR SCENARIO GUIDANCE

NOTE: The following criteria apply to both the US directing the action and the RO/BOP performing it when directed. (Critical step for each).

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Maintain adequate core cooling
- Control/reduce reactor power
- Reduce challenge to containment

2. Cues:

- Procedural steps

3. Measured by:

- Observation - RPV level stabilized and under control with:
  - a. Level above -30" by ERIS and
  - b. Reactor power <4% OR reactor level being controlled between '0' and '-30' inches.

4. Feedback:

- Continuing decreasing trend in RPV level.
- Changes in SRV cycling frequency.
- Decreasing trend in reactor power.

\*\*\*\*\*

If RCIC is used to control level, bypass the low pressure isolation (when directed) by activating failures BS01: 1E31N0685A on E3  
1E31N0685B

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INSTRUCTOR NOTES

\*D. US directs level band between -30 inches and the level to which it was lowered to control power, both before and following Emergency Depressurization.

295037 - GEN 6  
4.2/4.1

\*E. RO/BOP uses the following systems, as directed:

- Feedwater/Condensate
- CRD
- RCIC
- or LPCI (per SPI Section 6.1) to control level, as directed by US.

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## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

NOTE: The following criteria apply to both the US directing the action and the RO/BOP performing it when directed. (Critical step for each).

\*\*\*\*\*

\* ISCT C. 1. a

1. Safety Significance

- Prevention of uncontrolled feedrate and reactivity addition.

2. Cues:

- Procedural

3. Measured by:

- All injection into RPV, except from RCIC and CRD is prevented, prior to manual Emergency Depressurization Initiation (8 SRV's opened).

4. Feedback:

- RPV level decreasing
- Suppression Pool temperature increasing.

\*\*\*\*\*

NOTE: Check override lights on ECCS systems and feedwater line-up.



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INSTRUCTOR NOTES

F. If Emergency Depressurization is "Required":

- \*a. US directs RO/BOP to terminate and prevent all injection except for RCIC and CRD.
- \*b. RO/BOP terminates and prevents injection from:
  - Feedwater
  - LPCS
  - RHR A, B, C
  - HPCS

E.D. may be required due to HCL or RPV level cannot be maintained greater than -30 inches.

295037 - GEN 6  
4.2/4.1

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## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

## VII. PEI-T23 Containment Control

## A. Suppression Pool Temperature Control Actions

NOTE: The following criteria apply to both the US directing the action and the RO/BOP performing it when directed. (Critical step for each).

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Reduce challenge to containment.
- Prevent exceeding containment design.

## 2. Cues:

- Procedural steps

## 3. Measured by:

- Observation - Any 8 SRV's opened prior to exceeding HCL.

## 4. Feedback:

- Plant & ERIS indications of pool temperature and RPV pressure.

\*\*\*\*\*

5 min. minimum time  
from ATWS to MCL  
w/o operator  
action.  
Ops Manager concurs  
with this time.

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VII. PEI-T23 - Containment Control

## A. Suppression Pool Temperature Control Actions

1. US enters PEI-T23 when suppression pool temperature is greater than 90°F.
2. RO/BOP places RHR in suppression pool cooling as directed by US.
3. RO/BOP maintains suppression pool temperature/RPV pressure less than the HCL, or performs emergency depressurization if HCL will be exceeded.
  - \*a. US directs 8 SRV's opened prior to exceeding HCL.
  - \*b. RO/BOP opens 8 SRV's when directed.
  - c. After M.A.R.F.P. is reached, US directs RO/BOP to restore and maintain level, -30" to level at which it was lowered.

S.P. cooling not available for 10 minutes after LPCI initiation.

295026 - GEN 11  
4.4/4.6

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

NCC: RF's SW14, 15,  
16

P50; RF's SW092-103  
IA: IA31-34

B. Suppression Pool Level Control Actions

NOTE: Entry into this instruction may be  
subtle due to RPV control priority.

NOTE: The following simulator drawings may be  
used to align for level control  
actions.

SPCU System; SW16

CST System: FW17

RHR 'B' to R.W.: RH2

C. Containment Isolation/System Restoration

Refer to the following simulator drawings to  
perform the requested actions by remote  
function:

Restore NCC: SW2

Restore P50: SW6

Restore P51/56: IA1, IA2

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INSTRUCTOR NOTES

B. Suppression Pool Level Control Actions

1. US enters PEI-T23 when suppression pool level is greater than 18.5'.
2. RO/BOP maintains suppression pool level less than the SRVTPLL, as directed by US.
3. RO/BOP restores suppression pool level to required hand using the designated system(s).

C. Containment Isolation/System Restoration Actions.

1. US directs system restorations and PEI bypass actions as allowed by PEI's.
2. RO/BOP performs restoration and bypass activities as directed by US.

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D. Other Containment Control Actions

VIII. Emergency Plan Actions

Response as SAS/Communicator/Other as required.

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\* ISCT Criteria

1. Safety Significance:

- Emergency Plan Activation

2. Cues:

- Procedural
- Verbal reports

3. Measured by:

- Announcement
- Filling out notification forms
- Stating classification to evaluator in Post Scenario de-briefing.

4. Feedback:

- Regulatory/Administrative.

\*\*\*\*\*

IX. Terminating Cue

When reactor power is less than 4% with manual control rod insertion in progress and Containment/RPV parameters stabilized, place simulator in FREEZE. Conduct post scenario de-briefing.

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## INSTRUCTOR NOTES

## D. Other Containment Control Actions

1. US enters PEI-T23 if drywell temperature exceeds 145°F.
2. US enters PEI-T23 if containment temperature exceeds 90°F.
3. US enters PEI-M51/56 if RPV level is less than 16.5 inches and directs hydrogen igniters to be started.
4. RO/BOP starts hydrogen igniters when directed.

## VIII. Emergency Plan Actions

- \*A. The SS enters EPI-A1 and declares a Site Area Emergency (B.111.1), also if HCL is exceeded, event is upgraded/declared to be a General Emergency. (D.IV.1)
- B. SS notifies crew of event classification.
- C. SS ensures required paperwork and notifications are made.
- D. STA assists SS in EPI implementation.

295037 - GEN 2  
3.2/4.6

## IX. Terminating Cue

- A. Attend Post Scenario de-briefing.



PTS

## REVIEW SECTION

SCENARIO NUMBER: OT-3058-ES-010E-00

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-plan classification, if not performed during the scenario. Do not critique the crew's performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-010E-00

US	SS	RO	STA
201-017-01-02	344-002-04-03	009-502-01-01	351-001-01-05
211-005-01-02	344-003-04-03	032-518-01-01	352-003-01-05
218-002-01-02	344-013-04-03	088-505-04-01	352-004-01-05
341-040-03-02	344-017-05-03	205-518-05-01	352-008-01-05
341-041-03-02	344-018-05-03	205-520-05-01	352-012-01-05
341-042-03-02	344-019-05-03	205-534-01-01	352-017-01-05
341-536-03-02	344-020-05-03	205-539-05-01	352-018-01-05
344-018-03-02	344-023-05-03	205-572-05-01	352-404-04-05
344-021-03-02	344-025-05-03	209-519-05-01	352-508-01-05
344-024-03-02	344-026-05-03	211-509-05-01	351-008-01-05
344-027-03-02	344-038-04-03	212-508-04-01	351-011-01-05
344-037-03-02	344-004-04-03	214-520-04-01	351-016-01-05
344-037-03-02	344-007-04-03	262-524-05-01	352-005-01-05
344-038-03-02	344-022-05-03	278-506-05-01	352-015-01-05
344-042-03-02	344-024-05-03	279-507-04-01	352-020-01-05
344-043-03-02	344-027-05-03	003-514-04-01	352-201-05-05
344-044-03-02	344-034-05-03	004-503-05-01	352-401-04-04
344-056-03-02	344-062-05-03	004-505-01-01	355-514-03-05
341-014-03-02	344-063-04-03	009-519-05-01	356-009-01-05
341-018-03-02	344-502-05-03	009-520-05-01	357-002-01-05
341-037-03-02		026-501-05-01	
341-046-03-02		032-515-04-01	
341-547-03-02		037-534-01-01	
344-003-03-02		202-528-01-01	
344-020-03-02		205-597-05-01	
344-041-03-02		205-601-05-01	
344-047-03-02		206-508-05-01	
344-055-03-02		206-510-05-01	
345-201-01-02		208-508-05-01	
		205-521-01-01	
		209-506-05-01	
		209-527-05-01	
		209-531-05-01	
		211-503-01-01	
		211-507-01-01	
		212-502-01-01	
		212-502-01-01	
		214-510-01-01	
		214-511-01-01	

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-010E-00

SS	US	RO	STA
		214-516-01-01 214-521-04-01 214-546-05-01 218-502-05-01 218-504-01-01 <del>214-507-05-01</del> 229-518-01-01 239-514-01-01 259-522-01-01 278-514-04-01 214-505-05-01	

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**PTS****REVISION HISTORY**

PNPP No. 7173 Rev. 7/91

ITEM NO. OT-3058-ES-09E

TITLE Requal Exam Scenario Guide

REV. 0

DATE TO SSU

5-29-92

(Initials)

TRR

EFF DATE:

1/4/91

REV. # 1

REQUESTED BY

J. D. Pierson

OTU

DATE

5/1/92

Name

Unit

same

PREPARED BY

Name

Unit

DATE

Revised to reflect new Simulator and new PEIs.

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

5/7/92

REV. #

REQUESTED BY

Name

Unit

DATE

PREPARED BY

Name

Unit

DATE

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

REV. #

REQUESTED BY

Name

Unit

DATE

PREPARED BY

Name

Unit

DATE

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

PTS

# SCENARIO GUIDE COVER SHEET

NUMBER

OT-3058-ES-09E-01

EFFECTIVE DATE

5/17/92

## SCENARIO GUIDE REFERENCES:

SOI-P45/49  
ONI-C11-1  
PEI-B13  
PEI-T23  
PAP-1911  
ONI-P54  
ARI-H13-P870-1  
PEI-M51/56  
EPI-A1  
EPI-A2

## ADDITIONAL MATERIALS REQUIRED:

NONE

## APPROVAL:

PREPARED BY

*J. D. Pic*

DATE

5/15/92

REVIEWED BY

*N. L. Johnson*

DATE

5/15/92

APPROVED BY

*N. L. Johnson for me*

DATE

5/15/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

PTS

LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-09E-01

	FAILURE/OVERRIDE	STATUS	DESCRIPTION
1.	RD15	ACT	ATWS-SET AT 30%
2.	RD13A	PENDING E1	CRDH SUCTION FILTER 'A' CLOGS - 100% SEVERITY - 30 SEC. RAMP.
3.	RD05R1027	PENDING E1	ACC. FAULT ON 10-27-3 MIN. DELAY
4.	RD05R3815	PENDING E1	ACC. FAULT ON 38-15--5 MIN. DELAY
5.	CP02:1P45C0001A	PENDING E3	ESW PUMP A SHAFT SEIZES
6.	CP02:1P45C0001B	PENDING E4	ESW PUMP B SHAFT SEIZES
7.	AN:1H13P8701A[34]	PENDING E5	480 VAC BUS GROUND ALARM - OVERRIDE ON
8.	ED16U	PENDING E5	LOSS OF MCC F1B06-5 MIN. DELAY
9.	CP01:1N27C0012	ACT	MFP DC OIL PUMP SHAFT BREAKS
10.	ZD1R22SEH1116	ACT	DIV. 1 STUB BUS BYPASS SWITCH-OVERRIDE NORM
11.	CB01:1N27C0004	PENDING E6	MFP TRIP - 10 SEC DELAY



SCENARIO NUMBER: OT-3058-ES-09E-01

**A. TERMINAL OBJECTIVE:**

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

**B. ENABLING OBJECTIVES:**

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evaluations in progress/planned
2. Using plant installed instrumentation, plant instructions and system responses, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions, from memory, in response to the following plant transients:
  - a. ONI-C71-1
  - b. ONI-C11-1
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

# PTS

# OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-09E-01

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - d. Direct plant operators.
  - f. Inform US when complete.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.
8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.

PTS

## OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-09E-01

9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with ATP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence, and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend actions to mitigate consequences of the event, and assist in completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

PTS

## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-09E-01

### INITIAL CONDITIONS

Plant is operating at about 85% power at EOL, Generator output is ~1100 Mwe due to unavailability of RFPT 'A'. HPCS and CRDH 'B' are out of service for scheduled maintenance.

### SEQUENCE OF EVENTS

Crew takes the shift and continues steady state operations. ESW pump A or B is started to support a discharge. CRD 'A' pump trips due to a clogged suction strainer, and is subsequently restarted. The ESW pump tripping causes entry into Tech. Spec. 3.0.3. Prior to the shutdown commencing, a ground and resulting fire creates a loss of MCC F1B06. All feed pump's trip, but all rods do not fully insert. RCIC cannot maintain level, hence the plant is depressurized and level recovered using low pressure systems. The E-Plan is entered for the ATWS.

### FINAL PLANT CONDITIONS

Reactor power <4%, level stabilized, SLC injecting. The plant is in a Site Area Emergency or higher.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP - five  
US - four  
SS - one

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

## INSTRUCTOR NOTES

Remote functions  
for tagout:

HP08, HP03  
RD18, RD20

## SIMULATOR SCENARIO GUIDANCE

## I. Setup

## A. Initialize to IC-19 and establish the following conditions:

- Set lake to 50°F, ambient air to 60°F.
- Reduce power to 85% with R/R flow.
- Place MFP to master
- Place RFPT 'A' in secured status per SOI-N27, shut suction valve and allow to go on the jack.
- Place HPCS in secured status per SOI-E22 and red tag pump
- Tag CRDH 'B' and aux oil pump 'B'.
- Close MFP casing W/U valves - RF FW72.
- Assign commands to triggers:

E2 - DMF RD05R1027

E2 - DMF RD05R3815

E6 - DOR AN:1H13P8701A[34]

- Assign triggers

E6 - YP:MED16U.GE.0.5 (F1B06 BRKR)

## II. Pre-shift Brief

## A. Conduct pre-shift brief with crew as follows, and as on page 7.

- HPCS OOS for Brkr maintenance 12 days left before S/D required.
- RFPT 'A' secured due to severe steam leak on H.P. stop valve. Leak is stopped with turbine tripped. Waiting on work package.
- CRD 'B' OOS for oil change.
- Crew needs to start either ESW pump to support a discharge.
- Hold Power at 85% per S.O.C. request.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

I. No activities required.

II. Attend pre-shift brief. Walkdown Control room panels and assume the shift.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 00

III. ESW Pump start-up

1. If necessary to remind them, call Control Room as chemistry and request ESW pump A or B started for Radwaste discharge.

After ESW Pump started

Time: 05

IV. Loss of CRD Pump

1. Initiate trigger E1. This clogs the on service CRD suction strainer and trips CRD 'A' pump. Subsequent accumulator alarms are on timers.

2. As PPO, report arrival at CRD pump area. Shift suction strainers when ordered:

Remote Function RD02, screen RD2.

Do not shift suction filters until floor instructor evaluates Tech. Spec./ONI actions.

3. As PPO, report filters are shifted. As soon as pump is started, initiate trigger E2. (This deletes the two accumulator faults)

4. CRD mechanism High Temp. Alarms are acknowledged by Remote Function RD32.



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## III. ESW Pump start-up

1. US directs RO/BOP to start ESW pump.
2. RO/BOP starts ESW pump per SOI-P45/49.

## IV. Loss of CRD Pump

1. RO/BOP responds to annunciators, informs US of pump trip.
2. RO/BOP refers to ARI's. Sends PPO to pump, to shift suction strainers.
3. US enters ONI-C11-1 and directs the following:
  - maintain plant conditions steady as possible.
  - RO/BOP to perform CRD trip recovery following suction strainer shift.
4. RO/BOP recognizes Accumulator Fault on rod 10-27, and informs US
  - US refers to T.S. 3.1.33
5. RO/BOP recognizes second fault on rod 38-15 and informs US.
6. US declares both control rods inoperable and starts 20 min. clock to have Mode switch in shutdown.
7. US directs RO/BOP to restart CRD pump.
  - RO/BOP places FCV in man./min.
  - RO/BOP starts Aux oil pump, then main pump
  - RO/BOP adjusts system flows
  - US declares both control rods operable
8. STA monitors the crew's Tech Spec. interpretation and assists as required.

295022 AA1.01  
3.1/3.2295022 GEN 11  
3.9/4.0201001 A4.01  
3.1/3.1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 20

E3 for Pump 'A'

E4 for Pump 'B'

V. Loss of ESW Pump

1. Initiate trigger E3 or E4.

2. As PPO's, make report concerning pump appearing over-heated and that all 3 phases of O.C. relays have tripped.

If crew orders procedures, respond as Admin. that they will arrive in less than 15 min.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## V. Loss of ESW Pump

1. RO/BOP responds to alarms, informs US of pump trip.
2. US performs the following:
  - Directs PPO be sent to Pump/Brkr.
  - Consults Tech Specs Declares the following Inop.
    - ESW, ECC, LPCI, M25/26, H<sub>2</sub> analyzers, mixing compressor, S.P. cooling, cont. spray.
  - Enters Tech Spec. 3.0.3
  - Directs RO/BOP to make preparations to conduct a plant S/D.
  - Directs Maintenance to commence troubleshooting.
3. SS makes required internal notifications:
  - OPS Manager
  - NRC resident
4. STA monitor crew actions, makes evaluations and recommendations as needed.

294001 A1.03  
4.5/4.3203000 GEN 5  
3.5/4.4

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES	SIMULATOR SCENARIO GUIDANCE
Time: <u>30</u>	VI. Fire in MCC
	1. Initiate trigger E5-480VAC Bus Ground alarm.
	NOTE: Section VI and VII run continuously.
Time: <u>32</u>	2. Report as S.A.S. that there is smoke detector alarms, T.P.C. 647' East. Fire Brigade on Standby, first responder dispatched.
Time: <u>33</u>	3. Report as PPO/first responder, heavy smoke on T.P.C. 647', forced to leave area.
Time: <u>35</u>	Go to Section VII and perform concurrently.
5 min. after Brigade activated	4. Make standard Fire Brigade Leader reports and supply any requested information.
2 min. after previous report	<ul style="list-style-type: none"><li>• Brigade mustered and command post at AX. 620' West (time: ____)</li><li>• Beginning fire fighting using portable CO<sub>2</sub> Hose reels. (time: ____)</li><li>• Fire is out. (time: ____) Fire was in MCC F1B06.</li></ul>
15 min. after previous report	5. Function as S.A.S. for Fire and E-Plan.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

VI. Fire in MCC

1. RO/BOP responds to annunciator, informs US.
2. RO/BOP dispatches PPO to identify the bus with the ground per ARI-P870-1.
3. On report of fire, US/SS activates fire brigade and takes actions per ONI-P54 and PAP-1911, including:
  - Sounding Fire alarm
  - Verify fire pump running
4. SS consults EPI-A1 and enters Unusual Event.
  - fills out forms and makes notifications per EPI-A2.
5. STA assists SS as requested.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 35

VII. Loss of Feed/Incomplete Scram

1. Loss of bus F1B06 will occur 5 min after initiation of E5.

Console operator performs PPO and PEI bypass functions as directed.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- loss of condenser as heat sink
- challenge to containment
- attempt to manually trip RPS

2. Cues:

- procedural
- indications of requirement to scram
- indications of malfunction of RPS

3. Measured by:

- Observation - placing switch in "S/D" prior to MSIV closure on Lo Press

4. Feedback:

- MSIV's close on Lo press - mode switch still in "Run".

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VII. Loss of Feed/Incomplete Scram

1. RO/BOP responds to annunciators and informs US of loss of feed.

- US may direct a manual scram

2. RO recognizes failure of all rods to insert and reports to US.

- Attempts Manual Scram
- \* • Places mode switch to shutdown
- Initiates ARI
- Reports rod motion stopped with rods out
- Reports reactor power

294001 A1.16  
2.9/4.7259001 A3.10  
3.4/3.4L3 scram may  
automatically  
occur.295037 EA2.01  
4.2/4.3ARI may  
automatically  
initiate at L2.



PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

## INSTRUCTOR NOTES

Remote Function  
PC28 for H2  
Analyzers.

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Mitigate ATWS by taking actions to S/D the Reactor.

## 2. Cues:

- Procedural

## 3. Measured by:

- US directs and the RO/BOP places both keylock switches for SLC Pumps A and B to ON prior to Suppression Pool Temperature exceeding 110°F.

## 4. Feedback:

- Plant and ERIS indicators of Suppression Pool Temperature
- Inability to effect a Rx S/D using control rods.

\*\*\*\*\*

NOTE: The crew's actions with respect to the timing of SLC initiation and the use of the Pressure Control step to bypass the L1 MSIV isolation, will determine if the condenser is maintained or restored after RPV level decreases to <L1. H.C.L. may become a factor in the decision to E.D. Evaluate any new ISCT's following scenario termination per ES604 D.2.b.3.

