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GEORGIA POWER

POWER GENERATION DEPARTMENT

VOGTLE ELECTRIC GENERATING PLANT

TRAINING LESSON PLAN

TITLE:	Requal Current Events	NUMBER:	RQ-EP-63107-00
PROGRAM:	Licensed Operator Requal	REVISION:	0
AUTHOR:	G. Kilpatrick	DATE:	05/21/90
APPROVED:	[signature]	DATE:	5-22-90

DRAFT

INSTRUCTOR GUIDELINES:

I. FORMAT

A. Verbal lecture with visual aids.

II. MATERIALS:

A. White board with markers

B. Transparencies

III. EVALUATION

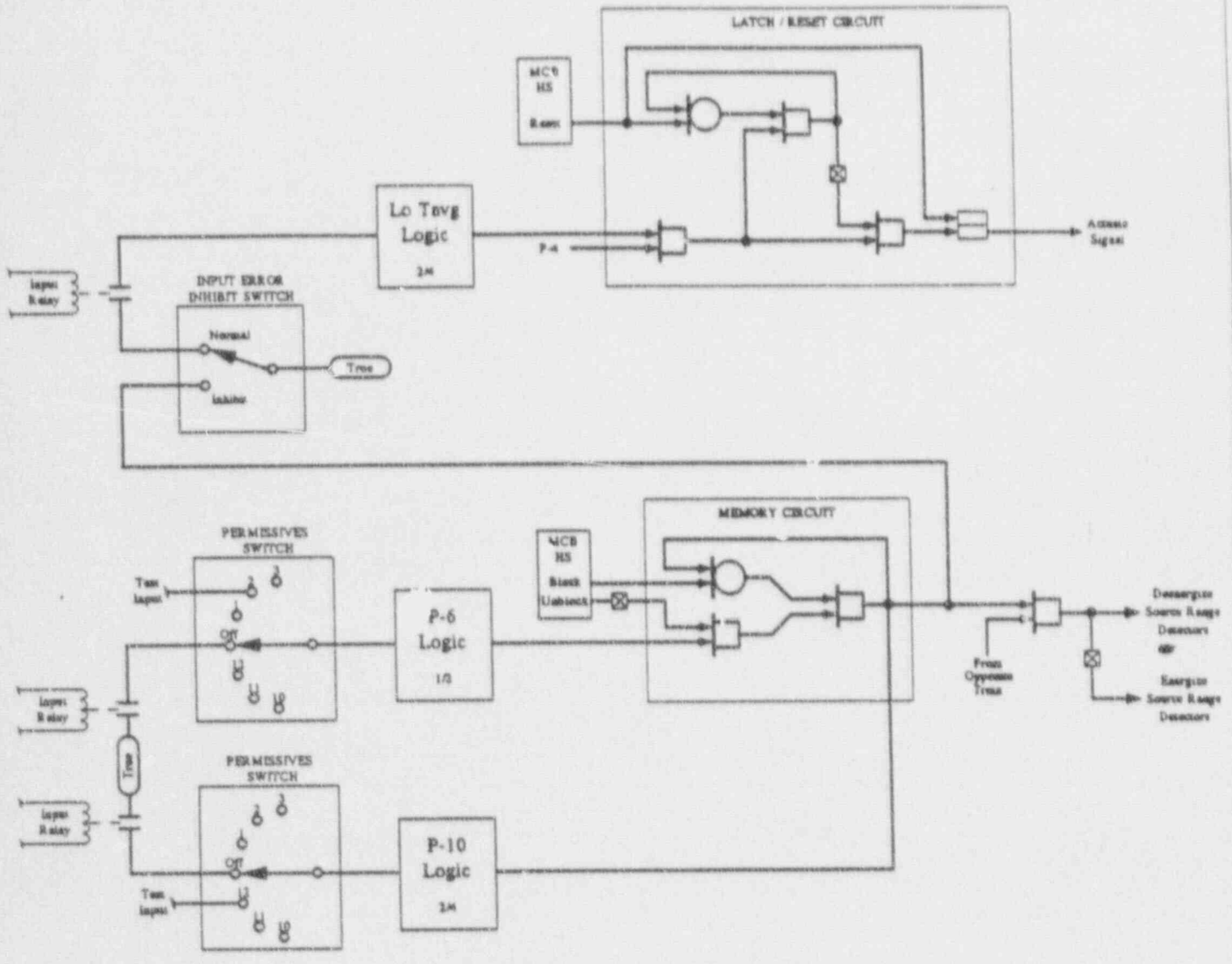
A. Oral or written exam in conjunction with other lesson plans

IV. REMARKS

None

Solid State Protection System

(Select View)



I. PURPOSE STATEMENT:

This lesson provides a periodic update of significant plant modifications and procedural changes. In addition, information from selected operating events is provided to reinforce lessons learned from those events.

