NUCLEAR POWER BUSINESS UNIT

SIMULATOR GUIDE/SIMULATOR EXAMINATION SCENARIO OR GUIDELINE DEVELOPMENT/REVISION COVERSHEET

*PROGRAM NUMBER AND TITLE: TRPR 33.0, Licensed Operator Requalification Training	
*COURSE/GUIDELINE NUMBER AND TITLE: LOR 99-1	
SCENARIO NUMBER (SG OR SES*) AND TITLE: SG 0021, AFW Scenario	
REVISION NO: 0	DATE:
DESCRIBE CHANGES (Change/Reason). For Revision 0, describe purpose.	
This is being done to practice performing AOP-21, to switch suction for the AFW pumps from the CST to service water.	

PREPARED BY:	Pat Murphy AUTHOR		1/12/99 DATE
REVIEW	R. C. Chmielewski SIGNATURE		1/12/99 DATE
APPROVED	 TRAINING COORDINATOR		1/12/99 DATE

*NOTE: FOR SIMULATOR GUIDELINES, PROGRAM AND COURSE NUMBERS ARE NOT APPLICABLE

A1.76

SIMULATOR GUIDE

Program: Licensed Operator Requalification Training	**Title: AFW Scenario**
Author: Pat Murphy	**Revision Date:**
References: AABD Module 11 **HEP-SW-EFOLDOUT**	**Duration: 1 hour**
Commitments: None	

1.0 PURPOSE:

This is being done to allow the operators and STAs an opportunity to practice performing AOP-21. This procedure was written in conjunction with the implementation of Revision 1C to the ERG.

2.0 OBJECTIVES:

STATE the information provided on the EOP-0 and EOP-1 Series foldout pages. (031.02.LP0405.009)

3.0 TASKS:

SENIOR REACTOR OPERATOR

P119.304SRO	Direct personnel to mitigate emergency/abnormal events.

SHIFT TECHNICAL ADVISOR

C000.002STA	Provide independent assessment of off-normal plant conditions.
C000.003STA	Provide assessment of the crews response to abnormal plant conditions.
C000.004STA	Advise the crew on actions needed to terminate or mitigate the consequences of an off-normal event.

4.0 PRE-SCENARIO ACTIVITIES

4.1 Tell the crew that this is being done to practice using the foldout page method of referring them to an AOP while performing an EOP. This is being done in the training mode so we can redo any portion of this if needed with no adverse consequences to the crew.

4.2 DSS assign roles based on individual needs ensuring crew rotation occurs so all operators have an opportunity to practice.

4.3 Discuss the differences between the plant and the simulator, if necessary.

5.0 SESSION OUTLINE

As soon as the crew assumes the watch, an inadvertent turbine trip will occur. After the transition to EOP-0.1 there will be an earthquake that ruptures both CSTs and the main feed piping downstream of the MFPs for both units. 1P-29 will also overspeed and be thus unavailable. The crew will swap suction to the service water supply after the AFPs trip. The operators will also have to adjust AF flow from the MDAFPs since unit 2 will have more flow than unit 1 which may be too low to have an adequate heat sink.

6.0 POTENTIAL OPERATOR PROBLEMS

6.1 Review the cycle reports for this crew's specific areas of concern.

6.2 Due to the complexity of the event and the fact that the directions to perform the swap to service water is now contained in a new AOP, the operators may have difficulty in getting the swap done before they have to transfer to CSP-H.1.

6.3 Because there is no guidance on how to start the AFW pumps in the AOP the crew may have difficulty getting the pumps restarted.

6.4 The crew may not immediately recognize the fact that 1P-29 has oversped.

7.0 IMPROVEMENT AREAS:

Have the DSS tell the crew the areas that he expects them to work on during this session.

8.0 BOOTH OPERATOR GUIDELINE:

PREPARE and **START** the video equipment, if desired, using the Simulator Instructor Guide as a reference.

8.1 **VERIFY** the simulator is set up for training by using the Simulator Setup Checklist.

8.2 **INITIALIZE** the simulator:

LOAD IC-2

8.3 When the crew has the watch, **MAL EHC8 ACT** for the inadvertent turbine trip.

8.4 **FILE AFWU1** from unit 1 control console and **FILE AFWU2** from unit 2 control console.
The content of FILE AFWU1 is:
LEAK CFW,1,17,8000,0,0,ACT
LEAK CFW,2,19,8000,0,0,ACT
RAMP AACFT24A=2000,30,0
RAMP AACFT24B=2000,30,0
MAL AFW1 ACT,0,C,JCRFTR

The content of FILE AFWU2 is:
LEAK CFW,1,17,8000,0,0,ACT
LEAK CFW,2,19,8000,0,0,ACT

9.0 TRAINING:

The Instructor will conduct a shift turnover using information on the Shift Turnover Information sheet.