PTS

## STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

3. US enters PEI-B13 and directs actions for power, pressure and level control as follows:

295037 GEN 11  
4.4/4.7

a. Power control - US directs the following:

295037 GEN 12  
3.9/4.6

- RO/BOP attempts Manual Scram and
- Verifies mode switch in Shutdown
- H<sub>2</sub> analyzers started
- RO/BOP checks scram valve status (all open)
- RO/BOP bypasses LPSP
- \* • US orders SLC initiated to commence Reactor Shutdown
- \* • RO/BOP initiates SLC when directed
- RO/BOP attempts to restore a stub bus and restart a CRD pump, when directed
- RO/BOP informs US that stub bus will not energize

295037 EA1.04  
4.5/4.5

b. Pressure Control - US directs the following:

295037 GEN 12  
3.9/4.6

- RO/BOP maintains ordered pressure band with bypass valves/SRV's.
- US directs actions to maintain pressure <H.C.L. as required.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- uncontrolled A.D.S.
- uncontrolled feedrate
- uncontrolled reactivity addition

2. Cues:

- procedural
- verbal direction

3. Measured by:

- Observation - ADS inhibited prior to Automatic initiation

4. Feedback:

- ADS logic automatically initiates, if not performed
- Timer running annunciators if not performed by 16.5".

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

c. Level/Power - US directs the following:

- RO/BOP checks automatic actions at Level 2

RCIC  
Div. 3 D/G  
RWCU Isolation  
BOP Isolation

- RO/BOP aligns ECCS bypass switches
- Attempts to maintain 0" - 215" with

RCIC  
CRD

- Attempts to maintain >-30" with

RCIC  
CRD

- \* • US directs ADS inhibited
- \* • RO/BOP inhibits ADS when directed.

295037 EA2.02  
4.1/4.2

295037 EA1.11  
3.5/3.6

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

## INSTRUCTOR NOTES

Terminate and Prevent is performed in preparations to E.D.

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Uncontrolled injection/reactivity addition.

## 2. Cues:

- Procedural
- Verbal direction

## 3. Measured by:

- Observation - Prior to Emergency Depressurization, the following conditions must exist:

## a. Override lights lit and injection valves closed for:

- LPCS
- LPCI A
- LPCI B
- LPCI C

b. All RFBP's secured or Feedheader block valves (B21-F065A & B) closed.

## 4. Feedback:

- Plant indications of Low Pressure ECCS injection.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

- \* - US directs all injection terminated and prevented.
- \* - RO/BOP performs injection prevention when directed.
  - LPCS
  - LPCI A, B, C
  - Feedwater

295037 GEN 12  
3.9/4.6

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Maintain adequate core cooling

## 2. Cues:

- Procedural
- Verbal direction

## 3. Measured by:

- The US directs Emergency Depressurization and the RO/BOP opens 8 SRV's prior to RPV level decreasing below -40" on ERIS or below -70" on Fuel Zone, OR prior to exceeding H.C.L. whichever occurs first

## 4. Feedback:

- Indication of Suppression Pool temp. increasing
- Indications of RPV level decreasing

\* ISCT Criteria

## 1. Safety Significance:

- Re-establish and maintain adequate core cooling
- Minimize heat energy added to containment

## 2. Cues:

- Procedural
- Verbal direction

## 3. Measured by:

- US directs the RO/BOP to control level in a band between -30" (ERIS) up to 0" or up to a level which maintains power <4%. Lower end of the band must be -30".

## 4. Feedback:

- Indications of RPV level increasing
- Indications of RPV power increasing
- Indications of S. Pool temp. increasing

\*\*\*\*\*

PTS

## STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

- \* - US directs 8 SRV's opened
- \* - RO/BOP opens 8 SRV's for Emergency Depressurization when directed
- \* - US orders level restored to at least  $\geq -30"$  after RPV pressure reaches M.A.R.F.P.
- \* - RO/BOP restores and maintains level  $\geq -30"$  with systems designated by US, after pressure reaches M.A.R.F.P.
- LPCS
- RHR A via F053A
- RHR B via F053B
- RHR C

d. STA evaluates plant conditions and monitors crew activities. Assists/makes recommendations as necessary.

295031 EK 3.01  
3.9/4.2

295037 EA2.02  
4.1/4.2



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

VIII. Suppression Pool High Temperature

1. No console actions required.

IX. Suppression Pool High Level

1. Perform any remote functions required by the crew to lower pool level.

X. Emergency Plan

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Emergency Plan Activation

2. Cues:

- procedural, per EPI-A1
- verbal reports

3. Measured by:

- Announcement
- filling out notification forms
- stating classification to evaluator in Post-scenario debriefing

4. Feedback:

- Regulator/Administrative

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VIII. Suppression Pool High Temperature

1. US enters PEI-T23 when Suppression Pool temperature >90°F, and directs the following:
  - RO/BOP places RHR in Suppression Pool Cooling.

295026 EA1.01  
4.1/4.1

## IX. Suppression Pool High Level

1. US enters PEI-T23 when Suppression Pool level is >18.5" as directed.

295029 EA2.02  
3.9/3.9

## X. Emergency Plan

- \* 1. SS upgrades to an Alert, if SLC not initiated, or Site Area Emergency if SLC is initiated or General Emergency if H.C.L. is exceeded.
  - fills out required notification forms.
- 2. STA provides assistance as required.

294001 A1.16  
2.9/4.7

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-09E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 50

XI. Hydrogen Control

1. No console actions required. Evaluator provide a Hydrogen Analyzer reading 0% H<sub>2</sub> if required.

XII. Terminating Cue

1. When RPV level is stabilized >0" and actions being taken to continue Reactor Shutdown, place the simulator in FREEZE and conduct Post-Scenario De-briefing.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-09E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

XI. Hydrogen Control

1. US enters PEI-M51/56 when RPV level <16.5" and directs the following:

- RO/BOP starts H<sub>2</sub> Igniters.

295031 GEN 12  
3.9/4.5

XII. Terminating Cue

1. Attend Post-Scenario De-briefing.

PTS	REVIEW SECTION
-----	----------------

SCENARIO NUMBER: OT-3058-ES-09E-01

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-Plan classification, if not performed during the scenario. Do not critique the crew's performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-09E-01

STA	US	SS	RO
352-003-01-05	201-017-01-02	344-002-04-03	004-501-04-01
352-004-01-05	211-005-01-02	344-003-04-03	032-518-01-01
352-005-01-05	218-002-01-02	344-017-05-03	201-512-03-01
352-008-01-05	341-041-03-02	344-018-05-03	201-517-04-01
352-015-01-05	341-042-03-02	344-019-05-03	205-518-05-01
352-017-01-05	344-018-03-02	344-025-05-03	205-520-05-01
352-018-01-05	344-021-03-02	344-026-05-03	205-572-05-01
352-020-01-05	344-024-03-02	344-038-04-03	209-519-05-01
352-401-04-05	344-038-03-02		212-508-04-01
352-404-04-05	344-041-03-02		218-507-05-01
352-508-01-05	344-043-03-02		259-533-04-01
	344-044-03-02		205-513-05-01
	344-044-03-02		209-504-05-01
	344-055-03-02		209-531-05-01
	344-056-03-02		062-502-04-01
			201-502-01-01

## UPDATE RECORD

All changes, additions and deletions to the item identified above must be indicated by the R.I. on this form according to the following categories:

- PROCEDURE CHANGE
- DESIGN CHANGE
- AREA OF WEAKNESS
- PLANT LAYOUT CHANGE
- EQUIPMENT CHANGE
- INDUSTRY OPERATING EXPERIENCE
- REGULATION CHANGE
- ORGANIZATION CHANGE
- PLANT OPERATING EXPERIENCE
- INFORMATION CORRECTION
- TRAINEE FEEDBACK

Complete the form as follows:

## SUMMARY

Categorize the item being changed and briefly summarize.  
Number each item sequentially.

#### REFERENCES

List corresponding number, rev. level, title and section.

APPROVAL -

Initial by Lead or Unit Supervisor.

DATE ENTERED -

Self explanatory.

All items on these sheets that refer to outside agency recommendations or Perry commitments may not be deleted from the course material without written approval of the Training Unit Supervisor, with notification to the Performance Engineering Section.

SUMMARY	REFERENCE	APPR.	DATE ENTERED
1. Deleted inappropriate ISCT. Corrected ZPV levels	NA	Cef	11/4/93

PTS

# SCENARIO GUIDE COVER SHEET

NUMBER OT-3058-ES-13E-00

EFFECTIVE DATE

2/12/92

## SCENARIO GUIDE REFERENCES:

ONI-C85-2  
PEI-B13  
SOI-N27  
SOI-C34  
EPI-A1  
SOI-C41  
ONI-E12-1  
ONI-C71-1  
PEI-T23  
PEI-SPI

## ADDITIONAL MATERIALS REQUIRED:

101-3

## APPROVAL:

PREPARED BY

*J. D. Peir*

DATE

2/11/92

REVIEWED BY

*A. Johnson*

DATE

2/11/92

APPROVED BY

*Michael Wesley*

DATE

2/12/92



## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

PTS

LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-013E-00

FAILURE/OVERRIDE	STATUS	DESCRIPTION
1. RD15	ACT	ATWS-SET AT 60% SEVERITY
2. MV04:1C41F0001B	ACT	SLC 'B' SUCTION VALVE FAILS TO OPEN
3. TC04B	ACT	BYPASS VALVE #2 FAILURE-SET AT 0%
4. TC04D	ACT	BYPASS VALVE #4 FAILURE-SET AT 0%
5. TC04E	ACT	BYPASS VALVE #5 FAILURE-SET AT 0%
6. TC04F	ACT	BYPASS VALVE #6 FAILURE-SET AT 0%
7. PT01:1B21N0067C	PENDING E1	D/W PRESS TRANSMITTER FAILURE-SET AT 100%
8. PT01:1B21N0067G	PENDING E1	D/W PRESS TRANSMITTER FAILURE-SET AT 100%
9. TU03	PENDING E2	MT LUBE OIL RUPTURE-10 MINUTE RAMP-5%-100% SEVERITY
10.RD24	PENDING E3	LOSS OF FULL CORE DISPLAY
11.MV01:1N27F0050C	ACT	RFPB 'C' DISCH. VLV CONTROL POWER FAILURE
12.BS01:1E31N0685A	PENDING E7	RCIC LO PRESS. B/S FAIL TO TRIP
13.BS01:1E31N0685B	PENDING E7	RCIC LO PRESS B/S FAIL TO TRIP

PTS

## SCENARIO GUIDE OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-13E-00

### A. TERMINAL OBJECTIVE:

The operator, acting as a member of the shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

### B. ENABLING OBJECTIVES:

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evolutions in progress
2. Using plant installed instrumentation, plant instructions and system response, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions from memory, in response to the following plant transient.
  - a. ONI-C85-2
  - b. ONI-E12-1
  - c. ONI-C71-1
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

## PTS

## OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-13E-00

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - e. Direct plant operators.
  - f. Inform US when actions completed.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.

PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-13E-00

8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.
9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with TAP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

PTS

## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-13E-00

### INITIAL CONDITIONS

The plant is operating at ~90%, plant startup in progress. The following equipment is out-of-commission: CRDH 'B' for repetitive tasks, NCC 'A' for bearing replacement, RFBP 'C' due to leaking suction valve.

### SEQUENCE OF EVENTS

The crew continues the startup. RFBP 'A' trips due to its suction valve partially closing. Power is reduced to the capacity of two RFBP's. An inadvertent HCPS initiation occurs due to a radio transmission. HCPS is secured and returned to Standby Readiness. A Turbine Trip causes a High Pressure condition with an incomplete scram. PEI actions are taken to initiate SLC, insert control rods, and lower RPV level and both SLC pumps will fail, and the E-plan is entered.

### FINAL PLANT CONDITIONS

Power level < 4%, water level stabilized, SLC injecting, control rods inserting.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP-9

US - 76

SS - 21

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

Remote Functions  
for Tags, etc:

FW17, FW24  
RD18, RD20  
SW011, SW014

Shift to NCC B&C,  
and start RFBP 'D'  
first.

File names in  
parenthesis

## SIMULATOR SCENARIO GUIDANCE

## I. Setup

A. Initialize to IC-23 and establish the  
following condition:

1. Reduce R/R flow until Rx power is 90%.

2. Place red tags on:

- RFBP 'C' and its discharge valve and  
close RFBP 'C' suction valve

- CRDH 'B'

- NCC 'A'

- CRDH Aux. oil pump 'B'

3. Insert Failures/Overrides on Page 3

4. Place NCC B & C in operation

5. Adjust AGAF's if required.

6. Assign Triggers:

E3-ZD1C71S1 >0.2 (modeswitch)

E5-SL:1C41C0001A >0.5 (SLCPUMPA)

E6-HPVP1E22F0004.GE.0.1 (HPCSINJVLV)

7. Assign commands to triggers:

E5-MRF SL11 OPEN

E6-DMF PT01:1B21N0067C

E6-DMF PT01:1B21N0067G

B. Verify normal equipment lineup for this  
plant condition, update status board and  
ensure a supply of forms, SVI's and clean  
flowcharts.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

I. No activities required.



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

II. Pre-shift Brief

A. Conduct pre-shift brief and assign positions. Plant conditions are as indicated above.

1. Inform crew to continue power ascension to 100% with Reactor Recirculation flow as soon as they have taken the shift.
2. Allow crew members to walkdown panels and take the shift. Begin scenario when informed by SS that they have assumed the shift.
3. Rods at step 64 (M.O.L.)

PTS

STUDENT PAGE

NUMBER: OT-3058-ES13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

II. Attend pre-shift brief. Walkdown panels and assume the shift.

A. Commence power increase.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

Time: 05

No flags on H1106.  
Suction valve  
indicates NOT full  
open, when checked  
at control panel in  
Heater Bay (Both  
lights on)

May also report a  
maintenance crew in  
vicinity of RFBP  
'C'.

## SIMULATOR SCENARIO GUIDANCE

## III. Trip of RFBP 'A'

1. Toggle Remote Function FW15 to close.  
Respond as PPO/I&C/Maintenance as required.

2. No actions required.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Prevent power oscillation which could  
exceed MCPR limits without causing a  
reactor scram.

2. Cues:

- Procedural cautions

3. Measured by:

- Observation - If a power reduction is  
ordered, the RO/BOP does not reduce core  
flow to < 48% Mlbm/hr.

4. Feedback:

- Indications of core flow, power level,  
FCV position.

- ERIS P/F map.

\*\*\*\*\*

4. Toggle FW15 to open. Report suction valve  
opened normally with control switch.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## III. Trip of RFBP 'A'

1. RO/BOP responds to alarms, identifies RFBP 'A' as tripped and informs U.S.
2. RO/BOP maintains RPV Level 192"-200".
3. U.S. orders power reduction to 60-70% with R/R flow and informs S.O.C.
- \*4. RO/BOP reduces R/R flow until power level reaches 65-70%.
5. U.S. orders suction valve fully opened and pump restarted.
6. Crew coordinates with Rx Eng. and increases power back to 90%.

259001-A2.01  
3.7/3.7259-001 - A2.03  
3.6/3.6202002 - A4.04  
3.8/3.8

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

Time: 15Time: 16

No trip units are tripped on backpanels. (Trips LED's don't seal in.) No gross failures, either.

## SIMULATOR SCENARIO GUIDANCE

## IV. Inadvertent HPCS Initiation

1. Initiate trigger E1

2,3. Call Control Room as PPO and report that you accidentally keyed a radio, in Containment in a no radio area and heard something static. If asked for location, report on the 620' level, near the C11 FCV skid, by an instrument rack with MPL's. B21-N067 C and G.

NOTE: Failures automatically delete when Injection valve starts to stroke open. (Trigger E6)

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## IV. Inadvertent HPCS Initiation

1. RO/BOP responds to alarms and informs U.S. of HPCS Initiation.
2. U.S. enters ONI-E12-1, confirms inadvertent initiation and orders HPCS pump stopped.
3. U.S. directs investigation as inadvertent initiation.
  - Orders HPCS returned to Stby Readiness.
  - Orders Div 3 D/G loaded or secured depending on how long it has ran.

209002 - A1.01  
3.6/3.7209002 - A2.01  
3.8/3.8

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

4. Function as R.E./chemistry as required.

\*\*\*\*\*

5. \*ISCT Criteria

1. Safety Significance:

- Emergency Plan Activation

2. Cues:

- Procedural

3. Measured by:

- Announcement

- Filling out forms

- Stating classifications to evaluator  
at post-scenario de-briefing.

4. Feedback:

- Regulatory/Administrative

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

4. If injection has occurred:

- RO/BOP notifies reactor engineer and chemistry.

209002 - A3.04  
3.7/3.7

5. SS consults EPI-A1.

- ① | \* - Declares Unusual Event if injection has occurred, per A.I.1.

294001 - a1.16  
2.9/4.7

- Fills out forms and makes required notifications.

6. STA makes recommendations/provides assistance, as required. Aids in determination of restoration of system.



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Time: 25

V. Turbine Trip

1. Initiate Trigger E2

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Mitigation of ATWS event.

2. Cues:

- Procedural - satisfied entry conditions.

3. Measured by:

- Announcement
- Taking PEI actions
- Picking up/referring to flowcharts

4. Feedback:

- Ability to mitigate event based on symptoms.

\*\*\*\*\*

NOTE: This oil break is inside the pipe within a pipe. No oil is leaking from system.

PTS

## STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION	INSTRUCTOR NOTES
<p>V. Turbine Trip</p> <ol style="list-style-type: none"><li>1. RO/BOP responds to alarms, identifies low lube oil pressure and informs U.S.</li><li>2. Crew may attempt turbine unload per IOI-14.</li><li>3. RO/BOP recognizes main Turbine Trip with an incomplete scram and informs U.S.</li><li>4. U.S. enters PEI-B13.</li></ol>	<p>241000 - A3.10 3.3/3.3</p> <p>241000 - A4.06 3.9/3.9</p> <p>241000 - K1.02 3.9/4.1</p> <p><del>241000 - K3.02</del> <del>4.2/4.3</del></p>

PTS	INSTRUCTOR PAGE	NUMBER: OT-3058-ES-13E-00
-----	-----------------	---------------------------

INSTRUCTOR NOTES	SIMULATOR SCENARIO GUIDANCE
	<p>VI. Incomplete Scram</p> <p>*****</p> <p>* <u>ISCT Criteria</u></p> <p>1. Safety Significance</p> <ul style="list-style-type: none"> <li>- Loss of condenser as a heat sink.</li> <li>- Minimize challenge to containment.</li> <li>- Attempt to manually trip RPS.</li> </ul> <p>2. Cues:</p> <ul style="list-style-type: none"> <li>- Procedural</li> <li>- Indications of requirement to initiate scram.</li> </ul> <p>3. Measured by:</p> <ul style="list-style-type: none"> <li>- Observation - RO/BOP places mode switch in shutdown prior to MSIV isolation on Pressure.</li> </ul> <p>4. Feedback:</p> <ul style="list-style-type: none"> <li>- Steam line pressure decreasing.</li> <li>- MSIV closure on Lo pressure.</li> </ul> <p>*****</p> <p>Initiate E7 if asked to bypass RCIC Low Pressure isolation.</p>
	-20-

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VI. Incomplete Scram

## 1. Power control - U.S. directs the following actions:

- RO/BOP initiates a Manual Scram.
- RO/BOP initiates a Manual ARI.
- \*- RO/BOP places mode switch in Shutdown.
- RO/BOP starts H2 Analyzers.
- RO/BOP trips R/R Pumps.
- RO/BOP monitors Suppression Pool Temperature.

295037-GEN 12  
3.9/4.6295037-EA1.02  
4.6/4.6295037 - EA1.02  
3.8/4.0295037 - EK3.06  
3.8/4.1295037 - EK3.01  
4.1/4.2295037 - EA2.04  
4.0/4.1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

The following 2 ISCT criteria apply to both the US directing the actions and the RO/BOP performing the actions when directed. (Critical steps for each).

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Minimize challenge to containment during ATWS.
- Initiation of Rx S/D after failure of ESF Systems.

2. Cues:

- Procedural

3. Measured by:

- Both SLC pump switches are taken to "ON", prior to Suppression Pool temperature reaching B.I.I.T.

4. Feedback:

- Control room panel and ERIS indications of Suppression Pool temperature.

\*\*\*\*\*

Note S Pool temp  
when SLC is  
initiated:  
\_\_\_\_\_

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

\*2. US directs SLC initiated.

\* - RO/BOP initiates SLC when directed.

295037 - EA2.05  
4.0/4.1

295037 - EA1.04  
4.5/4.5

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Prevention of uncontrolled feedrate and reactivity addition.

## 2. Cues:

- Procedural

## 3. Measured by:

- Both ADS keylock switches are taken to Inhibit, prior to an automatic initiation.

## 4. Feedback:

- RPV level decreasing
- Level 1 and timer running alarms.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

\*3. US directs ADS inhibited.

\* - RO/BOP inhibits ADS when directed.

295037 - GEN 12  
3.9/4.6

218000 - A4.04  
4.1/4.1



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Recognize a failure of an ESF component.

2. Cues:

- Procedural steps required to be verified.

3. Measured by:

- Announcement
- Taking switch back to "OFF".
- Commencement of troubleshooting/investigation.

4. Feedback:

- Lack of proper running indications.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

\*4. RO/BOP recognizes SLC Pump 'A' and 'B'  
failure to start, informs US.

211000 - A1.03  
3.6/3.6

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

5. Respond as PPO that there are no indications of a problem at the MCC.
6. Respond as Reactor Engineer if requested.
7. No console actions required.

- During SLC and RCIS troubleshooting function as PPO/I&C/ maint. as necessary. The problem with SLC 'A' is a blown penetration fuse. The problem with RCIS is a loose connector on the 5 VDC power supply in P680. 10 minutes after being sent to troubleshoot, make necessary reports and return equipment to service.

Toggle SL11 to close to return SLC 'A'.

Delete RD24 to restore RCIS.