II. LIST OF OBJECTIVES:

1. Describe how operation of Input Error Inhibit switch resulted in a Feedwater Isolation during Mode 4 operations.
2. Describe how operation of the Input Error Inhibit switch resulted in deenergization of the Source Range detectors.
3. Discuss lessons learned from the Unit 2 trip following the Unit 1 loss of power event.
4. Describe how a power excursion event resulted from bypassing the condensate demineralizers.
5. Describe procedural changes resulting from the Vogtle specific midloop analysis.

REFERENCES:

1. ER 90.004
2. ER 290.001
3. LER 90.001
4. LER 90.003
5. LER 90.004
6. LER 90.005
7. LER 290.003
8. MEMO 90.008
9. PROC 90.004
10. PROC 90.005
11. PROC 90.006
12. PROC 90.007
13. PROC 90.008

III. LESSON OUTLINE: NOTES

A. OPERATING EVENTS

1.0 LER 90.001

The format of the surveillance task sheets for 14475-2, Containment Integrity Verification - Valves Outside Containment, resulted in incomplete performance, which failed to meet the requirements of Tech Spec 4.6.1.1.a.

Following discovery, all valves were verified locked closed and 14475-1 & 2 were revised to include all components to be surveilled.

2.0 LER 90.003

After discovering transformers 1AB04X and 1AB05X were missing seismic required clamp bolts, switchgears 1AB04 and 1AB05 were declared inoperable and Tech Spec 3.8.3.1 was entered.

1AB04 was deenergized and Tech Spec 3.6.3 was entered because HV-8112 was deenergized. After 4 hours, a unit shutdown was commenced and an NUE was declared.

Approximately 6 hours after being deenergized, 1AB04 was reenergized and declared operable, and Tech Spec 3.6.3 was exited. However, with 3.8.3.1 still applicable, the decision was made to continue shutdown, entering the refueling outage ~ 4 hours early.

3.0 LER 90.004

With Source Range channel N31 inoperable for an 18 month channel calibration, approval was granted and Mode 6 was entered. The failure to comply with Tech Spec 3.0.4 was recognized later and reported.

4.0 LER 90.005

While checking the QHVC, both trains of FHB Post Accident Ventilation were observed in operation (Previously Train A had been in service with Train B in standby). No alarms were detected by control room personnel, no abnormal radiation conditions existed, and FHB was being maintained at a negative pressure. Since Train B had not been deliberately started, it was determined to be an automatic actuation of ESF equipment.

Investigation revealed personnel failed to verify the low pressure actuation signal was blocked when Train A was placed in service and Train B was most probably actuated on low pressure when FHB personnel access doors were opened.

III. LESSON OUTLINE:	NOTES

5.0 Operational problems were experienced during 1R2 following operation of the Input Error Inhibit switch.

On several occasions, both source range detectors were deenergized when both Input Error Inhibit (IEI) switches were positioned to *INHIBIT*.

a. When the IEI switch is positioned to *INHIBIT*, a signal to deenergize the source range detectors is generated. This is normally needed because both trains are required to deenergize the detectors; i.e. loss of either train would allow the detectors to reenergize.

b. If the SR detectors are energized, this signal does not normally deenergize the detectors, since both trains are required. However, once the other train's switch is repositioned, the SR detectors are deenergized.

In Mode 4 with long cycle recirc established, SSPS was being operated to support reactor trip bypass breaker testing. Feedwater Isolation was actuated when the Mode Selector switch was positioned to *NORMAL* following operation of the IEI switch.

a. When the IEI switch is positioned to *INHIBIT*, inputs to the logic cards are opened, removing any preexisting signal. This removed the actuation signal and cleared the actuation "block".

b. When the IEI switch was positioned to *NORMAL*, the inputs were reinstated, and the actuation signal was generated without a block. This signal energized the master relays, but the associated slaves were inhibited with the Mode Selector switch in *TEST*.

c. When the Mode Selector switch was positioned to *OPERATE*, 118V AC was reinstated to the slaves and a Feedwater Isolation was actuated.