If applicable, **PROVIDE** an overview of the scenario and Learning Objectives to the crew.

PLACE the simulator in **RUN**, if not already done.

During the exercise **REINFORCE** the following:

- Attention to detail and self verification.
- Conservative decision-making.
- Communications to ensure they are done in accordance with the communications standard.
- Common operator errors or improvement areas.
- Pre-Action Feedback.
- Complete discussion of Technical Specification issues addressed by the session.

OBSERVE the crew during the simulator session considering the following:

DID THE INDIVIDUALS:	DID THE CREW:
Recognize off-normal trends	Diagnose the event
Interpret alarms and annunciators	Understand plant response
Diagnose events	Comply with procedures/Tech Specs/E-Plan
Demonstrate understanding of plant response	Function as a team
Adhere to and use plant procedures	Perform briefs
Operate Control Room equipment properly	Set clear goals and resolve any conflicts
Direct shift operations	Maintain proper control room conduct
Perform EOP actions	Control the pace of the Control Room activities

Event 1:
Brief Description: CST rupture due to seismic event

Position	Expected response		Instructor Notes
All	1.1	Recognize the inadvertent turbine trip and the reactor trip.	
All	1.2	Perform immediate actions of EOP-0.	The crew should transition to EOP-0.1 when they do step 4 and SI is not required.
C01, C02, DOS, OS	1.3	Recognize the rupture of both CSTs and the loss of 1P-29.	Alarms and indications will reveal the rupture. All AFW pumps are inoperable until the swap to service water is done. 1P-29 also has oversped.
STA, C01, 3rd, DOS	1.4	Take action per the foldout page of EOP-0.1 to transfer the AFW suction to service water.	Enter AOP-21 to perform the swap to service water. This will give guidance to transfer the suction of the AFW pumps to service water.
C01, CO2, CO3, DOS, OS	1.5	Restart the AFPs.	If the AFW pumps tripped due to loss of suction there is no guidance in the AOP to restart the pumps. That information is in OI-62A for the MDAFPs and OI-62B for the TDAFP. The crew may elect to wait to start the AFW pumps since CSP-H.1 tells the operators that service water should not be used unless the only other alternative is RCS bleed and feed.

10.0 TERMINATION:

* **TERMINATE** the scenario at the direction of the instructor .

* **STOP** the video equipment if in use.

* **DISCUSS** the simulator session with the DSS to ensure he is aware of all significant observations.

11.0 POST SIMULATOR EXERCISE DEBRIEF:

* **DISTRIBUTE** the Training Objectives to the crew members if they were not distributed previously.

* **FACILITATE** the Crew Debrief with the DSS.

* **DISCUSS** Technical Specifications that were impacted during the session.

* **DOCUMENT** comments on the Instructor Comment sheet and forward to the LOR Program Administrator.

* **REVIEW** video, as applicable.

12.0 LOR SAMPLE PLAN INFORMATION

Lesson plan setting	Hours	Topic areas	Hours
Classroom	0.0	Systems	0.0
Simulator	1.0	AOPs	0.25
		TS/Admin/DCS	0.0
		EOPs/SEPs	0.75
		OPs/OIs/RPs	0.0
		Outage	0.0
		Industry Events	0.0
		ECA/CSP	0.0
		Fundamentals	0.0
Total hours	1.0		1.0

SHIFT MANNING (Forward to LOR Program Administrator)

Scenario Title: **Crew:** **Cycle:** **Date:**

DSS
DOS
OS
STA
CO1
CO2
3rd LICENSE

INSTRUCTORS COMMENTS (Forward to LOR Program Administrator)

Include at a minimum the following items:

- Any simulator fidelity problems
- Any crew procedural problems
- Any equipment operation problems or systems knowledge weaknesses exhibited by the crew
- Any Cause and Effects manual changes

SHIFT TURNOVER INFORMATION

1.0 PLANT CONDITIONS:

UNIT 1		UNIT 2	
Time in Core Life:	MOL	Time in Core Life:	BOL
Reactor Power:	100%	Reactor Power:	100%
Boron Concentration:	594	Boron Concentration:	1061
Rod height	220	Rod height	214
Day of week, support staff	Sunday, normal Sunday support staff		

2. LCO/TECHNICAL SPECIFICATIONS IN EFFECT:

TS #	Description	Reason

3. EQUIPMENT OUT OF SERVICE:

4. PLANNED EVOLUTIONS:

5. TURNOVER INFORMATION