SLC 'B' does not get returned to operation.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

5. US directs/commenced troubleshooting activities for SLC 'A' and 'B'.
6. US directs the following actions to attempt control rod insertion:
- RO/BOP checks scram valve status
  - RO/BOP bypasses LPSP
  - RO/BOP attempts to insert control rods
  - US commences RCIS troubleshooting activities
7. Pressure control - US directs the following actions:
- RO/BOP maintains pressure within the desired band with SRV's, and bypass valve.

295037 - GEN 12  
3.9/4.6

295037 - EA2.05  
4.2/4.3

295037 - GEN 12  
3.9/4.6

295037 - EA2.06  
4.0/4.1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

NOTE: The following criteria apply to both the US directing the action and the RO/BOP performing it when directed. (Critical step for each.)

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Prevent loss of condenser as a heat sink.
- Minimize challenge to containment.

2. Cues:

- Procedural steps.

3. Measured by:

- Observation - MSIV Level 1 bypass performed prior to MSIV closure on Level 1.

4. Feedback:

- Indications of decreasing RPV level.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

8. Level Control - US directs the following actions:

- RO/BOP verifies automatic actions that have occurred.

HPCS  
RCIC  
BOP Isolation

- RO/BOP aligns at least two of the following bypass switches.

RHR A  
RHR B  
LPCS  
HPCS  
RHRC

- RO/BOP maintains level 0-215" per Level/Power Control until B.I.I.T. is reached, with the following:

Feedwater  
RCIC

\*9. At B.I.I.T., if power >4% the US directs MSIV Level 1 isolation bypassed.

- \* - RO/BOP bypasses MSIV Level 1 isolation when directed.

295037 - GEN 12  
3.9/4.6

295037 - EA2.07  
4.0/4.2

295037 - GEN 6  
4.2/4.1

259002 - A4.01  
3.8/4.5

295037 - EK3.06  
3.8/4.1

295037 - GEN 6  
4.2/4.1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance

- Maintain adequate core cooling
- Control/reduce reactor power
- Reduce challenge to containment

## 2. Cues:

- Procedural steps

## 3. Measured by:

- Observe the US direct proper level band and RO/BOP stabilizes and controls level with:

- 01
- a. Level above  $-40''$  by ERIS or above  $-50''$  Fuel zone, and
  - b. Reactor power  $<4\%$  or all SRV's closed

## 4. Feedback:

- Containing decreasing trend in RPV level
- Decreasing trend in Reactor power
- Elimination of need to cycle SRV's

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Proper reactivity management
- Commence Rx shutdown

## 2. Cues:

- Procedural steps

## 3. Measured by:

- By end of scenario, the US has directed troubleshooting and restoration of SLC OR CRD, and the RO/BOP has initiated SLC 'A' or control rod insertion.

## 4. Feedback:

- No decrease in Reactor Power
- No indications of negative reactivity addition.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

- US directs injection prevention performed.
- RO/BOP terminates and prevents systems when directed:
  - LPCS
  - RHR A, B, C
  - HPCS
  - Feedwater
  - RCIC
- \*- US maintains level between -30" and the level which allows one of the following to be met:
  - Power < 4%
  - Level at 0"
  - All SRV's closed and Drywell Pressure <1.68#.
- \*- RO/BOP maintains level band, as directed.
- \*- US directs SLC 'A' started and control rod insertion commenced.
- \*- RO/BOP initiation SLC 'A' and inserts control rods following restart of CRD pump.

295037 - GEN 12  
3.4/4.6295037 - GEN 6  
4.2/4.1295037 - EA2.02  
4.1/4.2259002 - A4.01  
3.8/3.5



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

## VIII. PEI-T23 - Suppression Pool Temperature Control

NOTE: Entry may be delayed due to RPV Control being higher priority.

NOTE: The following criteria apply to both the US directing the action, and the RO/BOP performing it when directed. (Critical step for each).

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance

- Reduce challenge to containment
- Prevent exceeding containment design.
- Prevent unnecessary emergency depressurization

2. Cues:

- Procedural steps

3. Measured by:

- Observation - Suppression Pool Temperature and RPV pressure controlled as required to maintain < HCL graph. (attached)

4. Feedback:

- Plant & ERIS indications of pool temperature and RPV pressure.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VIII. PEI-T23-Suppression Pool Temperature Control

1. U.S. enters when Suppression Pool Temperature is  $> 90^{\circ}\text{F}$  and directs the following:

- RO/BOP places RHR A and RHR B in Suppression Pool Cooling Mode.

- \*- US directs maintaining Suppression Pool temp/RPV pressure  $< \text{HCL}$

- \*- RO/BOP maintains  $< \text{HCL}$  as directed.

295026 - GEN 12  
3.8/4.5295026 - EA1.01  
4.1/4.1295026 - EK3.01  
3.8/4.1295026 - EA2.01  
4.1/4.2

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

IX. PEI-T23 - Suppression Pool Level Control

NOTE: Entry may be delayed due to RPV control  
being higher priority.

\* Critical to maintain >HCLL and <SPLL.

X. Emergency Plan

1. Respond as SAS and Communicator as required.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Emergency Plan Activation

2. Cues:

- Procedural

- Verbal reports

3. Measured by:

- Announcement

- Filling out notification forms.

- Stating classification to evaluator in  
Post Scenario De-briefing.

4. Feedback:

- Regulatory/Administrative.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## IX. PEI-T23 - Suppression Pool Level Control

1. U.S. enters PEI-G42 when level is > 18.5' and directs the following:

- RO/BOP maintains > HCLL and < SPLL.

295029 - GEN 12  
3.6/4.4

295029 - EA2.01

## X. Emergency Plan

- \*1. SS consults EPI-A1 and declares a Site Area Emergency. (D.III-1)

- Fills out forms
- Makes required notifications

294001 - A1.16

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-13E-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 50

XI. Terminating Cue

1. Place Simulator in FREEZE when:

- Power < 4% SLC injection/control rod insertion in progress.
- Action being taken to control Suppression Pool level and temperature.
- RPV level stabilized and under control.

2. Conduct Post-scenario debriefing.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-13E-00

STUDENT DIRECTION

INSTRUCTOR NOTES

XI. Terminating Cue

1. Attend Post-Scenario Debriefing.

PTS

## REVIEW SECTION

SCENARIO NUMBER: OT-3058-ES-13E-00

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-plan classification, if not performed during the scenario. Do not critique the crew's performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-13E-00

US	SS	RO	STA
201-017-01-02	344-002-04-03	032-510-01-01	352-004-01-05
211-005-01-02	344-003-04-03	205-513-05-01	352-005-01-05
218-002-01-02	344-017-05-03	205-518-05-01	352-008-01-05
341-018-03-02	344-018-05-03	205-520-05-01	352-012-01-05
341-041-03-02	344-020-05-03	206-508-05-01	352-015-01-05
341-042-03-02	344-025-05-03	206-510-05-01	352-017-01-05
341-536-03-02	344-026-05-03	206-518-04-01	352-018-01-05
344-018-03-02	344-038-04-03	209-504-05-01	352-020-01-05
344-024-03-02		209-519-05-01	352-022-01-05
344-037-03-02		211-509-05-01	352-508-01-05
344-038-03-02		212-508-04-01	
344-041-03-02		248-525-04-01	
344-042-03-02			
344-043-03-02			
344-044-03-02			
344-055-03-02			



UPDATE RECORD

All changes, additions and deletions to the item identified above must be indicated by the R.I. on this form according to the following categories:

- PROCEDURE CHANGE
- DESIGN CHANGE
- AREA OF WEAKNESS
- PLANT LAYOUT CHANGE
- EQUIPMENT CHANGE
- INDUSTRY OPERATING EXPERIENCE
- REGULATION CHANGE
- ORGANIZATION CHANGE
- PLANT OPERATING EXPERIENCE
- INFORMATION CORRECTION
- TRAINEE FEEDBACK

Complete the form as follows:

## SUMMARY -

Categorize the item being changed and briefly summarize.  
Number each item sequentially.

## REFERENCES

List corresponding number, rev. level, title and section.

APPROVAL -

Initial by Lead or Unit Supervisor.

DATE ENTERED -

Self explanatory.

All items on these sheets that refer to outside agency recommendations or Perry commitments may not be deleted from the course material without written approval of the Training Unit Supervisor, with notification to the Performance Engineering Section.

SUMMARY	REFERENCE	APPR.	DATE ENTERED
1. Corrected task list, (	NA	AP.	12/2/92

**PTS****REVISION HISTORY**

PNPP No. 7173 Rev. 7/91

ITEM NO.

TITLE

OT-3058-ES-03E

Requal Exam Scenario Guide

REV. 0

DATE TO SSU

(Initials)

EFF DATE:

9/28/92

TRZ

2/17/94

REV. #

1

REQUESTED BY

J. D. Pierson

OTU

DATE

9/21/92

same

Name

Unit

PREPARED BY

DATE

Revised to reflect new PEI's and new simulator.

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

9/22/92

REV. #

REQUESTED BY

DATE

Name

Unit

PREPARED BY

DATE

Name

Unit

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

REV. #

REQUESTED BY

DATE

Name

Unit

PREPARED BY

DATE

Name

Unit

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

PTS

# SCENARIO GUIDE COVER SHEET

NUMBER OT-3058-ES-03E-01

EFFECTIVE DATE

9/22/92

## SCENARIO GUIDE REFERENCES:

Tech. Specs.

PEI-B13

PEI-T23

PEI-SPI

ARI-P680-5

IOI-3

SOI-E12

SOI-P45

SOI-N32/39

ARI-P601-19

ARI-P601-21

ARI-P680-6

EPI-A1

EPI-A3

ONI-D17

SOI-P41

SOI-P43

ONI-R22-1

ONI-P41

ONI-P43

ONI-C11-1

## ADDITIONAL MATERIALS REQUIRED:

SVI-C11-T1022

## APPROVAL:

PREPARED BY J. D. Peir

DATE 9/17/92

REVIEWED BY N. V. Johnson

DATE 9/21/92

APPROVED BY Mike Wsaly

DATE 9/22/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

PTS

LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-03E-01

FAILURE/OVERRIDE	STATUS	DESCRIPTION
1. RD15	ACTIVE	ATWS-SET TO 70%
2. AV02:1C11F0011	PENDING E2	1C11-F0011 FAILS CLOSED.
3. RD12R1851	PENDING E2	ROD 18-51 SCRAM VALVE LEAKAGE-SET AT 2%.
4. RD12R3451	PENDING E2	ROD 34-51-SCRAM VALVE LEAKAGE-SET AT 2%
5. RD12R5035	PENDING E2	ROD 50-35-SCRAM VALVE LEAKAGE-SET AT 2%
6. RD12R3431	PENDING E2	ROD 34-31-SCRAM VALVE LEAKAGE-SET AT 2%
7. RD12R1831	PENDING E2	ROD 18-31 SCRAM VALVE LEAKAGE-SET AT 2%
8. RD12R2219	PENDING E2	ROD 22-19-SCRAM VALVE LEAKAGE-SET AT 2%
9. RD12R3823	PENDING E2	ROD 38-23-SCRAM VALVE LEAKAGE-SET AT 2%
10. RD12R2611	PENDING E2	ROD 26-11-SCRAM VALVE LEAKAGE-SET AT 2%
11. RD12R4207	PENDING E2	ROD 42-07-SCRAM VALVE LEAKAGE-SET AT 2%
12. RD12R5047	PENDING E2	ROD 50-47-SCRAM VALVE LEAKAGE-SET AT 2%
13. BS01:1C11N0601A	ACTIVE	SDV LEVEL SWITCH FAILS
14. BS01:1C11N0601C	ACTIVE	SDV LEVEL SWITCH FAILS
15. ZD1C51APHS1	PENDING E1	APRM H MODE SWITCH OVERRIDE TO STBY.

PTS

LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-03E-01

FAILURE/OVERRIDE	STATUS	DESCRIPTION
16. RD16		PENDING E3 SDV BREAK-SET AT 1½
17. CB01:1R22EH1214	PENDING E1	BRKR EH1214 SPURIOUS TRIP-5 MIN. DELAY.
18. RY02:1C71K14A	ACTIVE	RPS RELAY FAILS AS IS.
19. RY02:1C71K14C	ACTIVE	RPS RELAY FAILS AS IS.
20. RY02:1C71K14E	ACTIVE	RPS RELAY FAILS AS IS.
21. RY02:1C71K14G	ACTIVE	RPS RELAY FAILS AS IS.

SCENARIO NUMBER: OT-3058-ES-03E-01

**A. TERMINAL OBJECTIVE:**

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

**B. ENABLING OBJECTIVES:**

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evaluations in progress/planned
2. Using plant installed instrumentation, plant instructions and system responses, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions, from memory, in response to the following plant transients:
  - a. ONI-R22-1
  - b. ONI-C11-1
  - c. ONI-P41
  - d. ONI-P43
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.



## PTS

## OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-03E-01

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - d. Direct plant operators.
  - f. Inform US when complete.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.
8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.



PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-03E-01

9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with ATP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence, and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend actions to mitigate consequences of the event, and assist in completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

SCENARIO NUMBER QT-3058-ES-03E-01

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PTS

## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-03E-01

### INITIAL CONDITIONS

The plant is operating at 45% power, EOL, performing a Power ascension to 100%, the following equipment is out of commission: Div. 3 ESW pump, Div. 3 ESW pump disch. valve, Div. 3 D/G and HPCS. A liquid Radwaste Discharge is expected this shift.

### SEQUENCE OF EVENTS

ESW is started up for a discharge. The crew continues the startup. During power ascension, APRM H fails causing a half scram. Tech. specs. are consulted, the APRM is bypassed and the scram is reset. A loss of Div. II stub bus occurs due to a brkr failure. Various ONI's are entered to return systems to a normal configuration. A failure of a SDV drain valve causes it to fail closed. The small leakage from a number of HCU's causes the SDV to fill. An ATWS condition occurs, as well as a small crack in the SDV. The crew takes actions to shutdown the Reactor and control containment temperature and pressure.

### FINAL PLANT CONDITION

The plant is being shutdown by SLC and/or control rods. Containment Pressure is being controlled by containment spray. The plant is in ALERT status.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP-7  
US-6  
SS-2

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

## INSTRUCTOR NOTES

Remote functions  
for Tagouts:

SW022, SW025,  
HP03, HP08

Assign Commands to  
triggers:

E3-DMF  
RY02:1C71K14A  
E3-DMF  
RY02:1C71K14C  
E3-DMF  
RY02:1C71K14E  
E3-DMF  
RY02:1C71K14G  
E4-DMF  
RY02:1C71K14A  
E4-DMF  
RY02:1C71K14E  
E5 DMF  
RY02:1C71K14C  
E5-DMF  
RY02:1C71K14G

## SIMULATOR SCENARIO GUIDANCE

## I. Setup

A. Initialize to IC-19 and perform the  
following:

1. Use E.O.L. sequence and insert rods  
backwards through step 71.
2. Run R/R flow down to 53 mlbm/hr.
3. Shift NCC pumps to A and B, CRD to 'B'.
4. Work through IOI-3, section 4.3 backwards  
through step 4.3.8.
5. Put Div. 3 D/G to P.T.L. Toggle RF DG-03  
to MAINT., place INOP switch to INOP.
6. Hang Tags on:
  - Div. 3 D/G
  - Div. 3 ESW and its discharge valve.
  - HPCS pump and E22-F004
7. Insert/Verify failures on Page 3
8. Assign Triggers
  - E4-ZD1C71AS3AINI.NE.0(SCRAMCHA)
  - E5-ZD1C71AS3CINI.NE.0(SCRAMCHC)
  - E3-ZD1C71S1.NE.0(MODESWITCH)
9. Restore MP File name SDVLEVEL.
10. Update status board

## II. Pre-shift Brief

A. Inform crew of the following items and  
conditions on page 7;

1. Startup in progress
2. IOI-3 step 4.3.8 is next.
3. Pull sheet step 71. (E.O.L.)
4. Pull rods until all rods out, then raise  
R/P flow to 100% power
5. Div. 3 outage-Div. 3 D/G, Div. 3 ESW,  
HPCS out of service.
6. Start an ESW pump, to support a  
discharge, as soon as crew takes the  
shift.
7. SVI-R10-T5217 just completed.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

I. Setup

A. No activities required.

II. Pre-shift brief

A. Crew attends Pre-shift brief, walks down panels and assumes the shift.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 00

III. ESW Pump Start

- A. Monitor crew actions. Role play as Chemistry, etc., as required.

Time: 05

IV. Power Increase

- A. Evaluate reactivity manipulations. Ensure compliance with PAP-201 and PAP-205 regarding verifications/communications, etc.
- B. Role Play as Reactor Engineer as required.
- C. Performance of SVI-C11-T0022 may not occur due to time considerations and subsequent events that terminate the power increase.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

III. ESW Pump Start

- A. The US directs ESW pump A or B started.
- B. The RO/BOP starts ESW pump per SOI-P45 and notifies chemistry.

IV. Power Increase

- A. The US directs the RO/BOP to commence rod withdrawals.
- B. The US ensure proper use of concurrent verification and assigns verifier.
- C. The RO/BOP withdrawals rod to all rods out.
- D. The RO/BOP completes power increase to 100% using R/R/ flow.
- E. The US directs performance of SVI-C11-T1022 when power goes > HPSP.

201002-GEN1  
3.8/3.8

201002-A4.01  
3.5/3.4

202002-A4.04  
3.7/3.7

202002-GEN11  
3.4/4.2

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 10

V. APRM H Failure

A. Approximately 5 minutes into power increase, or when evaluation of that evolution is completed, Trigger E1, Failing APRM H Inop.

B. As I&C, cause of the INOP condition can be speculated to be a bad APRM mode switch. Troubleshooting required.



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION	INSTRUCTOR NOTES
V. APRM H Failure/Half Scram Actions	215005-A1.04 4.1/4.1
1. RO/BOP notices half scram, informs Unit Supervisor.	215005-A2.03 3.6/3.8
2. RO/BOP diagnose cause of half scram as failure of APRM H/check other APRM's may contact I&C.	215005-A2.03 3.6/3.8
3. Unit Supervisor directs:	215005-A4.05 3.4/3.4
a. Troubleshooting	
b. Bypassing APRM H	215005-GEN 5
c. Resetting half scram	3.3/4.2
4. RO bypasses APRM H, resets half scram.	
5. US declares APRM H Inop.	
a. Refers to T.S. 3.3.1	
b. Completes PLCO	
c. Informs SS	

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 15

VI. Loss of Div. II Stub Bus

- A. Loss of stub bus occurs on a 5 in. time delay from Triggering E1 on APRM event. (This allows malfunction activation even if machine operator is on the floor, role playing.)
- B. As PPO/maintenance, report no relays tripped. No obvious cause for the trip. If told to cycle EH1214 in TEST, Rack brkr out using Remote Function ED37, and report that brkr will not operate in Test.
- C. Use Remote Function RD32 to acknowledge CRD Hi Temp. alarms.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

VI. Loss of Div. II Stub Bus.

262001-A3.01  
3.1/3.2

A. Crew responds to alarms, identifies stub bus feeder brkr EH-1214 open.

B. US enters ONI-R22-1 and directs the following:

262001-K3.01  
3.5/3.7

1. RO/BOP restarts a CRD pump per ONI-C11-1 and SOI-C11(CRDH).

201001-A4.01  
3.1/3.1

2. RO/BOP restarts the stby service water pump per ONI-P41 and SOI-P41.

262001-GEN15  
3.7/3.9

3. The RO/BOP restarts the stby NCC pump per ONI-P43 and SOI-P43.

C. The US directs PPO/maintenance to investigate the cause of the stub bus brkr trip.

D. Us may evaluate Tech. Specs. No additional restraints.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

Time: 25

See attachment to this scenario guide for back panel indication of SDV, if crew requests this information.

SIMULATOR SCENARIO GUIDANCE

VII. SDV drain valve failure

- A. Trigger E2. The scram signal occurs ~9 minutes after the trigger.
- B. Use the MPS to give the crew the back panel indications of SDV level. (Use of SDV [2] values)
- C. When RO places mode switch to S/D, RD16 activates, causing a slow, increasing trend in containment pressure at a rate of ~ 1# every 5 minutes.
- D. If sent to containment to troubleshoot valve, report that the coupling has failed between the valve stem and operator, and the two parts are now disconnected.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

VII. SDV drain valves failure

201001-K4.06  
3.8/3.9

A. Crew responds to alarms, recognizes increasing trend in SDV level due to failed drain valve.

B. US directs PPO/maintenance to investigate.

C. US directs RO/BOP to monitor SDV on back panels.

D. RO/BOP reports SDV levels.

201001-A3.11  
3.5/3.5

E. RO/BOP responds to RPS alarms for scram, informs US that scram should have occurred.

201001-GEN15  
3.6./3.8

F. US directs a manual scram (See next section for critical task criteria for scram actions).

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Time of alarms: \_\_\_\_\_

Time of scram: \_\_\_\_\_

## VIII. ATWS

- A. Monitor and evaluate crews ATWS actions.  
Role play as PPO/I&C etc, as required.

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Take corrective actions to initiate Rx S/D.
- Maintain condenser as a heat sink.

## 2. Cues:

- Procedural steps

## 3. Measured by:

- RPS or ARI is manually initiated to attempt manual scram within 2 minutes of receipt of the SDV High level RPS alarm.
- Modeswitch is placed in S/D prior to the MSIV's Auto closing on low steamline pressure.

## 4. Feedback:

- Scram alarms with no rod motion
- Indications of RPV pressure decreasing

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

VIII.ATWS

\*A. The US directs the Reactor manually scrammed.

\*1. The RO/BOP initiates a scram via RPS or  
ARI.

\*2. The RO/BOP places the modeswitch in  
shutdown.