6.0 The following describe lessons learned from the Unit 2 trip following faulty differential relay actuation .

a. During event reconstruction determination of equipment problems is impaired if relays and targets are reset without documentating each item that occurred. Procedures have been revised to require documentation prior to restoration.

b. With RCP 1 or 4 secured and spray valves in auto, spray flow will be short cycled through the idle spray header, reducing the spray flow available for pressure control.

The PRZR pressure controller's demand will integrate (further opening the spray valves) until a PORV is opened. Therefore, the spray valve for the idle RCP should be manually closed.

III. LESSON OUTLINE: NOTES

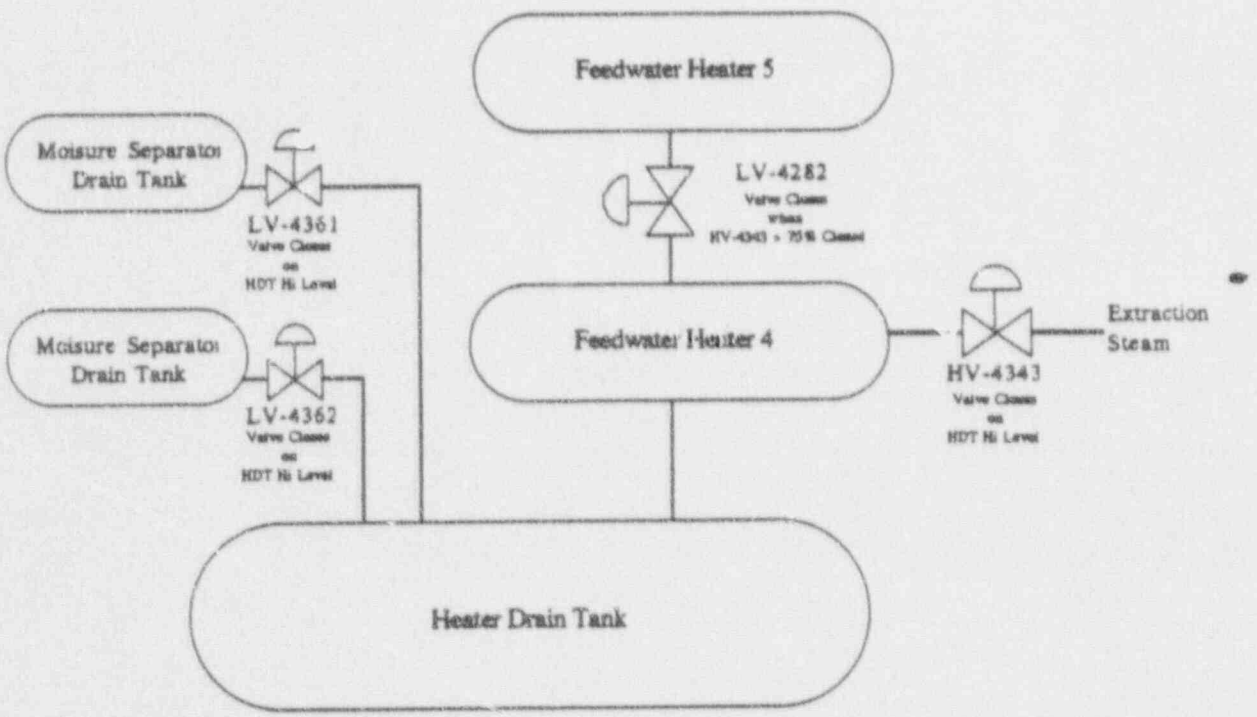
7.0 A power excursion occurred on Unit 2 when the standby condensate pump was started following the trip of a heater drain pump. During the event, power remained > 100% for ~ 9 minutes with a peak power of 105.2%.

a. When the condensate demins were bypassed for backwash and precoat, MFP suction pressure increased slightly. This increased pressure resulted in a decrease in HDT pump discharge flow and a corresponding increase in HDT level.

b. As HDT level continued to increase, the high level dump valve failed to open and level reached the high level setpoint.