295037-EA1.01

4.6/4.6

295037-EA1.02

3.8/3.9

295037-GEN12

3.9/4.6



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

B. Power Control

1. Evaluate Power control actions. The main Turbine will stay on line for this event, thus SLC may be used, but no Suppression Pool temperature problems are anticipated.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Take compensatory actions to S/D the Rx. following failure of an ESF.

2. Cues:

- Procedural steps

3. Measured by:

- SLC or control rod insertion commenced by end of scenario, and
- SLC must be initiated prior to the BIIT.

4. Feedback:

- Indications of an incomplete scram
- Indications of rod movement or SLC initiation.

\*\*\*\*\*



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## B. Power Control

295037-EK3.01  
4.1/4.2

## 1. The US directs the following:

- a. RO/BOP runs R/R FCV's to minimum.
- b. RO/BOP trips both R/R pumps.
- c. RO/BOP maintains the Turbine-Generator in service.

## \*2. The US directs steps to shutdown the reactor as follows:

295037-EA1.04  
4.5/4.5295037-EA1.05  
3.9/4.0

- \*a. The RO/BOP initiates SLC and/or commences control/rod insertion, per SPI section 1.0, when directed.

295037-EA1.08  
3.6/3.6

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

C. Pressure Control

1. Evaluate Pressure Control actions.  
Emergency Depressurization is not anticipated due to the main condenser being available.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Tech. Spec. compliance
- RPV integrity

2. Cues:

- Procedural steps
- Tech. Spec. LCO

3. Measured by:

- RPVG pressure is not reduced to less than 400# unless the main condenser becomes unavailable.

4. Feedback:

- lack of caution #6 at applicable pressure control step.
- Indications of RPV pressure
- Indications of satisfactory pressure regulator operation.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

C. Pressure Control

295037-EK1.01  
4.1/4.3

\*1. The US directs pressure control actions as follows:

\*a. RO/BOP stabilizes pressure control with the Main Turbine or bypass valves at <1000#.

295037-EK3.06  
3.8/4.1

b. RO/BOP may bypass MSIV L1 isolation if SLC is initiated.

c. RO/BOP prevents injection with low pressure pumps when drywell pressure > 1.68 #.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-05E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

D. Level/Power Control

1. Evaluate Level/Power Control.

Due to the availability of the MFP,  
Emergency Depressurization should not be  
required.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Adequate core cooling

2. Cues:

- Procedural steps

3. Measured by:

- RPV level maintained above T.A.F. (-10"  
by ERIS, -40" by F.Z.)

4. Feedback:

- Existence of adequate number of High  
Pressure pumps to maintain level

- RPV level indications

- Suppression Pool Temperature not  
increasing.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

D. Level/Power Control

1. US enters Level Control and transitions to Level/Power Control
2. US directs the following:
  - a. RO/BOP bypasses at least 2 injection systems.
    - RHR A
    - RHR B
    - RHR C
    - LPCS
    - HPCS
  - b. RO/BOP inhibits ADS.
- \*3. US directs RPV level be maintained in a band between 0" and 215".
  - \*a. RO/BOP maintains RPV level in band, as directed.

295037-GEN12  
3.9/4.6

295037-EK3.03  
4.1/4.5

295002-A4.01  
3.8/3.6

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

## INSTRUCTOR NOTES

Note: Both loops of RHR in Containment spray is required for simulator to drive containment pressure negative.

## SIMULATOR SCENARIO GUIDANCE

## E. Drywell and Containment Pressure Control

1. Evaluate Containment Pressure Control actions. It is not anticipated that Emergency Depressurization be required due to the effectiveness of containment sprays.

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Maintain containment Integrity

## 2. Cues:

- Procedural steps

## 3. Measured by:

- Containment pressure is maintained greater than or equal to 0# and less than 3.7# (P.S.P.), or
- Emergency Depressurization is performed prior to exceeding P.S.P.

## 4. Feedback:

- Effectiveness of containment sprays
- Indications of containment pressure trend.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## E. Drywell and Containment Pressure Control

## 1. The US directs the following:

- a. RO/BOP monitors containment and drywell pressure and keeps US informed.

295024-EA1.15  
3.6/3.7

- \*2. The US directs containment sprays initiated when >2.25#.

295024-GEN12  
3.9/4.5  
295024-EA1.17  
3.9/3.9

- \*a. The RO/BOP initiates containment sprays, when directed.

- \*3. The US ensures containment sprays secured when containment pressure <1.5#.

295024-GEN12  
3.9/4.5

- \*a. The RO/BOP secures containment sprays, when directed.

295024-EA1.17  
3.9/3.9

- 4. The US directs NCC restored to the Drywell.

295028-EA1.03  
3.9/3.9

- a. The RO/BOP restores NCC, when directed.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

F. Containment Temperature Control

1. Evaluate Containment Temperature control actions.
2. Perform PPO actions for P50 restart as required.

NOTE: Other actions by the crew should be evaluated per ES-604, D.2.b.3, to determine the addition of any critical tasks. Evaluate crew's performance using competency scales, also.

G. Emergency Plan

1. Functions as communicator or SAS as required.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Activate E-Plan organization.

2. Cues:

- Procedural

3. Measured by:

- Announcement
- Completing appropriate forms
- Stating classification to the evaluator in the Post Scenario de-briefing

4. Feedback:

- Regulatory/Administrative

\*\*\*\*\*



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## F. Containment Temperature Control

## 1. The US directs the following:

- a. RO/BOP bypass P50 isolations per SPI section 2.2.
- b. RO/BOP directs a PPO to restart a P50 chill water pump and chiller.

295027-GEN12  
4.3/4.6  
295027-EA1.02  
3.5/3.5

## G. Emergency Plan

- \*1. The Ss consults EPI-A1 and classifies event to at least an Alert. (D.II.2)
2. The SS makes notifications and fills out forms and checklist per EPI-A3.
- \*3. The SS classifies or upgrades to a Site Area Emergency (D.II.3) if SLC is used.

294001-A1.16  
2.9/4.7

294001-A1.16  
2.9/4.7

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-03E-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

H. STA Actions

1. Evaluate STA when assigned.

Time: 50

I. Terminating Cue

1. When crew has containment pressure under control and is adding negative reactivity, place the simulator in FREEZE and conduct a post exercise de-briefing.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-03E-01

STUDENT DIRECTION

INSTRUCTOR NOTES

H. STA actions

1. The STA performs the following:

- a. Monitors crew activities during power ascension and may become involved with control rod verification.
- b. Assist US in Tech. Spec. interpretation during APRM failure.
- c. Assist crew in diagnosis of APRM failure.
- d. Monitor plant parameters during loss of stub bus.
- e. Monitor crew decisions and crews use of flow charts during ATWS.
- f. Keep US/SS informed of proximity to P.S.P.
- g. Recommend mitigational strategy, as required.
- h. Assist SS n Emergency Response activation.

I. Terminating Cue

1. Attend Post Executive de-briefing.

PTS	REVIEW SECTION
-----	----------------

SCENARIO NUMBER: OT-3058-ES-03E-01

Conduct Post Scenario De-briefing. Allow approximately for follow-up questions from the examiners and E-Plan classification, if not performed during the scenario. Do not critique the crews performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-03E-01

RO	US	SS	STA
003-508-01-01	201-017-01-02	344-002-04-03	351-001-01-05
004-503-05-01	211-005-01-02	344-003-04-03	351-008-01-05
004-505-01-01	218-002-01-02	344-004-04-03	351-011-01-05
062-502-04-01	341-014-03-02	344-007-04-03	351-016-01-05
067-502-04-01	341-018-03-02	344-013-04-03	352-003-01-05
201-502-01-01	<del>341-037-03-02</del>	344-017-05-03	352-004-01-05
201-517-04-01	341-046-03-02	344-018-05-03	352-005-01-05
205-509-05-01	341-536-03-02	344-019-05-03	352-008-01-05
205-518-05-01	<del>341-547-03-02</del>	344-020-05-03	352-012-01-05
205-521-01-01	344-003-03-02	344-022-05-03	352-014-01-05
205-597-05-01	344-018-03-02	344-023-05-03	352-015-01-05
208-518-04-01	344-020-03-02	344-024-05-03	352-018-01-05
209-506-01-01	344-021-03-02	344-025-05-03	352-020-01-05
209-519-05-01	344-024-03-02	344-026-05-03	352-022-01-05
209-527-05-01	344-037-03-02	344-034-05-03	352-401-04-05
211-503-01-01	344-038-03-02	344-038-04-03	352-404-04-05
211-509-05-01	344-041-03-02	344-502-05-03	352-508-01-05
212-502-01-01	344-042-03-02		355-514-03-05
212-508-04-01	344-043-03-02		356-009-01-05
212-534-04-01	344-044-03-02		<del>357-002-01-05</del>
214-510-01-01	344-047-03-02		
214-516-04-01	344-056-03-02		
214-519-04-01	345-038-01-02		
214-546-05-01	345-201-01-02		
218-502-05-01	345-207-01-02		
262-524-05-01			
276-509-01-01			
276-513-04-01			
276-508-01-01			

ATTACHMENT - BACK PANEL INDICATIONS

1. If crew desires readings for the trip units for the Rod Block:

<u>MPL#</u>	<u>LOCATION</u>	<u>READOUT</u>
C11-R602A&B	P618 & P629	0-35 inches

Give crew same number that appears on the MPS for SDV level [2].

2. If crew desires readings for the trip units for the scram.

<u>MPL#</u>	<u>LOCATION</u>	<u>READOUTS</u>
1C11-R601A,B,C. & D	P691, 692, 693 & 694	0-100 percent

The scram setpoint of 37.9° equates to 67.7% on the squint meters. Give crew a ball park interpolation of percentage base on SDV level [2].



PTS

PNPP No. 7173 Rev. 4/87

## REVISION HISTORY

COURSE NO. OT-3058-ES		TITLE Requal Exam Scenario Guide		ITEM NO. 02E
REV. 0	DATE TO SSU 1-22-91		(Initials) BJS	REEL #
REV. # 1 REQUESTED BY J. Douglass Pierson DATE 11/29/90				
Name Unit				
PREPARED BY same DATE				
Name Unit				
SYNOPSIS Incorporate ISCT Criteria per ES-604, Rev. 6, and various minor editorial changes.				
DATE TO SSU 4-7-92			(Initials) TRR	REEL #
REV. # 2 REQUESTED BY J. Doug Pierson OTU DATE 3/2/92				
Name Unit				
PREPARED BY same DATE				
Name Unit				
SYNOPSIS Revised to reflect new simulator and PEI's.				
DATE TO SSU			(Initials)	REEL #
REV. # REQUESTED BY DATE				
Name Unit				
PREPARED BY DATE				
Name Unit				
SYNOPSIS				
DATE TO SSU			(Initials)	REEL #



PTS

# SCENARIO GUIDE COVER SHEET

NUMBER

OT-3058-ES-02E-01

02 m/c

EFFECTIVE DATE

3/6/92

## SCENARIO GUIDE REFERENCES:

PNPP TECHNICAL SPECIFICATIONS

SOI-P45

PEI-B13

ONI-B21-1

PEI-M51/56

ONI-E12-1

EPI-A1

ONI-N32

EPI-A2

ONI-C71-1

SOI-E12

ARI-H13-P680-2

SOI-N21

PEI-T23

SOI-M28

SOI-M32

SOI-P42

## ADDITIONAL MATERIALS REQUIRED:

NONE

## APPROVAL:

PREPARED BY

*J. D. Preiser*

DATE

3/6/92

REVIEWED BY

*W. Johnson*

DATE

3/6/92

APPROVED BY

*Michael L. Wesley*

DATE

3/6/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

## PTS

## LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-02E-02

	FAILURE/OVERRIDE	STATUS	DESCRIPTION
1.	MV01:1N27F0140	ACT	CONTROL POWER FAILURE
2.	MV01:1N27F0180	ACT	CONTROL POWER FAILURE
3.	ZL1N27C0012[GRN]	ACT	MFP DC OIL PUMP-GREEN LIGHT-OVERRIDE OFF
4.	ZL1N27C0011[GRN]	ACT	MFP AC OIL PUMP-GREEN LIGHT-OVERRIDE OFF
5.	AN:1H13P6802A[22]	PENDING E1	H/W SUCTION STRAINER HI D/P-OVERRIDE ALARM ON
6.	BS02:1B21N0668B	PENDING E2	F051D BISTABLE-SPURIOUS TRIP
7.	BS02:1B21N0668F	PENDING E2	F051D BISTABLE-SPURIOUS TRIP
8.	ZD1B21CS27B	ACT	F051D SWITCH-OVERRIDE IN AUTO.
9.	CP02:1E12C0002A	PENDING E6	RHR A SHAFT SEIZE-1 MINUTE DELAY
10.	CP01:1P45C0001B	ACT	SHAFT BREAKS - ESW 'B'
11.	BS02:1B21N0692B	PENDING E3	RCIC BISTABLE - SPURIOUS TRIP
12.	BS02:1B21N0692F	PENDING E3	RCIC BISTABLE - SPURIOUS TRIP
13.	TH19A	PENDING E3	REFERENCE LEG BREAK - 1 MIN. DELAY - 100%
14.	TH19C	PENDING E3	REFERENCE LEG BREAK - 1 MIN. DELAY - 100%
15.	TH19D	PENDING E3	REFERENCE LEG BREAK - 1 MIN. 5 SEC DELAY-100%
16.	TH19E	PENDING E3	REFERENCE LEG BREAK - 1 MIN. 5 SEC DELAY - 100%
17.	TH20C	PENDING E3	VARIABLE LEG BREAK - 1 MIN. 10 SEC. DELAY-100%
18.	TH20D	PENDING E3	VARIABLE LEG BREAK - 1 MIN. 10 SEC. DELAY - 100%
19.	RY01:1B21K5B	ACT	ADS 'B' 105 SEC T.D. FAILURE

SCENARIO NUMBER: OT-3058-ES-02E-02

**A. TERMINAL OBJECTIVE:**

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

**B. ENABLING OBJECTIVES:**

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evaluations in progress/planned
2. Using plant installed instrumentation, plant instructions and system responses, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions, from memory, in response to the following plant transients:
  - a. ONI-B21-1
  - b. ONI-E12-1
  - c. ONI-N32
  - d. ONI-C71-1
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

# PTS

# OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-02E-02

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - e. Direct plant operators.
  - f. Inform US when complete.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.
8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.

PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-02E-02

9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with ATP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence, and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend actions to mitigate consequences of the event, and assist in completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

PTS

# NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-02E-01 02

## INITIAL CONDITIONS

Plant is operating at 100% full power at EOC. The following equipment is out of commission: MFP red tagged out due to no lube oil system available, CRDH B Pump tagged out due to PPMIS, NCCW C Pump tagged out due to packing repair. ESW 'A' and ECCW 'A' running due to Suppression Pool Cooling which was just secured.

## SEQUENCE OF EVENTS

ESW and ECCW 'A' pumps secured. Hotwell Pump 'B' suction strainer clogs. SRV pops open and is subsequently closed by pulling the solenoid fuses per ONI-B21-1. ~~PEI-B12 is entered and an Unusual Event~~ ~~is declared.~~ A failure of the RCIC level Bistables causes an inadvertent RCIC initiation, entry into ONI-E12-1, and a reactor scram due to a Main Turbine trip. The RFPT's trip causing entry into PEI-B13 at Level 3. A complete loss of level indication causes the operators to perform RPV Flooding. ~~RNR 'A' and ESW 'B' fail.~~ ~~Q~~

## FINAL PLANT CONDITIONS

The plant is shutdown, all rods in, with adequate core cooling assured by maintaining the M.R.F.P. ~~An Alert is declared.~~ ~~Q~~

## CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP - 7 6

US - 7 3

SS - 1

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-01

## INSTRUCTOR NOTES

Remote Functions  
for tags:

FW26, FW72  
RD 18, RD20  
SW013, SW016

## SIMULATOR SCENARIO GUIDANCE

## I. Setup

A. Initialize to IC-19 and establish the following:

- MFP, MFP suction and discharge valves, and both MFP lube oil pump, and recirc valve red tagged.
- red tag CRD 'B' and Aux oil pump 'B'.
- Shift NCC to A & B, red tag C.
- Insert failures/overrides on page 3.
- Start ESW 'A' and ECC 'A' pumps.
- Assign Triggers

E5 - FW:1N21C0001C[3].GT.0.5  
(Hotwell pump C)

E6 - RH:1E12C0002A[3].GT.0.5  
(RHRPMPA)

- Assign commands:

E5 - DOR AN:1H13P6802A[22]

## II. Shift Turnover and Lead In

1. Give crew the initial conditions as per above and on page 7.
2. Give crew the job of securing ESW and ECCW as soon as they take the shift. Tell them that the strainers have been backwashed.



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION

INSTRUCTOR NOTES

I. No crew actions required.

II. Shift Turnover and Lead In

1. The crew members walk down the Control Room panels, become familiar with the plant conditions, and assume the shift.
2. The Unit Supervisor will order the ESW/ECCW Pumps secured.
3. The Supervising Operator (BOP) will secure ECCW Pump 'A' per SOI-P42.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 05

III. Hotwell Suction Strainer Clogs

Initiate Trigger E1 to indicate that Hotwell Pump B suction strainer has become clogged.

- NOTE: Hotwell Pump standby readiness allows immediate pump starts.
- As PPO, report that the 'B' Hotwell Pump suction strainer reads 2.0 psid after about 8-10 minutes. (Alarm setpoint is 1.5 psid)
- Override deletes itself when Hotwell Pump 'C' is started.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

## STUDENT DIRECTION

## INSTRUCTOR NOTES

3. The BOP will secure ECC Pump Area Cooling per SOI-M28.
4. The BOP will secure ESW Pump 'A' per SOI-P45.
5. The BOP notifies Chemistry Unit that ESW 'A' loop is secured.
6. The BOP secures ESW Pumphouse Ventilation per SOI-M32.

## III. Hotwell Suction Strainer Clogs

## 1. RO/BOP Actions

- a. Starts the Standby Hotwell Pump per SOI-N21.
- b. Dispatches an operator to determine which Hotwell Pump has a suction strainer high differential pressure.
- c. Secures Hotwell Pump 'B' per SOI-N21 when informed of the strainer status.

294001-A1.05  
3.4/3.8256000-GEN 9  
3.7/3.3356000-GEN 8  
3.4/3.2

## 2. Unit Supervisor Actions

- a. Ensures actions taken per ARI-H13-P680-2(D-4).
- b. Ensures that Maintenance Section is informed of the suction strainer problem for their action.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

## INSTRUCTOR NOTES

Time: 07

On P618-Trip Units  
1B21-N0668B and  
N0668F are pegged  
High. All others  
read normal.

## SIMULATOR SCENARIO GUIDANCE

## IV. Inadvertent SRV Opening.

Initiate Trigger E2 to cause SRV F051D to open  
below its setpoint due to Bistable problem.

- As security officer, report to Control Room  
that "everyone is out, no one in - I'll keep  
everyone out", if asked to evacuate  
containment.

\*\*\*\*\*  
NOTE: The following criteria apply to both the US  
directing the action, and the RO/BOP

performing the action when directed. This  
counts as one critical step for the US, and  
one of the RO/BOP.

\* ISCT Criteria

## 1. Safety Significance:

- Prevent challenge to plant safety (i.e., (  
RPS actuation).
- Prevent exceeding Tech. Spec. limit.

## 2. Cues:

- Procedural

## 3. Measured by:

- Observation - SRV is closed prior to  
Suppression Pool Temperature reaching  
110°F.

## 4. Feedback:

- Increasing trend in Suppression Pool  
Temperature.

\*\*\*\*\*

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION	INSTRUCTOR NOTES
IV. Inadvertent SRV Opening.	
1. RO/BOP Actions	
a. Observes indication of an open SRV, and notifies the Unit Supervisor.	239002-K4.06 3.5/3.7
b. Evacuates the Containment.	239002-GEN 12 3.8/3.6
c. Cycles control switch on P601 with the final position being OFF.	239002-A2.03 4.1/4.2
* d. Ensures/removes solenoid fuses for the SRV, when directed.	219000-A4.12 4.1/4.1
e. Monitors Suppression Pool temperature and level, keeps US informed and temperature < 110°F.	
f. Notifies SOC.	
2. Unit Supervisor Actions	
* a. Enters ONI-B21-1, verifies immediate actions completed, directs removal of solenoid fuses.	239002-GEN 15 4.2/4.3
b. Determines the Operability of SRV per Tech. Spec 3.4.2.1 and 3.4.2.2.	239002-GEN 11 3.5/4.3
c. Determines the Operability of the Suppression Pool per Tech Spec 3.6.3.	239002-GEN 11 3.5/4.2
d. Health Physics Unit is notified of SRV opening.	239002-GEN 11 3.5/4.2
e. Completed PLCO paperwork per OAP-1701 to document Inoperable SRV.	
f. Notifies the Shift Supervisor of SRV status/safety system status.	294001-A1.05 3.4/3.8

PTS

INSTRUCTOR PAGE

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## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

## V. PEI-T23 Suppression Pool Temp. Control

This PEI is entered when average Suppression Pool temperature exceeds 90°F.

NOTE: If crew is rapid in their actions, PEI-T23 will not be entered at this time. Evaluate this ISCT during RPV Flooding/S. Pool Cooling.

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Remove decay heat from containment.
- Recognize inability to reach/maintain cold shutdown
- Recognize inability to reach/maintain cold shutdown.

## 2. Cues:

- Procedural steps to confirm/verify normal indications.

## 3. Measured by:

- Announcement
- Commencement of troubleshooting activities.
- Placing systems in secured status

## 4. Feedback:

- numerous indications of system malfunctions, breaker trip alarms, improper system flows.

\*\*\*\*\*

PTS

STUDENT PAGE

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STUDENT DIRECTION

INSTRUCTOR NOTES

3. STA Actions

- a. Provides assistance to the Unit Supervisor/Shift Supervisor (per TAP-0101) to ensure Tech Spec compliance/proper event classification/timely notifications.

V. PEI-T23 Suppression Pool Temp Control

1. RO/BOP Actions

- a. Places loops A and B of RHR into the Suppression Pool Cooling mode of operation when directed by the Unit Supervisor per SOI-E12.
- \*b. RO/BOP recognizes failure of RHR 'A', informs U.S.
- \*c. RO/BOP recognizes failure of ESW 'B' informs U.S.

291000-A4.01  
3.8/3.7

PTS

INSTRUCTOR PAGE

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 20

NOTE: For troubleshooting, PPO can report over-current trips on RHR 'A' brkr, motor hot to the touch.

ESW 'B' has a broken coupling with motor and pump shaft damage.

Maintenance estimates at least 24 hrs. to repair either pump.

Note clock time of RCIC Initiation:

Time: \_\_\_\_\_

VI. Inadvertent RCIC Initiation

Initiate Trigger E3 to cause RCIC to initiate resulting in a Main Turbine and RFPT trip and a Reactor Scram.



PTS

STUDENT PAGE

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

- b. Monitors Suppression Pool temperature and keeps the Unit Supervisor informed of the trend.

219000-a4.12  
4.1/4.1

2. Unit Supervisor Actions

- a. Enters PEI-T23 when the Suppression Pool temperature exceeds 90°F. - orders both loops of RHR to be placed in Suppression Pool Cooling.

295013-GEN 11  
4.1/4.4

VI. Inadvertent RCIC Initiation

1. RO/BOP Actions

- a. Observes indications of a Main Turbine Trip and a Reactor Scram - notifies the Unit Supervisor.
- b. Observe indications of a loss of all feedwater - notifies the Unit Supervisor.
- c. Monitors reactor water level and keeps the Unit Supervisor informed of the trend.
- d. Carries out immediate actions per ONI-C71-1.

295006-AA2.05  
4.6/4.6

294001-A1.05  
3.4/3.8

259001-A2.01  
3.7/3.7

295009-AA2.01  
4.2/4.2

295006-GEN 10  
4.1/4.2

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Mitigation of Low RPV Water Level Event.

2. Cues:

- Procedural - Satisfied entry conditions.

3. Measured by:

- Taking PEI actions.
- Opening/referring to procedure.

4. Feedback:

- Ability to mitigate the event based on symptoms.

\*\*\*\*\*

α  
①

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION

INSTRUCTOR NOTES

2. Unit Supervisor Actions

*a*  
① |

\*a. Enters PEI-B13 due to the scram and lowering level.

295006-GEN 11  
4.3/4.5

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

INSTRUCTOR NOTES

Remote Function  
PC28 for local  
alarm reset.

SIMULATOR SCENARIO GUIDANCE

VII. PEI-B13 RPV Control

1. Entry

NOTE: Startup of the Hydrogen Analyzers requires two (2) keys for switches on panel P800, starting ESW and ECCW, and dispatching PPO to verify local operation (the latter may be low priority until hydrogen readings are taken, ~ 10 minutes after a start).

2. Power Control

NOTE: Use of any steps in Power Control may not be apparent due to successful scram and first priority being water level.

3. Pressure Control

NOTE: Use if any steps in Pressure Control may not be apparent due to successful pressure control with the C85 system.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION	INSTRUCTOR NOTES
VII. PEI-B13 RPV Control	
1. Entry	
a. RO places the mode switch in SHUTDOWN.	212000-A4.01 4.6/4.6
b. BOP places the Hydrogen Analyzers in service on simulated panel P800.	295031-GEN 6 4.1/4.9
c. Unit Supervisor verifies/directs actions and proceeds to Power, Pressure and Level Control concurrently.	
2. Power Control	
a. RO verifies reactor power <4%.	295006-AA2.01 4.5/4.6
b. RO verifies all rods in.	295006-AA2.02 4.3/4.4
c. RO inserts neutron monitors.	295006-AA1.05 4.2/4.2
d. Unit Supervisor directs or verifies RO actions for power control.	295031-GEN 12 3.9/4.5
3. Pressure Control	
a. RO verifies that C85 System controls pressure.	241000-A1.01 3.9/3.8
b. Unit Supervisor directs/verifies pressure control and band.	241000-A1.07 3.8/3.7
	295031-EA2.03 4.2/4.2

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INSTRUCTOR PAGE

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

4. Level Control

NOTE: HP Systems injecting are RCIC/CRD. HPCS is available.

NOTE: 1 minute after RCIC initiation, a loss of level indications occurs due to small breaks on instrument lines.

PTS

STUDENT PAGE

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## 4. Level Control

- a. RO/BOP notifies Unit Supervisor of all available level control systems/trend rate.
- b. US designates systems to use to restore level and provides band of 185"-215".
- c. RO/BOP starts HPCS as directed by Unit Supervisor.

295031-EA1.03  
4.4/4.4295031-EA1.01  
4.4/4.4295031-EA2.01  
4.5/4.6295031-GEN 12  
3.9/4.5295031-EA1.04  
4.3/4.2

PTS

## INSTRUCTOR PAGE

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## INSTRUCTOR NOTES

Note time that crew realizes that flooding is required.

TIME: \_\_\_\_\_

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Maintain adequate core cooling.

2. Cues:

- All level indicators indicate upscale.

3. Measured by:

- Observation/Announcement - crew initiates actions for RPV level cannot be determined within 6 minutes of RCIC malfunction insertion.

4. Feedback:

- Level indications upscale
- L8 trips on RCIC, HPCS, MFP.

\*\*\*\*\*

NOTE: Steps 5 and 6 will be done concurrently to blow down the vessel prior to flooding.

5. Emergency Depressurization



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

## STUDENT DIRECTION

## INSTRUCTOR NOTES

\*d. RO/BOP monitors level/trend, notes a loss of level indication due to all indicators pegged high, informs Unit Supervisor.

295031-EA2.01  
4.6/4.6

e. Unit Supervisor determines that RPV level cannot be determined and transitions to Flooding and Emergency Depressurization.

295031-GEN 11  
4.2/4.6

5. Emergency Depressurization

a. RO/BOP verifies all rods in/Suppression Pool level greater than 5.25' and motor driven pump available.

212000-A3.03  
4.2/4.2

219000-A4.13  
3.9/3.8

295031-EA1.01  
4.4/4.4

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

NOTE: The following criteria apply to both the US directing the action and the RO/BOP performing it when directed. This counts as one critical step for the US, and one for the RO/BOP.

\* ISCT Criteria

1. Safety Significance:

- Provide adequate core cooling from ECCS.

2. Cues:

- Procedural

3. Measured by:

- Observation - 8 SRV's must be open when RPV pressure has stabilized at M.R.F.P.

4. Feedback:

- Low Pressure ECCS unable to inject due to RPV pressure.

\*\*\*\*\*

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STUDENT DIRECTION

INSTRUCTOR NOTES

\*b. US directs eight (8) SRV's open.

295031-GEN 12

3.9/4.5

\*c. RO/BOP opens eight (8) SRV's, when directed.

218000-A4.01

4.4/4.4

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INSTRUCTOR PAGE

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## INSTRUCTOR NOTES

ISCT Criteria for  
failure of RHR 'A'  
and ESW 'B' on page  
14.

## SIMULATOR SCENARIO GUIDANCE

## 6. RPV Flooding

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Prevent fuel damage
- Establish adequate core cooling

## 2. Cues:

- Procedural

## 3. Measured by:

- Observation - The following pumps are available to feed with:

HPCS  
LPCS  
RHRB  
RHRC  
RFBP's

If RFBP's are used, a minimum of at least one other ECCS pump must initially be used to establish M.R.F.P. otherwise, at least 3 ECCS pumps must be used.

## 4. Feedback:

- Excessive delay in raising RPV pressure
- Inability to reach/maintain M.R.F.P.

\*\*\*\*\*

NOTE: RO/BOP should try to keep pressure  
>M.R.F.P., but as low as possible.

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STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION	INSTRUCTOR NOTES
6. RPV Flooding	295031-EA2.04 4.6/4.8
a. Unit Supervisor directs isolating Reactor Vessel.	239001-A4.01 4.2/4.0
b. RO/BOP closes MSIV's, MSL drains and RCIC steam valves, when directed.	295031-EA2.04 4.6/4.8
*c. Unit Supervisor directs starting of designated systems for injection.	295031-GEN 10 4.0/3.8
*d. RO/BOP starts designated systems and injects to vessel, when directed.	295031-EA2.04 4.6/4.8
e. RO/BOP control injection to meet the following parameters:	
- Reactor pressure 70 psig greater than Containment pressure.	
- Pressure not decreasing.	
- At least eight (8) SRV's open.	
*f. RO/BOP recognizes failures of RHR 'A' and ESW 'B' if not previously done earlier.	

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INSTRUCTOR PAGE

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INSTRUCTOR NOTES

ISCT Criteria for failure of RHR 'A' and ESW 'B' on page 14.

NOTE: Simulator will make some H2 if the core is not adequately cooled for an extensive period of time.

SIMULATOR SCENARIO GUIDANCE

VIII. PEI-T23 Suppression Pool Temp. Control

IX. PEI-T23 Suppression Pool Level Control

NOTE: Entry into this instruction may be subtle due to water level priority.

X. PEI-M51/56

NOTE: Entry into this instruction may be subtle due to priority being on water level, however, the hydrogen igniters should be started.

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STUDENT PAGE

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STUDENT DIRECTION	INSTRUCTOR NOTES
VIII. PEI-T23 Suppression Pool Temp. Control	295026-GEN 11 4.4/.46
1. Unit Supervisor enters PEI-T23 when Suppression Pool Temperature exceeds 90°F.	295926-GEN 12 3.8/4.5
a. Unit Supervisor orders both loops of RHR placed into Suppression Pool Cooling.	295026-EA1.01 4.1/4.1
*b. RO/BOP recognizes failure of RHR and ESW.	295026-EA2.01 4.1/4.2
c. RO/BOP monitors Suppression Pool temperature, keeps the Unit Supervisor informed.	
IX. PEI-T23 Suppression Pool Level Control	
1. The Unit Supervisor enters PEI-T23 when Suppression Pool level exceeds 18'-6" and/or when it is less than 18"-0".	295029-GEN 11 295030-GEN 11 4.3/4.5
2. RO/BOP monitors Suppression Pool level, keeps the Unit Supervisor informed, and maintained >HCL and <SRVTPLL.	295030-EA2.01 4.1/4.2
X. PEI-M51/56 Actions	295031-GEN 11 4.2/4.6
1. Unit Supervisor enters PEI-M51/56 when level is unknown.	295031-EA2.04 4.6/4.8
a. Unit Supervisor orders hydrogen ignitors started.	295031-GEN 9 4.1/3.9
b. RO/BOP monitors hydrogen concentration, keeps the Unit Supervisor informed and maintains less than <4%.	



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INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

XI. PEI-T23 - Drywell Temperature Control

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Preserve reliability of class 1E, distribution system while maintaining adequate core cooling.

## 2. Cues:

- Procedural

## 3. Measured by:

- Neither stub bus is re-energized if crew realizes RPV level cannot be determined.

or

- If stub bus was energized first, it is tripped after crew realizes level cannot be determined.

## 4. Feedback:

- Indications of stub bus powered equipment (ie NCC) running while performing RPV flooding.

\*\*\*\*\*



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## STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## XI. PEI-T23 Drywell Temperature Control

1. Unit Supervisor enters PEI-T23 when Drywell Temp. >145°F.
2. RO/BOP monitors drywell temperature and keeps US informed.

3. ~~US ensure a stub bus in not re-energized due to RPV level cannot be determined.~~

~~295028-GEN 12~~  
~~3.8/4.3~~

4. RO/BOP may maximize drywell cooling, but does not energize a stub bus.

~~295028-GEN 12~~  
~~3.8/4.3~~

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-02E-02

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

## XI. Emergency Plan

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Emergency Plan Activation

## 2. Cues:

- Procedural
- Verbal reports

## 3. Measured by:

- Announcement
- Filling classification to evaluator in Post Scenario De-briefing.

## 4. Feedback:

- Regulatory/Administrative

\*\*\*\*\*

## XIII. Terminating Cue

1. When RPV pressure is  $\geq$  M.R.F.P. above containment pressure, place the simulator in FREEZE and conduct a Post Scenario De-briefing.

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STUDENT PAGE

NUMBER: OT-3058-ES-02E-02

STUDENT DIRECTION

INSTRUCTOR NOTES

XII. Emergency Plan

294001-A1.16  
2.9/4.7

- \* 1. SS consults EPI-A1 and declares at least an Alert. (D.II.1)
  - SS fills out forms and makes notifications per EPI-A2.
  - STA provides assistance as required.

XIII. Terminating Cue

1. Attend Post Scenario De-briefing.

PTS

## REVIEW SECTION

SCENARIO NUMBER: OT-3058-ES-02E-02

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-Plan classification, if not performed during the scenario. Do not critique the crew's performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-02E-02

US	SS	RO	STA
341-018-03-02	344-020-05-03	009-502-01-01	352-003-01-05
341-040-03-02	344-017-05-03	032-518-01-01	352-004-01-05
341-041-03-02	344-018-05-03	205-513-05-01	352-005-01-05
341-042-03-02	344-019-05-03	205-539-05-01	352-008-01-05
344-003-03-02	344-020-05-03	209-504-05-01	352-012-01-05
344-018-03-02	344-023-05-03	212-508-04-01	352-015-01-05
344-020-03-02	344-025-05-03	218-507-05-01	352-017-01-05
344-021-03-02	344-026-05-03	239-535-04-01	352-018-01-05
344-024-03-02	344-038-04-03		352-020-01-05
344-027-03-02			352-401-04-05
344-037-03-02			352-404-04-05
344-038-03-02			352-508-01-05
344-041-03-02			
344-042-03-02			
344-043-03-02			
344-044-03-02			
344-056-03-02			

PTS

# SCENARIO GUIDE COVER SHEET

NUMBER: OT-3058-ES-9A-00

EFFECTIVE DATE 10/26/92

## SCENARIO GUIDE REFERENCES:

SVI-C11-T1003A  
PTI-P54-P0035  
PAP-1923  
PAP-1914  
ONI-C34  
ARI-P680-3  
ONI-R10  
PEI-B13  
PEI-T23  
PEI-SPI  
EPI-A1  
EPI-A3  
EPI-A4  
SOI-R43  
ARI-P877-1,2  
ARI-P601-21A

## ADDITIONAL MATERIALS REQUIRED:

Information Copy of SVI-C11-T1003A  
Information Copy of IOI-3

## APPROVAL:

PREPARED BY J. D. Rice

DATE 10/15/92

REVIEWED BY N. W. Johnson

DATE 10/26/92

APPROVED BY Mike Wesley

DATE 10/26/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

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## LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-9A-00

	FAILURE/OVERRIDE	STATUS	DESCRIPTION
1.	RY02:1R22Q0706R	ACTIVE	EH-12 U.V. RELAY FAILS AS IS.
2.	CP02:1E22C0001	ACTIVE	HPCS PUMP SHAFT SEIZES.
3.	PT02:1C34N0004A	PEND E3	TRANSMITTER OFFSET - 30 MINUTE RAMP TO-100%.
4.	RY02:1R43RADG1	ACTIVE	DIV. 1 D/G START RELAY FAILS DE-ENERGIZED.
5.	ED13	PEND E4	GRID FRE. OSC. - SET TO 100%
6.	ED14	PEND E4	GRID VOLT. OSC. - SET TO 100%
7.	MV01:1E51F0046	PEND E6	VALVE 1E51-F046 CONTROL POWER FAILURE.
8.	CP02:1E51C0001	PEND E6	RCIC PUMP SHAFT SEIZURE - 2 MIN DELAY.
9.	AN:1H13P60121A[16]	PEND E6	RCIC OIL COOLER OUTLET TEMP. HI-OVERRIDE ON - 30 SEC. DELAY.
10.	AN:1H13P60121A[22]	PEND E6	RCIC COUPLING END OIL TEMP HI-OVERRIDE ON - 40 SEC. DELAY.
11.	AN:1H13P60121A[28]	PEND E6	RCIC GOVERN END OIL TEMP. HI-OVERRIDE ON - 50 SEC. DELAY
12.	AN:1H13P60121A[10]	PEND E6	RCIC LO OIL PRESSURE - OVERRIDE ON - 90 SEC. DELAY.
13.	AN:1H13P6808A[7]	PEND E5	OSCILLOGRAPH ALARM P910 - OVERRIDE ON.
14.	RY02:1R22Q0763L	ACTIVE	EH12 UV RELAY FAILS AS IS.
15.	RY02:1R22Q0764L	ACTIVE	EH12 UV RELAY FAILS AS IS.
16.	RY02:1E12K110B	ACTIVE	LOCA RELAY FAILS AS IS.
17.	RV02:1B21F0051D	PEND E7	F051D LEAKAGE - SET AT 75%.



PTS

## SCENARIO GUIDE OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-9A-00

### A. TERMINAL OBJECTIVE:

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

### B. ENABLING OBJECTIVES:

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include:
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evaluations in progress/planned
2. Using plant installed instrumentation, plant instructions and system responses, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions, from memory, in response to the following plant transients:
  - a. ONI-C34
  - b. ONI-R10
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-9A-00

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operators will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - d. Direct plant operators.
  - f. Inform US when complete.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level, pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and to make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.
8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.

PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-9A-00

9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
  
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with TAP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence, and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend actions to mitigate consequences of the event, and assist in completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

PTS

## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-9A-00

### INITIAL CONDITIONS

The plant is at 100% power, M.O.L. Routine surveillances are scheduled for this shift. NCC "B", H/W pump B, and S/W pump B are O.O.S. for repet. tasks.

### SEQUENCE OF EVENTS

The crew commences the rod exercise SVI. The diesel driven fire pump is discovered Inoperable due to not starting during a routine PTI. The level transmitter for the in service channel to C34 fails low, requiring crew actions to terminate a level transient and select a working channel. A small plane crash into a transmission tower causes a Station Blackout. Multiple equipment failures result in a loss of all injection systems. Division II D/G will be successfully, manually started, allowing ECCS pumps to provide adequate core cooling.

### FINAL PLANT CONDITIONS

Adequate core cooling maintain by Div. II ECCS. Preparations made for restoring Off-site power. The E-Plan is entered to at least the Alert level.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP - 6  
US - 3  
SS - 2

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

RF's for Tagout:

SW012, SW015  
FW02, FW05  
SW004, SW008

Tagged out pumps:  
NCC B, SW B, H/W B.

## I. Setup

A. Initialize to I'-23 and establish the following:

1. Shift to NCC A and C, SW A, C, D and HW pumps A and C.
2. Place red switch caps on the tagged out pumps and toggle remote functions to support tagouts. Tagout SW B Discharge valve, also.
3. Insert/verify failures on page 3.
4. Assign Triggers:

E2 - ZA1R43R0030B.GE.0.4 (DGSPEED)  
E5 - ZA1N41RD016.GE.0.55(FREQUENCY)  
E6 - RCVPIE51F0046.NE.0.0(1E51F0046)  
E7 - ADVPIE51F0051D.GE.0.2  
(F0051D position)

5. Assign commands to triggers:

E2 - DMF RY02:1R22Q0706R  
E5 - BAT onir10

6. Toggle Remote Function FP01 to STOP. Verify "Input" is STOP and "OUTPUT" is OFF on the Remote Function summary.
7. Restore MP file onir10.

## II. Pre-Shift Brief

A. Conduct a Pre-shift brief with the crew and review the following:

1. All ECCS and D/G's operable.
2. NCC B, SW B, and HW B, OOS for maintenance.
3. Plant is 100% power, M.O.L. rods at step 71.
4. PTI-P54-P0035 in progress in the field. Motor Fire Pump completed, going on to Diesel Fire Pump. (PTI section 5.2)
5. Commence SVI-C11-T1003A as soon as crew takes the shift. Give SVI to US, and inform him that stall flows are not required.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

STUDENT DIRECTION

INSTRUCTOR NOTES

I. No actions required.

II. Crew members attend pre-shift brief, Exit to control room, where they walkdown panels, become familiar with plant conditions and assume shift.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Time: ~05

If asked, PPO can also report that all other equipment such as vent fans, etc., operated normally.

## III. Rod Exercise Test

- A. No instructor actions required.
- B. Evaluate SVI performance.

## IV. Diesel Fire Pump Failure

- A. After the first couple rods are performed call control room as PPO and report Diesel Fire pump failed to start when performing PTI-P54-P0035, step 5.2.7. Report that the engine cranked but never started. (Copy of PTI attached as a reference.)
- B. Evaluate actions for Inoperable Fire Protection Systems, PAP-1923.

NOTE: (Amplifying information) The specific failure being simulated is a failure of the fuel solenoid. (Allows fuel to diesel). The diesel control system will attempt 6, 15 second starts, waiting 15 seconds between start attempts, and alternates batteries for each attempt. SAS receives a fail to start computer alarm after the last attempt. This information may or may not be requested by the crew.



PTS

STUDENT PAGE

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## STUDENT DIRECTION

## INSTRUCTOR NOTES

## III. Rod Exercise Test

## A. US assign SVI to RO/BOP.

1. RO/BOP obtains US approval for pre-reqs.
2. RO/BOP signs in SVI into unit log.
3. US determines personnel requirements for concurrent Dual Verification.
4. Crew commences rod exercise.