The manual actuation pin was inserted , inhibiting auto operation

c. At this point the MSDT drain valves and Heater 4 extraction valve were closed. When Heater 4 extraction valve reached > 75% closed, Heater 5 normal level control valves received a close signal.



d. With the HDT basically isolated, level then began to decrease and subsequently tripped the pump on low level.

e. When the HDT pump tripped, the standby condensate pump was started. The replacement of "hot" heater drains with "cold" condensate reduced feedwater temperature and caused a decrease in Tavg.

f. As Tavg lowered, positive reactivity was added and reactor power increased, an OPΔT Rod Stop and Turbine Runback was automatically initiated. At this point, reactor and turbine power were manually reduced and stabilized at 90%.

III. LESSON OUTLINE: NOTES

B. DESIGN CHANGES

1.0 The following Unit 1 controllers have been changed to control the process vice the parameter (i.e. the "up" pushbutton will raise temperature and the "down" pushbutton will lower temperature).

1-TIC-5498	MFPT A Bearing Oil
1-TIC-5499	MFPT B Bearing Oil
1-TIC-7097	Generator H_2 Cooler
1-TIC-7116	Turbine Lube Oil Cooler
1-TIC-7356	EHC Cooler

C. PROCEDURE CHANGES

1.0 Various UOPs

Tech Spec Amendment 28 allows non-borated chemical additions during Mode 5 with the loops not filled and Mode 6. This is accomplished by opening 1208-U4-176 and 1208-U4-177 under administrative controls provided Shutdown Margin requirements are met and the High Flux at Shutdown alarm is operable at 2.30 times background.

12000-C, 12006-C, and 12007-C have been revised to allow opening of these valves for short periods of time chemistry control provided Tech Spec compliance is maintained.

2.0 12006-C, Unit Cooldown to Cold Shutdown

Vogtle specific midloop analysis limitations were incorporated as follows:

a. The containment hatch must be capable of being closed within 57 minutes or verified closed prior to reducing level below 191'.

b. If SG nozzle dams are to installed with a cold leg opening established, a vent path through an SG manway on a hot leg that will not be dammed must be established. In this situation, the PRZR manway is not sufficient to adequately relieve the heat load generated following a loss of RHR.

c. During midloop operations, 4 Containment Cooling Units will be operable and capable of being started if required.

3.0 13011-1/2, Residual Heat Removal System

Section 4.9 was added, providing direction for operating RHR with one train of cold leg discharge flowpath isolated for maintenance. This section provides guidance for isolation and restoration of a train.

III. LESSON OUTLINE:	NOTES

4.0 13502-1/2, Control Rod Drive and Position Indication System

Due to industry problems with rod tip wearing, the ARO position for control and shutdown rods is periodically changed to minimize wear at any one position. As a result, Tech Spec Amendment 29 reduces rod insertion limits to 222 steps and 13502-1 & 2 were revised to provide direction for repositioning rods to the ARO position using PTDB Tab 14.

Notes were added to ensure the "tip to tip" distance existing prior to repositioning is maintained following repositioning.

In addition, 14000-1 & 2 now require verifying shutdown rods ≥ 222 steps for shutdown margin verification.

5.0 19100-C, Loss of All AC Power

a. Sample lines are no longer required to be checked shut when verifying RCS is isolated. These valves are no longer considered "major" RCS leakage paths.

b. Operators are directed to notify maintenance to install additional emergency lighting for prolonged loss of all AC.

c. Attachments B and C were added to allow verifying CIA and CVI using the ERF computer.

6.0 19211-C, Response to Nuclear Power Generation / ATWT

Step 6a RNO now directs local trip of Reactor Trip and Bypass breakers before local trip of MG Set supply breakers.

D. TECH SPEC (Interpretations)

1.0 Tech Spec 3.4.1.4

RCS loops are considered filled when the RCS is filled and vented (i.e. SG tubes are full) and level has been maintained > 192' elevation.

2.0 FHB Post Accident Ventilation Actuation

a. With the ΔP actuation signal blocked, the FHB Post Accident Ventilation system is considered operable. ΔP actuation was intentionally excluded from Tech Specs.

b. The actuation of the FHB Post Accident Ventilation system by a ΔP signal is a reportable event. NUREG-1022 says that even if the ESF actuation is spurious or unnecessary, the actuation is reportable.