201003-...02  
3.5/3.5

## IV. Diesel Fire Pump Failure

## A. RO/BOP receives communication concerning failure of Diesel Fire Pump, informs US.

## B. US/SS consult PAP-1923 and determine that:

1. Both fire pumps are required.
2. The diesel driven pump is Inoperable.
3. It must be repaired with 7 days, or a backup pump is required.

286000-K3.03  
3.6/3.8  
286000-GEN 1  
3.8/4.0  
286000-GEN 2  
3.2/3.8

## C. US ensures WR is written.

## D. US/SS consults PAP-1914 regarding fire impairments and contacts the RSE.



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 15

- V. Level Channel Failure
- A. Trigger E3 to commence failure of C34 Level channel 'A'.
  - B. Evaluate use of ARI's, ONI and control board manipulations.
  - C. If the crew scrams the reactor, go to next section and manually Trigger E5, vice E4.
  - D. If asked as I&C, report no other control room level instruments appear affected.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

STUDENT DIRECTION	INSTRUCTOR NOTES
<p>V. Level Channel Failure</p> <p>A. Crew notes increasing RPV level and responds to alarms.</p> <p>B. Crew diagnosis failure of Level channel A.</p> <p>C. US enters ONI-C34 and directs that:</p> <ol style="list-style-type: none"><li>1. RO/BOP places RFPT's on their manual pots with the flow controllers in manual, or</li><li>2. Level channel B immediately selected to be on service.</li></ol> <p>D. RO/BOP performs designate feedwater control manipulations and restores level to 192-200", using Channel 'B'.</p> <p>E. US directs troubleshooting.</p> <p>F. US refers to T.S. 3.3.9 and writes ALCO on channel A.</p>	<p>259002-K1.03 3.8/3.9</p> <p>259002-A2.03 3.6/3.7</p> <p>259002-A2.03 3.6/3.7</p> <p>259002-GEN 11 3.3/4.0</p>

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Time: 30

## VI. Station Blackout

Time: 35

A. Trigger E4 to commence voltage and frequency oscillations which lead to S.B.O.

B. Call as S.O.C., report that the state Highway patrol reports a small plane crash into a transmission tower in Perry Township. No estimate on when Off-site power can be restored.

NOTE: RCIC will seize not long into the event. Since the diesel Fire pump has failed, that leaves the crew with no injection systems.

- Div. 1 D/G will not start
- Div. 2 D/G will successfully restart either locally or remotely since only the U.V. relay has failed.
- HPCS trips on overcurrent with a seized shaft.

## C. Level Control

1. Perform PPO, I&C, etc. support as required.
2. When sent to troubleshoot E51-F046, report both positive and negative main line fuses blown, as well as some cubicle damage. (Appearances of a severe electrical fault).

PTS

STUDENT PAGE

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STUDENT DIRECTION

INSTRUCTOR NOTES

VI. Station Blackout

295003-AA2.05  
3.9/4.2

A. Crew responds to alarms, recognize Station Blackout situation.

295003-AA2.02  
4.2/4.3

B. US enters PEI's and ONI-R10 concurrently.

295031-GEN 12  
3.9/4.5

C. Level control - US directs the following:

1. RCIC armed and depressed (ONI-R10 direction).

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Recognize failures/malfunctions of safety related or ESF systems.

## 2. Cues:

- Procedural

## 3. Measured by:

- The failures of the D/G's, HPCS, and RCIC are recognized and reported to the US.
- Recognition may be evidenced by announcement of troubleshooting or other compensatory activities.

## 4. Feedback:

- Below normal lighting levels
- Annunciators
- Decreasing trend in RPV level

\*\*\*\*\*

3. When sent to investigate HPCS failure, report Over-Current trips on all 3 phases.

4. Troubleshooting reports concerning Div. I D/G should be inconclusive. No definitive cause for the failure. Air pressures for both D/G air banks, can be obtained from MPS.

NOTE: Section G runs concurrently with the PEI portion of the scenario and contains further ONI-R10 instructor actions.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

- |  |  |
|--|--|
| 2. RO/BOP verifies items which should have initiated, but did not.<br><br>*a. Diesel Generators  | 295003-AA1.02<br>4.2/4.3                                 |
| 3. RO/BOP recognizes and reports to the US that injection systems trip.<br><br>*a. HPCS<br>*b. RCIC  | 295031-EA1.05<br>4.3/4.3<br><br>295031-EA1.05<br>4.3/4.3 |
| 4. US transitions to level restoration section of level control flowchart and directs alternate injection systems aligned if/when power is available.<br><br>a. RO/BOP aligns systems as directed. | 295031-GEN 12<br>3.9/4.5                                 |
| 5. US transitions to steam cooling if Div. 2 D/G has not been restored by 0". (ERIS indication).   | 295031-GEN 12<br>3.9/4.5                                 |

PTS

INSTRUCTOR PAGE

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## INSTRUCTOR NOTES

The speed at which the crew restores the Div. II D/G will determine whether steam cooling is performed.

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Provide for adequate core cooling by permitting injection of low pressure systems.
- Provide for adequate core cooling by maximizes steam cooling.

## 2. Cues:

- Procedural steps

## 3. Measured by:

- The US directs and the RO/BOP opens 8 SRV's when the following conditions exist. (
- RPV level decreases to -10", ERIS, or -40", Fuel Zone, with any injection system running, or
- RPV level decreases to -52.5", ERIS or -82.5", Fuel Zone, with no injection systems running, or
- RPV level is between these two values and the crew restores an injection system with valves open and a pump running.

## 4. Feedback:

- ERIS and Panel indication of RPV level.

\*\*\*\*\*

PTS

STUDENT PAGE

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STUDENT DIRECTION

INSTRUCTOR NOTES

\*6. US directs Emergency Depressurization when RPV level reaches 0", with any injection system running and lined up, or, when RPV level reaches -42.5 with no systems available.

295031-EA1.06  
4.4/4.4

\*a. RO/BOP opens 8 SRV's when directed.

295031-EA1.07  
3.7/3.7



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Restore/maintain adequate core cooling.

## 2. Cues:

- Procedural steps

## 3. Measured by:

- The US directs and the RO/BOP restores RPV to above T.A.F., (0" ERIS, - 30" Fuel Zone) with any or all of the following systems:

RHR 'B'  
RHR 'C'  
CRDH 'B'  
SLC 'B'

## 4. Feedback:

- ERIS and Panel indications of RPV level

\*\*\*\*\*

## D. Pressure Control

1. Critical steps and ISCT Criteria regarding Emergency Depressurization are in section C - Level Control.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

\*7. Following Emergency Depressurization,  
US directs level restoration to 185" -  
215" to restore adequate core cooling.

295031-GEN 12  
3.9/4.5

\*a. RO/BOP restores level when  
directed, using designated systems  
raising level into the ordered band  
with any or all of the following:

295031-EA1.02  
4.6/4.6

- RHR 'B'
- RHR 'C'
- CRDH 'B'
- SLC 'B'

D. Pressure Control - US directs the  
following:

295031-EA1.03  
4.2/4.2

1. RO/BOP stabilizes pressure below 1000#  
with SRV's.
2. Crew may recognize stuck open SRV and  
take actions per ONI-B21-1.
3. US transitions to Emergency  
Depressurization when required by Level  
Control.

PTS

INSTRUCTOR PAGE

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

E. Power Control

1. If needed, give crew members information that all ARPMS indicate the same as D and H.

F. Suppression Pool Temperature Control

1. It is not anticipated that the crew will challenge HCL. However, if challenged, evaluate any possible safety significant steps per ES-604 step D.2.b.3.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

E. Power Control - US directs the following:

295003-AA2.02  
4.2/4.3

1. RO/BOP verifies power <4%. (Can be accomplished at back panels).
2. RO/BOP verifies all rods in, inserts SRM/IRM detectors and monitors SRM counts once power is restored.

F. Suppression Pool Temperature Control - US directs the following:

295013-AA2.01  
3.8/3.9

1. RO/BOP places RHR 'B' into Suppression Pool Cooling once power is restored and RHR 'B' not needed for adequate core cooling.

295013-AA1.01  
3.9/3.9

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

## INSTRUCTOR NOTES

For consistency;  
Breaker  
racking/rackout  
evolutions should  
take 5 min. per  
breaker per PPO.

## SIMULATOR SCENARIO GUIDANCE

## G. ONI-R10

1. Perform PPO/I&C functions as required, it is not anticipated that any followup reports from S.O.C. will be needed, due to the short duration of the scenario.
2. Manual/Local manual starts are accomplished using the respective applicable Remote Functions in system D/G. As PPO coordinate with crew. Do not Prompt.

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance:

- Adequate core cooling - Restore the degraded Emergency power supplies.

## 2. Cues:

- Procedural

## 3. Measured by:

- Crew is successful in starting Div. 2 D/G, either locally or remotely and re-energizing EH12.

## 4. Feedback:

- Indicators on Panels of de-energized/energized ECCS components.

\*\*\*\*\*

## 3. When reporting conditions from Div. 2 and 2 D/G's:

- a. Div. 1 did receive a start signal but did not start. No immediate cause Why, yet.
- b. Div. 2 did not appear to received a start signal.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

G. ONI-R10 - US directs the following:

262001-A4.01  
3.4/3.7

1. RO/BOP performs Attachment 7,  
Preparation for D/G Restoration.

a. RO/BOP orders PPO to rack out  
designated brkrs on EH11 and 12.

2. The SS may direct defeating non-LOCA  
trips on both D/G's due to the loss of  
RCIC.

a. RO/BOP arms and depresses both  
divisions of ECCS.

264000-A4.04  
3.7/3.7

- \*3. US directs a local/manual start of Div.  
1 and Div. 2 D/G's.

264000-A4.04  
3.7/3.7

\*a. RO/BOP performs a local/manual  
start on Div. 1 and Div. 2 D/G's.

295003-AK2.03  
3.7/3.9

4. US directs applicable sections  
performed in Attachment 6, Maintaining  
System Operability.

a. RO/BOP orders batteries x-tied.

b. RO/BOP opens all control room  
doors.

c. RO/BOP orders a P51 receiver tank  
isolated.

262001-A4.01  
3.4/3.7

5. US directs performance of Attachment 9,  
Preparation for Off-site Power  
Restoration.

a. RO/BOP opens breakers in Attachment  
2 and 3.

b. RO/BOP continues Attachment 9.

PTS

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INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

4. When asked to troubleshoot HPCS report over-current trips on all 3 phases. Pump itself will not rotate.
5. Critical steps and ISCT Criteria regarding further actions for level restoration are in Section C - Level Control.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

STUDENT DIRECTION

INSTRUCTOR NOTES

6. US directs restoring Div. 2 ECCS pumps.

295003-AA1.01  
3.7/3.8

a. RO/BOP orders RHR B and C racked  
in.

295003-AA1.01  
3.7/3.8

Note: RPV level restoration steps  
contained in Section C - Level  
Control, step 7.

295031-EA1.01  
4.4/4.4

7. US directs further supplemental  
actions, as required.



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

H. Emergency Plan

1. Function as S.A.S/Communicator as required.

\*\*\*\*\*

\* ISCT Criteria

1. Safety Significance:

- Emergency Plan Activation

2. Cues:

- Procedural

3. Measured by:

- Announcement
- Stating classification to evaluator in the Post Scenario De-briefing
- Completing appropriate forms

4. Feedback:

- Regulatory/Administrative

\*\*\*\*\*

I. STA Actions

1. Monitor/Evaluate STA when assigned.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## H. Emergency Plan

294001-A1.16  
2.9/4.7

- \*1. SS consults EPI-A1 and declares at least an Alert. (D.II.1, G.II.1)
- \*2. SS declares/upgrades to a Site Area Emergency if both EH buses were de-energized for longer than 15 min. (G.III.1)
- 3. SS informs the crew and makes the required notification.

294001-a1.16  
2.9/4.7

## I. STA Actions

- 1. During this scenario the STA should:
  - a. Monitor control rod manipulations.
  - b. Assist in Tech. Spec. and E-Plan evaluations.
  - c. Use panel or ERIS indications to provide crew with trending information.
  - d. Monitor crew activities and adherence to procedures.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-9A-00

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 50

VII. Termination Cue

A. At time 50 and when the crew is  
controlling RPV Level above T.A.F.:

1. Place the simulator in FREEZE.
2. Conduct Post Scenario De-briefing.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-9A-00

STUDENT DIRECTION

INSTRUCTOR NOTES

VII. Termination Cue

A. Attend Post Scenario De-briefing.

PTS	REVIEW SECTION
-----	----------------

SCENARIO NUMBER: OT-3058-ES-9A-00

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-Plan classification, if not performed during the scenario. Do not critique the crew performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-9A-00

STA	US	SS	RO
351-001-01-05	218-002-01-02	341-506-01-03	006-511-01-01
351-008-01-05	341-014-03-02	344-002-04-03	009-502-01-01
351-011-01-05	341-018-03-02	344-003-04-03	009-519-05-01
351-016-01-05	341-037-03-02	344-004-04-03	032-506-01-01
352-003-01-05	341-042-03-02	344-007-04-03	032-509-01-01
352-004-01-05	341-046-03-02	344-013-04-03	032-518-01-01
352-005-01-05	341-527-03-02	344-017-05-03	032-519-04-01
352-008-01-05	341-536-03-02	344-018-05-03	032-531-01-01
352-012-01-05	341-547-03-02	344-019-05-03	062-502-04-01
352-014-01-05	344-003-03-02	344-020-05-03	066-508-04-01
352-015-01-05	344-018-03-02	344-022-05-03	067-502-04-01
352-017-01-05	344-020-03-02	344-023-05-03	098-502-04-01
352-018-01-05	344-021-03-02	344-024-05-03	205-521-01-01
352-020-01-05	344-024-03-02	344-025-05-03	205-524-01-01
352-022-01-05	344-037-03-02	344-026-05-03	205-539-05-01
352-404-04-05	344-038-03-02	344-034-05-03	206-517-01-01
352-508-01-05	344-041-03-02	344-038-04-03	208-518-04-04
355-514-03-05	344-042-03-02	344-502-05-03	218-502-05-01
356-009-01-05	344-043-03-02		239-514-04-01
357-002-01-05	344-044-03-02		262-522-01-01
	344-047-03-02		262-525-04-01
	344-055-03-02		264-507-01-01
			264-509-01-01
			274-508-04-01
			276-513-04-01
			278-508-01-01
			279-508-01-01
			302-509-01-01
			304-512-01-07

# NON-INTENT

## INSTRUCTION TEMPORARY CHANGE

TEMPORARY CHANGE NO.

TCN- 3

PNPP NO. 7309  
Rev 5/88  
PAP-0522-1

INSTRUCTION NO. OMTC: <b>PTI-P54-P0035</b>	REV. <b>3</b>	INSTRUCTION TITLE <b>ELECTRIC AND DIESEL FIRE PUMP WEEKLY OPERABILITY TEST</b>
CANCELS TON(S): <b>N/A</b>		
LIST PAGE NO. OF EACH ATTACHED PAGE: <b>2, 2a, 4, 4a, 7, 7a, 9</b>		ADMIN. USE ONLY  <b>PNPP CONTROLLED COPY No. 005</b>
<p>REASON</p> <p><b>TO INCORPORATE LUBE OIL SAMPLE AS REQUIRED BY OI NU-PT-90-21.</b></p> <p><b>Also to DELETE ADDITIVE TASK.</b></p> <p><b>REFERENCE - REPETITIVE TASK # 87-002652 86-014318</b></p>		

PROCESS FOR:

☐ CONDITIONAL APPROVAL

☒ FINAL APPROVAL ONLY

EFFECTIVE DATE

**10-8-90**

ORIGINATOR <b>Daniel P. Mott</b>	DATE <b>9/7/90</b>
-------------------------------------	-----------------------

CONDITIONAL APPROVAL/IN DEPTH REVIEW (Please indicate review date)	DATE <b>9/15/90</b>
---	------------------------

CONDITIONAL APPROVAL (SS or US)	DATE <b>NA</b>
------------------------------------	-------------------

APPROVED	RESPONSIBLE MANAGER <b>H. Mott</b>	DATE <b>10/2/90</b>
----------	---------------------------------------	------------------------

<p>FORC MTS. NO.: <b>NA</b></p> <p>RECOMMENDED FOR:</p> <p><input type="checkbox"/> APPROVAL</p> <p><input type="checkbox"/> DISAPPROVAL</p>	<p>DIRECTOR PPTD <b>NA</b></p> <p>GENERAL MANAGER PPTD <b>NA</b></p>	DATE
--	--	------

<p>REASON FOR DISAPPROVAL</p>	<p>BY <b>CSO</b></p> <p>DATE <b>10-8-90</b></p>
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# NON-INTENT INSTRUCTION TEMPORARY CHANGE

TEMPORARY CHANGE NO.

TCN- 2

INSTRUCTION NO. OM7C:	REV.	INSTRUCTION TITLE
PTI-P54-P0035	3	Electric and Diesel Fire Pump Weekly Operability Test
UNLESS NOTED:		
N/A		
LIST PAGE NO. OF EACH ATTACHED PAGE.		ADMIN. USE ONLY
3, 7		<p>PNPP CONTROLLED COPY NO. 005</p>
<p>REASON To temporarily modify the method of placing P54-C0007 in the secured status due to a mechanical problem with the local breaker on H51-P196. This item will be repaired by Work Order 90-1948, however a 26-week lead time for replacement parts exists.</p> <p>This TC does not alter this instruction in a manner which has a safety significance, change any requirements of the Technical Specifications, or alter the Acceptance Criteria.</p>		

PROCESS FOR:

☒ CONDITIONAL APPROVAL

☐ FINAL APPROVAL ONLY

EFFECTIVE DATE

8-6-90

ORIGINATOR	DATE
<i>C. Andrew Caplinger</i>	
C. Andrew Caplinger	08-06-90

CONDITIONAL APPROVAL/IN DEPTH REVIEW

CONDITIONAL APPROVAL

(Plant Management Staff)	DATE
<i>ABP</i>	8-6-90

(SS or LS)	DATE
<i>ABP</i>	8-6-90

FINAL APPROVAL	APPROVED	RESPONSIBLE MANAGER	DATE
	<i>H. H. H.</i>		8/17/90
	PORC MTC. NO.:	DATE	
	N/A		
RECOMMENDED FOR:	DATE		
	<input type="checkbox"/> APPROVAL	DATE	
<input type="checkbox"/> DISAPPROVAL	DATE		
REASON FOR DISAPPROVAL			DATE
BY			DATE
<i>CSC</i>			8-20-90



# NON-INTENT INSTRUCTION TEMPORARY CHANGE

TEMPORARY CHANGE NO.

TCN- 1

INSTRUCTION NO. OM7C: PTI-P54-P0035 UNCLAS TCN(S): N/A	REV. 3	INSTRUCTION TITLE ELECTRIC AND DIESEL FIRE PUMP WEEKLY OPERABILITY TEST
--	-----------	--

LIST PAGE NO. OF EACH ATTACHED PAGE:

3, 3a, 4, 6, and 7

REASON

To correct typographical errors in steps 5.1.5, 5.1.7, 5.2.1, 5.2.14, and 5.2.17.

To record additional information for the Fire Service Jockey Pump.

To verify the position of the Diesel Fire Pump Fuel Oil Supply Valve.

To clarify run time recording for the Diesel Fire Pump.

This TC does not alter the method of testing in a manner which has a safety significance, change any requirements of the Technical Specifications, or alter the Acceptance Criteria.

ADMIN. USE ONLY

PNPP CONTROLLED  
COPY No.

005

PROCESS FOR:

☐ CONDITIONAL APPROVAL

☒ FINAL APPROVAL ONLY

EFFECTIVE DATE

11/5/89

ORIGINATOR <i>William J. Allen</i>	DATE 10/19/89
---------------------------------------	------------------

CONDITIONAL APPROVAL/IN DEPTH REVIEW

(PLANT MANAGEMENT ONLY)

<i>J. Andrew Caplinger</i>	DATE 10/19/89
----------------------------	------------------

CONDITIONAL APPROVAL

(SS or US)

NA

APPROVED	RESPONSIBLE MANAGER <i>J. Andrew Caplinger</i>	DATE 10/31/89
----------	---	------------------

P O R T C	POHC HTG. NO.: NA	DIRECTOR PPTD NA	DATE
	RECOMMENDED FOR:	GENERAL MANAGER PPSO	DATE
	<input type="checkbox"/> APPROVAL <input type="checkbox"/> DISAPPROVAL	NA	

REASON FOR DISAPPROVAL	BY VT DATE 11-3-89
------------------------	-----------------------------

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY  
PERRY NUCLEAR POWER PLANT OPERATIONS MANUAL

Periodic Test Instruction

TITLE: ELECTRIC AND DIESEL FIRE PUMP WEEKLY OPERABILITY TEST

REVISION: 3 EFFECTIVE DATE: 4/25/89

PNPP CONTROLLED  
COPY 1A.

005

PROD  
PPTS DATE

P R E V I E W / E W	PREPARER:	C. Andrew Caplinger <i>P. Andrew Caplinger</i>	4-10-89
	REVIEWER:	<i>[Signature]</i>	4/20/89
	PORC MEETING NO.:	<i>N/A</i>	

I V A L I D A T I O N	***** NOTE: Complete this block only if in-plant validation is desired *****		
	APPROVAL FOR VALIDATION:	<i>N/A</i>	
	VALIDATION COMPLETE:		
	VALIDATION TC'S INCORPORATED:	BY:	

A P P	APPROVED:	<i>[Signature]</i>	4/1/89
-------------	-----------	--------------------	--------

		Yes	No
Is there a change to the plant as described in the USAR?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reason: <u>The construction verifies reliability of installed solvent equipment only, and will not cause any physical plant change</u>			
Is there a change to a procedure/instruction as described in the USAR?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reason: <u>USAR 9.5.1.9 only describe this test as being performed in accordance with applicable AFPA Codes and Standards, to which it conforms.</u>			
Is there a test or experiment not described in the USAR?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reason: <u>Permitte testing of full pumpage is permissible per USAR 9.5.1.9</u>			
Is there a change to the Technical Specifications?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there an effect on the environment or change to the Environmental Protection Plan?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reason: <u>The performance of this instruction will not cause the release of any environmentally detrimental solid, liquid, or gases.</u>			
<input checked="" type="checkbox"/>	Answers to all questions are "No", no potential for an Unreviewed Safety or Environmental Question exists, no further review required.		
<input type="checkbox"/>	Answers to one or more questions is "Yes", further review required. Safety Evaluation Number _____ Environmental Evaluation Number _____		
Prepared/Date	Reviewed/Date	Approved/Date	
<i>J. H. H. H. H. H.</i> 4/21/89	<i>Michael X. Delia</i> 4/21/89	<i>J. H. H. H. H.</i> 4/21/89	

Rev. 3 - 1. TC's from previous revision that were evaluated for incorporation - TC-1 and TC-3.  
2. Deleted use of the flow test values.  
3. Complete revision. No rev. bars included.

Electric and Diesel Fire Pump Weekly Operability Test1.0 DESCRIPTION1.1 Scope

This instruction verifies that the Electric Motor and Diesel Driven Fire Pumps are operable on a weekly basis.

The Fire Pumps are started by creating a system demand which verifies that the pumps will start at their respective setpoints, which in turn verifies that the pumps will start sequentially.

The Electric Motor Fire Pump will be run for 15 minutes. The Diesel Driven Fire Pump will be run for 30 minutes in order to attain normal operating temperatures and to verify that it operates smoothly at rated speed.

This instruction is performed in accordance with USAR 9.5 and Appendix 9A, PAP-1923, and NFPA Codes 13A-1987 and 20-1987.

1.2 Frequency

This instruction shall be performed at least once per 7 days.

1.3 Technical Specification Applicable Operational Conditions:

1, 2, 3, 4, 5

2.0 PRECAUTIONS AND LIMITATIONS

2.1 All steps of this instruction are to be performed in sequence and the instruction followed through to completion unless otherwise indicated or limited by an out-of-service component.

2.2 Steps marked with a c sign immediately to the left are required to be completed satisfactorily to prove the fire pump operable.

2.3 Those steps of this instruction designated by an initial block/line are to be initialed as data is entered or as each step is completed. These steps may require additional initials or signatures to be entered on other sheets, such as the Data Package Cover Sheet or on an attachment.

2.4 In the event of an actual fire, return all components to standby readiness as expeditiously as practical.

3.0 MANPOWER AND EQUIPMENT

3.1 Manpower/Communications

- TC-3
1. Operators in the ESW Pump House to operate the equipment, communicate with the Control Room/Secondary Alarm Station (SAS), and obtain lube oil samples.
  2. Communications shall be established between the Control Room, SAS, and the ESW Pump House for the duration of the Test.

3.2 Required Measuring and Test Equipment

Not Applicable

3.3 Additional Tools and Equipment

TC-3

Standard timing device (Wristwatch)

Hand-held vacuum pump (to drain oil sample)

Lube oil sample bottles (1 liter each)

(CO02) Mobil DTE Medium s/c 9411455

(CO01) Mobil Delvac 1300 Super s/c 1320051

4.0 PREREQUISITES

Initials

1. Obtain the Unit Supervisor's "Authorization to Start Prerequisites" signature on the Data Package Cover Sheet. \_\_\_\_\_
2. Every six months, vibration readings must be taken on the Electric and Diesel Fire Pumps. Have the Unit Supervisor determine vibration monitoring requirements from the Task Card associated with this instruction and check YES or NO:
  - a. P54-C0001, Diesel Fire Pump - Vibration Monitoring required ☐ YES ☐ NO \_\_\_\_\_
  - b. P54-C0002, Electric Fire Pump - Vibration Monitoring required ☐ YES ☐ NO \_\_\_\_\_

NOTE: If not required, 5.1.9 and/or 5.2.9 may be N/A'd.

TC-  
3

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Page: 2a  
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Initials

TC-  
3

2a. Lube oil samples are required every three months from pumps P54-C001 and P54-C002. Have the Unit Supervisor determine if oil sampling is required from the task card associated with this instruction and check Yes or No:

- a. P54-C001, Diesel Fire Pump - Lube Oil Sample required? Yes [ ] No [ ] \_\_\_\_\_
- b. P54-C002, Electric Fire Pump - Lube Oil Sample required? Yes [ ] No [ ] \_\_\_\_\_

NOTE: If not required, N/A Steps 5.1.11 and/or 5.2.16a as appropriate.

3. This instruction may be performed during any plant operational condition. \_\_\_\_\_
4. Verify no other demands for P54 water exists, i.e., the performance of other P54 PTI's or use of water at the Fire Training Facility. \_\_\_\_\_

Initials5.0 PERIODIC TEST INSTRUCTION

1. Obtain the Supervising Operator's "Authorization to Start the Test" signature on the Data Package Cover Sheet.

5.1 Electric Fire Pump Run

1. At the Construction Fire Water Pumphouse, verify hand switch on H51-P198, Jockey Pump P54-C006 Controller, is OFF.
2. Isolate Construction Fire Pump P54-C007 at Controller Panel H51-P196 as follows:
  - a. Verify P54-C007 is not running.
  - b. Depress and hold STOP button.
  - c. Deleted
  - d. Place P54-C007 Isolation Switch in OFF.
  - e. Release STOP button.
3. Station one operator at Pressure Indicator P54-R0701, and operate the Fire Service Jockey Pump thru one run cycle as follows:
  - a. Verify hand switch on H51-P103, Jockey Pump Control Panel, is in Auto.
  - b. Verify Jockey Pump P54-C003 is not running.
  - c. Slowly open Test Isol Vlv P54-F1452 and bleed pressure until P54-C003 Auto Starts, then immediately close P54-F1452.
  - d. Record Starting Pressure of P54-C003 as indicated on P54-R0701 \_\_\_\_\_ psig. (@ 130 psig).
  - e. Record shutoff pressure at P54-C003 as indicated on P54-R0701 \_\_\_\_\_ psig (@ 140 psig).
  - f. Record approximate time in minutes/seconds required for P54-C003 to operate from an Auto Start to an Auto Stop \_\_\_\_\_.
  - g. Secure P54-C003 by placing the hand switch on H51-P103 in OFF.
4. Verify Electric Motor Fire Pump P54-C002 is in standby readiness.
  - a. Red power on light is ON at H51-P102.
  - b. SAS addresses 22702/22703 indicate NORMAL.
5. Station one operator at Pressure Indicator P54-R0701 to observe P54-C002 starting pressure.

Initials

6. Slowly Open Test Isol Vlv P54-F1451 and bleed pressure until P54-C002 Auto Starts, then immediately close P54-F1451.

Independent Verification:

- c a. Record Starting Pressure as indicated on P54-R0701 \_\_\_\_\_ psig.  
(Acceptable range = 115 to 125 psig)
- c b. Verify SAS address 22702 indicates ALARM.
- c c. Record pump start time \_\_\_\_\_ hrs.
7. Record pump discharge pressure as indicated on Pressure Indicator P54-R0040 \_\_\_\_\_ psig.



Initials

8. Continue to run P54-C002 for 15 minutes. \_\_\_\_\_
9. If Repetitive Task for Vibration Monitoring is required, record readings per PAP-1108 and attach Data Sheets to this instruction. \_\_\_\_\_
10. Stop P54-C002 by depressing the STOP button on E51-P102. \_\_\_\_\_
- a. Record Pump Stop Time \_\_\_\_\_ hrs. \_\_\_\_\_
- b. Verify SAS address 22702 indicates NORMAL. \_\_\_\_\_

NOTE: P54-C002 may Auto Start while performing initial steps of Section 5.2.

- TC  
3
11. Take two one liter oil samples (one from each bearing) from P54-C002 and deliver to Chemistry for analysis in accordance with PAP-1102. Label the sample with equipment MPL, name, sample source, and date. Restore oil to proper levels as required. (See 3.3 for oil type) \_\_\_\_\_

5.2 Diesel Fire Pump Run

- TC  
1
1. Verify Diesel Fire Pump P54-C001 is in Standby Readiness. \_\_\_\_\_
- a. Green Power on light is ON at E51-P101. \_\_\_\_\_
- b. Local Control Switch on E51-P101 is in AUTO. \_\_\_\_\_
- c. Record any other indication lamps on E51-P101 that are illuminated: \_\_\_\_\_
- d. SAS addresses 22501/22502/22604 indicate NORMAL. (NOTE: Address 22604 will indicate alarm if any data is recorded on line c above). \_\_\_\_\_
- e. Ventilation fans for Diesel Fire Pump Room (M46C009A&B) are in Auto at M46 System Ventilation Fan Control Station No. 10, E51-P029. \_\_\_\_\_
- f. Diesel engine block heater is operating. Engine block should be warm. \_\_\_\_\_
- g. Verify adequate internal cooling water supply by opening top of heat exchanger (above P54-P623 and water pump) and observing anti-freeze/water mixture is near the top. \_\_\_\_\_
- h. Verify engine oil level is adequate by observing level on the dipstick. \_\_\_\_\_

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3 | Page: 4a  
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Initials

NOTE: Whenever the engine is started, the Low Oil Pressure light may come on momentarily until engine builds up oil pressure.

- TC- | 1. Verify Diesel Fire Pump Fuel Oil Supply Valve  
1 | P54-F817 is Locked Open.

Initials

2. Verify the Diesel Cooling Water lineup is the following:
  - a. P54-F622 is open. \_\_\_\_\_
  - b. P54-F624 is open. \_\_\_\_\_
  - c. P54-F623 is closed. \_\_\_\_\_
3. Verify Electric Motor Fire Pump P54-C002 is not running. \_\_\_\_\_
4. At H51-P102, place P54-C002 in secured status as follows:
  - a. Verify the Emergency Run Button is released. \_\_\_\_\_
  - b. Hold the STOP pushbutton depressed. \_\_\_\_\_
  - c. Place the disconnect and breaker operating handle in OFF. \_\_\_\_\_
  - d. Verify the Red POWER ON light is OFF. \_\_\_\_\_
  - e. Release the STOP pushbutton. \_\_\_\_\_
  - f. Verify SAS address 22703 indicates ALARM. \_\_\_\_\_
5. Station one operator at Fire Service Main Pressure Indicator P54-R0701. \_\_\_\_\_

NOTE: The performance of the next steps will cause the Diesel Fire Pump to start. Visual communication may be necessary between the operator at the Diesel Fire Pump and the operator at the Pressure Indicator to obtain accurate start pressure.

6. Close ESW SPKLR ALARM ISOL VLV P54-F5083. \_\_\_\_\_
7. Crack open ESW SPKLR DRN TEST VLV P54-P0627 until Diesel Pump P54-C001 starts to crank, then close P54-F627. \_\_\_\_\_

Independent Verifier: \_\_\_\_\_

- a. Record Starting Pressure (Beginning of First Crank Cycle) as indicated on P54-R0701 \_\_\_\_\_  
\_\_\_\_\_ psig. (Acceptable range 100-110 psig). \_\_\_\_\_
- b. Verify SAS address 22501 indicates ALARM. \_\_\_\_\_
- c. Verify M46 Ventilation Fans START. \_\_\_\_\_
- d. Record Pump Start Time \_\_\_\_\_ hrs., and continue to run pump for 30 minutes. \_\_\_\_\_
- e. Record number of cranking cycles required for pump to start and continue running: \_\_\_\_\_  
\_\_\_\_\_ cycles. \_\_\_\_\_

Initials

8. Open P54-F5083.

Independent Verifier: \_\_\_\_\_

9. If repetitive task for Vibration Monitoring is required record readings per PAP-1108 and attach data sheets to this instruction. \_\_\_\_\_

10. Cycle open and close P54-F5588 strainer valve to flush strainer P54-D622 (located on Diesel Fire Pump cooling water line).

Independent Verifier: \_\_\_\_\_

11. Cycle open and close P54-F5590 strainer valve to flush strainer P54-D623 (located on Diesel Fire Pump cooling water line).

Independent Verifier: \_\_\_\_\_

12. At H51-P102, return the Electric Motor Fire Pump to Standby Readiness as follows: \_\_\_\_\_

- a. Hold the STOP pushbutton Depressed.
- b. Place the Disconnect and Breaker Operating Handle in ON.
- c. Verify the red POWER light is ON.
- d. Release the STOP pushbutton.
- e. Verify SAS address 22703 indicates NORMAL.

Independent Verifier: \_\_\_\_\_

13. At H51-P103, return Jockey Fire Pump P54-C003 to standby readiness by placing the hand switch in AUTO.

Independent Verifier: \_\_\_\_\_

14. Perform the following at P54-C001: \_\_\_\_\_

- a. Record oil pressure \_\_\_\_\_ (range of 50 psig to 90 psig).
- b. Record engine temperature \_\_\_\_\_ (range of 170°F or 185°F is normal after engine has run for awhile).
- c. Record engine RPM \_\_\_\_\_ (normal range of 1750-2300 RPM).
- d. Record Discharge Pressure as indicated on P54-R0065 \_\_\_\_\_ psig.

15. At completion of the 30 minute run, record current time: \_\_\_\_\_ hrs; and record total run time as indicated on hourmeter: \_\_\_\_\_.

Initials

16. Stop the Diesel Fire Pump by placing the control switch on H51-P101 in OFF.

- a. Verify SAS address 22502 indicates ALARM.  
b. Verify SAS address 22501 indicates NORMAL.

16a. Take a one liter oil sample from P54-C001 engine through the filler port and deliver to Chemistry for analysis in accordance with PAP-1102. Label sample with equipment name, MPL, sample point, and date. Restore oil to proper levels as required. (See 3.3 for oil type)

17. Return Diesel Fire Pump P54-C001 to standby readiness by depressing the reset switch on H51-P101, then return the control switch to AUTO.

Independent Verifier:

- a. Verify SAS address 22502 indicates NORMAL.

18. Record the level of the Diesel Fire Pump Fuel Oil Tank P54-A002 using level gauge P54-R340 \_\_\_\_\_ gallons. (Full reading = 300 gallons, minimum acceptable level is 150 gallons.)

19. Record any trouble conditions annunciated on H51-P101 \_\_\_\_\_. (Enter N/A if no abnormal conditions exist.)

### 5.3 System Restoration

1. At Fire Pump Controller Panel H51-P196, place Construction Fire Service Pump P54-C007 in Standby Readiness as follows:

- a. Hold Construction Fire Service Pump P54-C007 STOP pushbutton depressed.  
b. Place ISOLATION SWITCH in ON.  
c. Release stop pushbutton.

2. If Construction Jockey Pump P54-C006 is required to be returned to standby readiness (Due to an inoperable P54-C003), place the control switch on H51-P198 in AUTO. (Enter N/A and leave switch in OFF if P54-C006 is not required in standby readiness).

3. Other components/equipment manipulated during the performance of this instruction have been returned to their Normal Standby position(s) in the body of the instruction utilizing methods of Independent Verification.

Initials

5.4 Acceptance Criteria

- c 1. Electric Fire Pump P54-C002 start pressure is within  
115-125 psig range (Step 5.1.6.a). \_\_\_\_\_

Initials

- c 2. SAS receives ALARM address 22702 on P54-C002 start (Step 5.1.6.b). \_\_\_\_\_
- c 3. SAS receives ALARM address 22703 on P54-C002 Power Isolation (Step 5.2.4.f). \_\_\_\_\_
- c 4. Diesel Fire Pump P54-C001 start pressure (beginning of first crank cycle) is within 100-110 psig range (Step 5.2.7.a). \_\_\_\_\_
- c 5. SAS received ALARM address 22501 on P54-C001 start (Step 5.2.7.b). \_\_\_\_\_
- c 6. M46 Fans started on P54-C001 start (Step 5.2.7.c). \_\_\_\_\_
- c 7. SAS received ALARM address 22502 on placing H51-P101 Control Switch to OFF (Step 5.2.16.a). \_\_\_\_\_
- c 8. Diesel Fire Pump Fuel Oil Tank P54-A002 level is above 150 gallons (Step 5.2.18). \_\_\_\_\_
9. The Unit Supervisor shall be informed of any portion of this instruction that was deemed unacceptable. He shall consult PAP-1923, "Actions on Inoperable Fire Protection Systems" to determine operability of the system/component and ensure compensatory measures are instituted if applicable. \_\_\_\_\_
10. Inoperable Fire Protection Components shall be documented on Work Requests (per PAP-0902) and tracked per the Work Order Process (PAP-0905). Retest on the Work Order shall be per this instruction unless determined to be otherwise by the Responsible System Engineer. The generation of work requests shall allow for credit to be taken, with comments, for full performance of this instruction. \_\_\_\_\_

Comments: \_\_\_\_\_

Performed By: \_\_\_\_\_

Signature

Initials

Date

## 6.0 REFERENCES

- 6.1 258-185, Sh. 09 Fire Protection Motor Driven Fire Pump P54-C002.
- 6.2 208-185, Sh. 10 Fire Protection Diesel Driven Fire Pump P54-C001.
- 6.3 D-302-381, Construction Fire Protection Water System.
- 6.4 D-914-004, Fire Service Water, Misc. Services.
- 6.5 NFPA 13A - 1987, Inspection, Testing, Maintenance of Sprinkler Systems.
- 6.6 NFPA 20 - 1987, Installation of Centrifugal Fire Pumps.
- 6.7 PAP-0518, Preparation of Periodic Test Instructions.
- 6.8 PAP-0902, Work Request System.
- 6.9 PAP-0905, Work Order Process.
- TC-1  
3 6.9a PAP-1102, Plant Chemistry Control Program.
- 6.10 PAP-1105, Surveillance Test Control.
- 6.11 PAP-1108, Vibration Monitoring Program.
- 6.12 PAP-1923, Action on Inoperable Fire Protection Systems.
- 6.13 SOI-P54, Fire Protection System.
- 6.14 VLI-P54, Fire Protection System.
- 6.15 USAR 9.5 and Appendix 9A.
- 6.16 Commitments

The following commitments are met by this instruction:

L00555

R00252

## 7.0 RECORDS

The following documents are generated by this instruction:

### Quality Assurance Records

Data Package Cover Sheet (PAP-1105-1)  
PTI-P54-P0035, pages 2 through 9  
PAP-1108 Data Sheets



Non Quality Records

None

Records identification and disposition are accomplished in accordance with the Records Retention/Disposition Schedule (RR/DS) and handled in accordance with PAP-1701, Plant Records Management.

8.0 ATTACHMENTS AND ENCLOSURES

None



**PTS****REVISION HISTORY**

PNPP No. 7173 Rev. 7/91

ITEM NO.

OT-3058-ES-08A

TITLE

Lic. Oper. Requal Exam Scenario Guide

REV. 0

DATE TO SSU

2-24-92

(Initials)

TRD

EFF DATE:

2/11/92

REV. #

1

REQUESTED BY

J. D. Pierson

OTU

DATE

2/10/92

Name

Unit

PREPARED BY

same

DATE

Name

Unit

SYNOPSIS

Revised to reflect new simulator and new PEI's.

DATE TO SSU

(Initials)

EFF DATE:

REV. #

REQUESTED BY

DATE

Name

Unit

PREPARED BY

DATE

Name

Unit

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

REV. #

REQUESTED BY

DATE

Name

Unit

PREPARED BY

DATE

Name

Unit

SYNOPSIS

DATE TO SSU

(Initials)

EFF DATE:

PTS

# SCENARIO GUIDE COVER SHEET

NUMBER OT-3058-ES-08A-01

EFFECTIVE DATE 2/10/92

## SCENARIO GUIDE REFERENCES:

ARI-P680-5

PEI-T23

FTI-B09

PEI-SPI

TSPS-63

ONI-N36

TECH. SPEC.

ARI-P601-16

SOI-N27

EPI-A1

PEI-B13

EPI-A2, A3, A4, A5

ONI-J11-1

## ADDITIONAL MATERIALS REQUIRED:

Copy of SVI-C71-T0051

Special maneuver sheet for control rods

## APPROVAL:

PREPARED BY J. D. Pice

DATE 2/5/92

REVIEWED BY M. J. Ferson

DATE 2/7/92

APPROVED BY Mike Wralley

DATE 2/10/92

## GENERAL TRAINING SESSION GUIDELINES

1. During the course of this simulator session, the instructor should vary his level and depth of questioning. In determining the level and depth of questioning, the instructor should realize that the first time a student performs an evolution, the questions should be limited in number and be fundamental in nature. This will enable the student to become familiar with the system and to gain confidence in his knowledge under very little stress. As the student's knowledge and familiarity with the evolutions increases, the level and depth of questioning should also increase.
2. Questions may be directed to any operator, but take care not to distract him from his job. If it is necessary to clarify a point which involves more than one (1) student, consider freezing the simulator, completing the discussion, and then continuing the evolution in progress.
3. During the entire session, the instructor should monitor the use of procedures and ensure that steps of each procedure are completed in sequence. The instructor should lead discussions at the appropriate times to ensure the students understand each step of the procedure and its purpose.
4. Ensure the Unit Supervisor (US) gives clear and concise orders to Control Room personnel.
5. Whenever possible, direct instructions concerning Control Room operation to the US. This will help reinforce the Control Room chain of command.
6. The instructor should occasionally quiz the students on the present values of various parameters to encourage the students to monitor systems.
7. As a minimum the questions included in the guide will be asked. The instructor is encouraged to ask additional review questions as they apply to evolution performance.

PTS

LIST OF FAILURES

SCENARIO NUMBER: OT-3058-ES-08A-01

	FAILURE/OVERRIDE	STATUS	DESCRIPTION
1.	PC01A	ACT	DW/CWT BYPASS LEAKAGE-SET AT 50%
2.	RD08AR3815	ACT	ROD 38-15 'A' SOLENOID FUSE BLOWS
3.	AV02:1N25F0280A	ACT	1N25-F0280A FAILS CLOSED
4.	AV02:1N25F0330A	ACT	1N25-F0330A FAILS CLOSED
5.	MS04A	ACT	1B21-F022A FAILS OPEN
6.	MS04E	ACT	1B21-F028A FAILS OPEN
7.	CP02:1E22C0001	ACT	HPCS PUMP SHAFT SEIZES
8.	TH15	PENDING E2	GROSS FUEL FAILURE-80% SEVERITY - 5 MIN. RAMP - 1 MIN DELAY
9.	AV02:1N25F0340A	PENDING E2	1N25-E0340A FAILS CLOSED
10.	TH28	PENDING E3	MSL BREAK - 1% SEVERITY
11.	MS05B	PENDING E4	1B21-F022B FAILS CLOSED
12.	MS05D	PENDING E4	1B21-F022D FAILS CLOSED
13.	MS05F	PENDING E4	1B21-F028B FAILS CLOSED
14.	MS05H	PENDING E4	1B21-F028D FAILS CLOSED
15.	MS05G	PENDING E4	1B21-E028C FAILS CLOSED
16.	MS05C	PENDING E4	1B21-F022C FAILS CLOSED
17.	AN:1H13P60116A[18]	PENDING E1	DIV. 3 D/G TROUBLE-OVERRIDE ON
18.	AN1H13P60116A[38]	PENDING E1	DIV. 3 D/G STARTING AIR PRESS. LOW-OVERRIDE ON

PTS

## SCENARIO GUIDE OBJECTIVES

SCENARIO NUMBER: OT-3058-ES-08A-01

### A. TERMINAL OBJECTIVE:

The operator, acting as a member of a shift operating crew, must demonstrate competence in performance of license duties required to protect the public health and safety while operating the plant in accordance with approved instructions and procedures.

### B. ENABLING OBJECTIVES:

1. Following a pre-shift brief, each crew member will be able to provide a detailed plant status report to include;
  - a. Operating equipment
  - b. Inoperable out-of-service equipment
  - c. Any applicable daily instructions
  - d. Evolutions in progress/planned.
2. Using plant installed instrumentation, plant instructions and system response, as well as information obtained by operating personnel outside the Control Room, the operating crew will correctly diagnose plant problems.
3. The RO/BOP will be able to perform the immediate operator actions from memory, in response to the following plant transient.
  - a. ONI-C71-1
  - b. ONI-N36
  - c. ONI-J11-1
4. The Unit Supervisor will be able to use appropriate ONI's to ensure completion of immediate actions and direct those supplemental actions as required to interface with Plant Emergency Instructions and Emergency Plan Instructions.

**PTS****OBJECTIVES**

SCENARIO NUMBER: OT-3058-ES-08A-01

5. When using IOI's, SOI's, ARI's, ONI's, or PEI's, the Control Room operator will be able to:
  - a. Locate proper section of the instruction.
  - b. Follow instruction correctly.
  - c. Locate and observe installed instrumentation.
  - d. Analyze system response.
  - e. Direct plant operators.
  - f. Inform US when actions completed.
6. While operating in accordance with Perry Emergency Instructions, the US will:
  - a. Appoint an individual to be responsible for the control of reactor power, level pressure, or containment parameters.
  - b. Specify the plant systems to be used to control plant parameters.
  - c. Evaluate changes in plant conditions against current actions being taken and make corrections as necessary.
  - d. Keep plant operators up-to-date on recovery plan.
7. When directed by the Unit Supervisor to perform actions in accordance with PEI'S or ONI's, the SO will:
  - a. Utilize the systems designated by US.
  - b. Monitor system performance, i.e. pressure, flow, etc.
  - c. Inform the US immediately when a system becomes unavailable for further use.
  - d. Inform US of plant trends in response to actions taken.



PTS	OBJECTIVES
-----	------------

SCENARIO NUMBER: OT-3058-ES-08A-01

8. Given a set of plant conditions, the Unit Supervisor will be able to comply with the requirements of Technical Specifications and Administrative Procedures.
9. The Shift Supervisor will be able to utilize the EPI's to properly:
  - a. Classify events.
  - b. Complete paperwork.
  - c. Make timely notifications.
10. The Shift Technical Advisor will assist the operating crew as requested in accordance with TAP-0101 and EPI's to:
  - a. Verify proper identification of Off-Normal Events, proper sequence and recommend actions to mitigate/terminate the event.
  - b. Verify proper classification of Emergency Events and recommend actions to mitigate consequences of the event, and assist in completion of required paperwork.
  - c. Assist/clarify Technical Specifications applicable due to events.

PTS

## NARRATIVE SUMMARY

SCENARIO NUMBER: OT-3058-ES-08A-01

### INITIAL CONDITIONS

The plant is operating at 100% at M.O.L. NCC 'B', TBCC 'B', RCIC are out of service for repet. tasks.

### SEQUENCE OF EVENTS

SVI-C71-T0051 is performed per the SVI schedule. A control rod scrams due to a blown Div. 1 fuse. During control rod recovery, an air leak on the Div. 3 D/G air start system causes it to be declared INOPERABLE. A failed drain valve on Heater 5A causes a loss of Heaters 5A and 6A. Attempts are made to reduce power and rod line, but fuel damage occurs. The Reactor scrams and MSIV's isolate on High radiation. A small break occurs in a guardpipe with a breach of guardpipe integrity. The RPV is depressurized in an attempt to control containment temperature and pressure.

### FINAL PLANT CONDITIONS

The RPV is depressurized, with level maintained by the feed system. Efforts underway to restore containment parameters to normal.

### CRITICAL STEPS

This scenario contains ISCT's for the following:

RO/BOP-4

0<sup>2</sup> | US-~~3~~ 2

SS-1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

RCIC remote functions for secured status:

F013-RC07  
F019-RC08  
F031-RC05  
F046-RC10  
F045-RC09  
C004-RC11  
F010-RC06

Use M.O.L. sequence, pull to position indicated in brief.

Command assignment must be done after each RESET until SDP worked.

I. Initialize to IC-23 and est. the following conditions;

- Power 100%
- Pull rods up to step 70, M.O.L. sequence
- Place RCIC in secured status per SOI-E51 (water leg pup OFF)
- shift to NCC 'A' and 'C', shut discharge valve on 'B'
- Shift to TBCC 'A' and 'C'
- Insert/Verify the failures on page 3.
- Update status board
- Adjust AGAF's if required.
- Tagout the following:
  - RCIC
  - NCC 'B' RF, SW12
  - TBCCW 'B', RF, SW51 and SW54
- Assign the following Triggers;
  - E3-MSVP1B21F0022B<0.5 (F022B position)
  - E4-ZD1C71S1>0.2(mode switch)
  - E5-ZD1B21F0028A>0.5 (F028A switch)
- Assign commands to Triggers:
  - E5-DMF MS04E

II. Pre-Shift brief

- Conduct pre-shift brief and provide crew with plant status:
  - A. RCIC OOS, 12 days left before S/D required (oil change)
  - B. NCC 'B' and TBCC 'B' OOS for Repet. Tasks
  - C. SW A,B,C running
  - D. All equipment in normal lineup
  - E. All ECCS, D/G's operable
  - F. Step 70 at notch 30 in FTI-B02.

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STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION

INSTRUCTOR NOTES

I. No activities required.

II. Attend pre-shift brief. Walkdown Control room panels and assume the shift.

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INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 00

III. SVI and single rod scram

1. Monitor crew performance during SVI. Rod 38-15 scrams when channel B/D is tripped.

NOTE: During performance of SVI, evaluator may be required to give back panel indications to performer.

NOTE: If directed to replace fuse, report fuse replaced approx. 15 min. from that time.

Provide special maneuver sheet, fill in dates (attached).

2. If directed to troubleshoot, as I&C, report that the 3 amp fuse for Div. 1 power, appears to be blown (located at the HCU). Will take about 15 min. to replace fuse. (type MIN 3A)

- As Rx Eng. verify crew enters section 5.2.9 of FTI-B09.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION

INSTRUCTOR NOTES

III. SVI and single rod scram

1. US assigns SVI to crew member.
  - RO/BOP fills out SVI paperwork, received approval from US and SO to commence test.
2. RO/BOP responds to Rod Drift/Accumulator alarms, informs US of rod 38-15 full in.
  - US directs actions per ARI-P680-5
  - RO/BOP checks C11 pressures
  - US initiates troubleshooting and recovers rod per FTI-B09.
  - RO/BOP positions rod to '12' when directed.

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

Time: 15

## IV. Div. 3 D/G Trouble

1. Activate Trigger E1. This overrides Div. 3 D/G Trouble and Starting Air Press. low alarms.
2. As PPO report that the local alarm is low starting air pressure and that there is an air leak downstream of F534A at a flex hose. You have closed 1E22-F534A to isolate the leak.
3. Delete override on D/G Trouble Alarm on entering room to investigate. Simulates acknowledging local alarm.
4. Div. 3 D/G must be declared INOP per TSPS-063.

Time : 25

## V. Loss of Feedwater Heating

1. Activate Trigger E2. This fails both drain valves for Htr. 5A closed. Htrs 5A and 6A isolate Htr 6A alt. drain valve fails to open also.

Malf. insertion Time: \_\_\_\_\_

Power reduction Time: \_\_\_\_\_



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## IV. Div. 3 D/G Trouble

1. Crew responds to alarms, takes action per ARI-P601-16.
  - RO/BOP dispatches PPO to investigate local alarm.
2. US declares Div. 3 D/G INOP due to T.S. 3.8.1.1, 4.8.1.1.2.7 TSPS-63.
  - US directs RO/BOP to perform SVI-R10-T5217 with 1 hour.
  - US completed LCO forms with allowable outage time of 72 hours.
3. US/SS directs Maintenance to commence repairs.

264000-GEN 8  
3.5/3.6264000-K6.01  
3.8/3.9264000-GEN-11  
3.4/4.1

## V. Loss of Feedwater Heating

1. Crew responds to alarms. RO/BOP inform US of loss of Htrs. 5A and 6A.

295014-AA1.07  
4.0/4.1



PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

## \* ISCT Criteria

## 1. Safety Significance

- Operation in shaded area of the P-F map could exceed MCPR limits without causing a scram.
- Exceeding licensed power limit.

## 2. Cues

- Procedural Cautions

## 3. Measured by:

- Observation - Power reduction must commence within 2 minutes of malfunction insertion AND total core flow must not be reduced to <48 mlbm/hr.

## 4. Feedback

- LPRM Upscale Alarm
- APRM Power increasing
- Compensatory Action - if >100% rod line, a manual scram is required. If <100% rod line, CRAM rod insertion is required.

\*\*\*\*\*

2. As Rx Eng request crew insert CRAM rods to 100% rod line. Report that local power limits may have been exceeded. Requires further investigation.

PTS

## STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

2. US enters ONI-N36 and directs the following:

- \* - RO/BOP maintains power <95% with Recirc flow.
- RO/BOP inserts CRAM rods if directed.
- RO/BOP contacts Rx. Engineering to verify local/gross power limits.
- RO/BOP lines up heaters I.A.W. SOI-N27.
- STA monitors plant response and provides assistance to US/SS.

202002-GEN 1  
3.6/3.7

201005-GEN 13  
3.2/3.5

295014-AK2.02  
3.7/4.2

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

Time: 30

## SIMULATOR SCENARIO GUIDANCE

VI. F.E.F. and Scram with Isolation

1. Trigger E2 also activated Failure TH15 which begins the F.E.F. and High radiation conditions.

\*\*\*\*\*

ISCT Criteria

1. Safety Significance
  - Mitigation of loss of heat sink.
2. Cues:
  - Procedural - satisfied entry conditions.
3. Measured by:
  - Announcement
  - Taking PEI actions
  - Opening/referring to procedure.
4. Feedback:
  - Ability to mitigate the event based on symptoms.

\*\*\*\*\*

2. Use Remote Function PC28 to reset H2 Analyser local alarms.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

## VI. F.R.F. and Scram with Isolation

1. RO/BOP investigates alarms and reports findings to US.

2. US recognizes indications of fuel failure, enters ONI-J11-1 and directs the following:

- RO/BOP stops control rod motion
- RO/BOP reduces power per IOI-3.

3. RO/BOP informs US of RY scram and MSL isolation. Places mode switch in shutdown.

4. US enters PEI-B13 and directs actions for Power, Pressure and Level control.

a. Power Control - US directs the following:

- RO/BOP places/verifies mode switch i shutdown.
- RO/BOP verifies all rods in.
- RO/BOP starts Hydrogen Analyzers.

295014-AA2.04  
4.1/4.4

223002-K1.01  
3.8/3.9

223002-GEN 15  
4.1/4.3

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance

- Recognize a failure of an ESF component.

## 2. Cues:

- Indications of logic energization with no indication of pump running or flow to vessel.

## 3. Measured by:

- Verbal report - RO/BOP announces/notifies US by end of scenario.

## 4. Feedback:

- Excessive RPV level loss due to lack of High Pressure injection.

\*\*\*\*\*

\* ISCT Criteria

## 1. Safety Significance

- Take action to prevent degradation of a barrier to fission product release.

## 2. Cues:

- Procedural steps

## 3. Measured by:

- RO/BOP places the B21-F028A control switch to close to close the valve.

## 4. Feedback:

- Indications of incomplete isolation.
- Valve position indication shows valves open.

\*\*\*\*\* (

All MSIV's close except F022A and F028A. Taking F028A to close will trigger E5 and close valve.

PTS

## STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

## STUDENT DIRECTION

## INSTRUCTOR NOTES

- b. Pressure Control - US directs the following:

RO/BOP cycles SRV's and control pressure in the ordered band.

- c. Level Control - US directs the following:

- RO/BOP verifies Automatic actions which should have occurred.

\*HPCS

\*MSL Isolation

- RO/BOP maintains level 185"-215 with systems ordered by US

- d. STA provides assistance/recommendations as required.

223002-A3.02

3.5/3.5

209002-A3.02

3.5/3.8

259001-A4.02

3.9/3.7

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

Time: 34

MSIV's close on either Hi rad, or Trigger E4, mode switch.

VII. Small break LOCA - Main Steam line leak.

1. When MSIV's closed, Failure TH24 activates, on E3.

\*\*\*\*\*

NOTE: The following criteria apply to both the US directing the Emergency Depressurization and the RO/BOP operator performing it when directed. Since there are two distinctly different limits that require this action, this counts as two critical steps for the US and one for the RO/BOP.

\* ISCT Criteria

1. Safety Significance:

- Prevent exceeding containment design temperature and pressure.

2. Cues:

- Procedural

3. Measured by:

- Observation - 8 SRV's must be open prior to containment temperature exceeding 185°F AND prior to containment pressure exceeding P.S.P. (approx. 3.7 psig at this S. Pool level)

4. Feedback:

- Containment temperature and pressure continue trending above design values.

\*\*\*\*\*



PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION	INSTRUCTOR NOTES
<p>VII. Small break LOCA</p> <p>1. Crew members recognizes increasing trends in Drywell and Containment parameters.</p> <p>* a. US enters PEI-T23 Containment Temperature Control when containment temperature &gt;90°F and directs the following:</p> <ul style="list-style-type: none"> <li>- RO/BOP bypasses BOP isolation signal and restores containment cooling.</li> <li>- RO/BOP bypasses RHR LOCA and restores drywell cooling.</li> <li>- RO/BOP manually initiates containment spray.</li> </ul> <p>* - RO/BOP opens 8 SRV's, when directed by US prior to containment temp. exceeding 185°F.</p> <li>- RO/BOP secures containment spray when directed.</li> <p>* b. US enters Containment and Drywell Pressure Control when Drywell Pressure &gt;1.68#, and directs the following:</p> <ul style="list-style-type: none"> <li>- RO/BOP bypasses RHR LOCA and restores drywell cooling.</li> <li>- RO/BOP bypasses BOP isolation and restores containment cooling.</li> <li>- RO/BOP manually initiates containment spray.</li> </ul> <p>* - RO/BOP opens 8 SRV's, when directed by US prior to exceeding P.S.P.</p> <li>- RO/BOP secures containment spray when directed.</li>	<p>295027-GEN 11 4.3/4.7</p> <p>295027-EA1.01 3.2/3.4</p> <p>295027-EA1.03 3.5/3.8</p> <p>295027-GEN 12 4.3/4.6</p> <p>295024-GEN 11 4.3/4.5</p> <p>295024-EA1.17 3.9/3.9</p> <p>295024-EA1.08 3.9/3.9</p> <p>295024-EA1.08 3.9/3.9</p> <p>295024-GEN12 3.9/4.5</p> <p>295026-GEN 11 4.4/4.6</p>



PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

2. Continue to role play as PPO, etc. as required.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION

INSTRUCTOR NOTES

c. US enters suppression pool temperature control when Suppression Pool Temperature >90°F and directs the following:

- RO/BOP places RHR A/B in suppression pool cooling mode.
- RO/BOP monitors suppression pool temperature and keeps US informed.

d. STA provides assistance/recommendations towards mitigation of LOCA.

295026-EA1.01  
4.1/4.1

PTS

INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

INSTRUCTOR NOTES

SIMULATOR SCENARIO GUIDANCE

2. Continue to role play as PPO, etc. as required.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION

INSTRUCTOR NOTES

VIII. Emergency Plan

- \* 1. SS consults EPI-A1 and declares at least an Alert.

(C.II.1, B.II1)

- SS fills out forms and makes initial notifications per EPI-A3.
- STA provides assistance as required.

294001-A1.16  
2.9/4.7

PTS

## INSTRUCTOR PAGE

NUMBER: OT-3058-ES-08A-01

## INSTRUCTOR NOTES

If asked as RWSO,  
report D/W sump  
pumps were running  
continuously, then  
all tripped off.

## SIMULATOR SCENARIO GUIDANCE

\*\*\*\*\*

## VIII. Emergency Plan

\* ISCT Criteria

## 1. Safety Significance:

- Emergency Plan Activation

## 2. Cues:

- Procedural
- Verbal reports

## 3. Measured by:

- Announcement
- Filling out notifications forms
- Stating classification to evaluator in Post Scenario De-briefing

## 4. Feedback:

- Regulatory/Administrative.

\*\*\*\*\*

NOTE: This scenario may be interpreted to reach General Emergency classification in EPI-A1 section 0. This is a conservative call, as relates to an interpretation for potential failure of containment. Classifying as either an Alert or General Emergency is acceptable.

PTS

STUDENT PAGE

NUMBER: OT-3058-ES-08A-01

STUDENT DIRECTION

INSTRUCTOR NOTES

IX. Terminating Cue

1. Attend Post Scenario De-briefing.

PTS	REVIEW SECTION
-----	----------------

SCENARIO NUMBER: OT-3058-ES-08A-01

Conduct Post Exercise De-briefing. Allow opportunity for follow-up questions from the examiners and E-plan classification, if not performed during the scenario. Do not critique the crew's performance.

PTS

## SCENARIO TASK LIST

SCENARIO NUMBER: OT-3058-ES-08A-01

STA	SS	US	SO
352-003-01-05	344-002-04-03	341-018-03-02	009-502-01-01
352-004-01-05	344-003-04-03	344-018-03-02	032-518-01-01
352-005-01-05	344-003-05-03	344-021-03-02	205-509-05-01
352-008-01-05	344-018-05-03	344-024-03-02	212-508-04-01
352-015-01-05	344-019-05-03	344-027-03-02	218-507-05-01
352-508-01-05	344-025-05-03	344-037-03-02	243-505-04-01
352-401-04-05	344-026-05-03	344-038-03-02	259-533-04-01
352-017-01-05	341-506-01-03	344-041-03-02	262-524-05-01
352-018-01-05	344-004-04-03	344-042-03-02	278-506-05-01
352-201-05-05	344-007-04-03	344-056-03-02	279-507-04-01
351-008-01-05	344-020-05-03	345-207-01-02	009-519-05-01
351-011-01-05	344-022-05-03	341-042-03-02	009-520-05-01
351-016-01-05	344-023-05-03	341-014-03-02	205-521-01-01
352-012-01-05	344-024-05-03	341-037-03-02	205-524-01-01
352-020-01-05	344-027-05-03	341-040-03-02	208-508-05-01
352-404-04-05	344-038-04-03	341-041-03-02	212-534-04-01
357-002-01-05	344-062-05-03	341-547-03-02	239-514-04-01
356-504-04-05		344-005-03-02	259-522-01-01
		344-020-03-02	259-550-04-01
		344-043-03-02	259-551-04-01
		344-044-03-02	264-507-01-01
		344-047-03-02	
		344-055-03-02	
		345-038-01-02	



PNP? No. 9076

SEQUENCE A2 STARTUP NUMBER 52

[illegible]

NAME	SIGNATURE	INITIALS
Paul Bordley	Paul Bordley	P.B.

[illegible]

APPROVED: P.B. /                       
RXENG DATE