

## LOCALLY TRIP THE REACTOR AND THE TURBINE GENERATOR

**SITE:** PRAIRIE ISLAND

**JPM TITLE:** LOCALLY TRIP THE REACTOR AND THE TURBINE GENERATOR

**RELATED PRA  
INFORMATION:** NONE

**TASK TITLE:** RESPONSE TO NUCLEAR POWER GENERATION / ATWS

**K/A NUMBERS:** 001 K2.05

### APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: ☒ Perform: ☐

**EVALUATION LOCATION:** In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 5 Minutes Time Critical: **NO**

Alternate Path: **YES**

**TASK APPLICABILITY:** SRO: ☒ RO: ☒

## **LOCALLY TRIP THE REACTOR AND THE TURBINE GENERATOR**

### **INITIAL CONDITIONS:**

- The reactor AND the turbine did NOT trip from the control room.
- The crew enters 1FR-S.1, Response to Nuclear Generation/ATWS.

### **INITIATING CUES:**

- **ALL OPERATOR ACTIONS ARE TO BE SIMULATED UNLESS DIRECTED OTHERWISE.**
- The SS directs you to locally open the UNIT 1 reactor trip breakers and locally trip the UNIT 1 turbine using 1FR-S.1, Step 5 RNO.

## LOCALLY TRIP THE REACTOR AND THE TURBINE GENERATOR

### JPM PERFORMANCE INFORMATION

Required Materials: 1FR-S.1

General References: 1FR-S.1

Task Standards: BOTH 11 and 12 Rod Drive MG Set Motor and Generator Breakers are OPEN and the turbine is TRIPPED.

Start Time:

Performance Step: Step 5a RNO  
Critical N Locally open reactor trip breakers.

Standard: Attempt to open both reactor trip breakers locally using the OPEN pushbutton. Determine that neither trip breaker can be opened.

Evaluator Cue: When the examinee simulates opening the trip breakers, inform them that BOTH reactor trip breakers are still CLOSED and will NOT open.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

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

Performance Step: Step 5a RNO

Critical Y Locally open Rod Drive MG Set Motor and Generator breakers.

Standard: BOTH 11 and 12 Rod Drive MG Set Motor and Generator breakers are open.

Evaluator Note: Opening BOTH output breakers OR BOTH input breakers alone will trip the reactor and satisfy the critical step, however this does not fully comply with step 5a. If this occurs, this should be noted in the comments section.

Evaluator Cue: IF asked for reactor status, AND either MG set's output breaker AND input breaker are still closed, then inform the examinee that the reactor is still at power.

WHEN the examinee opens input or output breakers on BOTH MG sets, inform the examinee that a plant announcement stating "Reactor Trip" has been made.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

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

Performance Step: Step 5b RNO

## LOCALLY TRIP THE REACTOR AND THE TURBINE GENERATOR

**Critical Y**                      Dispatch operator to locally trip turbine (local trip lever on turbine pedestal)

**Standard:**                      Turbine is locally tripped using the local trip lever.

**Evaluator Note:**              The turbine may be tripped using the red button inside the DEHC Cabinet. This would satisfy the critical task.

**Performance:**              SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Terminating Cues:**          When BOTH 11 and 12 Rod Drive MG Set Motor and Generator Breakers are OPEN and the turbine is TRIPPED, then inform the examinee that the JPM is complete.

**Stop Time:**

**PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR**

**SITE:** PRAIRIE ISLAND

**JPM TITLE:** PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR

**RELATED PRA  
INFORMATION:** NONE

**TASK TITLE:** EMERG START DG FOLLOWING LOSS OF ALL AC POWER

**K/A NUMBERS:** 055 EA1.02

**APPLICABLE METHOD OF TESTING:**

**Discussion:** Simulate/walkthrough: ☒ Perform: ☐

**EVALUATION LOCATION:** In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

**Time for Completion:** 8 Minutes **Time Critical:** NO

**Alternate Path:** YES

**TASK APPLICABILITY:** SRO: ☒ RO: ☒

## **PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR**

### **INITIAL CONDITIONS:**

- A Loss of all AC power has occurred on Unit 1.
- The crew is performing 1ECA 0.0, Loss of all Safeguards AC Power.

### **INITIATING CUES:**

- The Unit 1 SS directs you to perform 1C20.7 Step 5.3.7, Emergency Start of D1 following a Loss of All AC Power.

PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR

JPM PERFORMANCE INFORMATION

Required Materials:

Consumable copy of 1C20.7 Step 5.3.7

General References:

1ECA-0.0, 1C20.7

Task Standards:

D1 has been emergency started using the air start valve.

Start Time:

Performance Step: Step 5.3.7

Critical Y

Emergency Start of D1 following a Loss of All AC Power

A. At the Engine Generator Panel, place CS-55309, D1 ENGINE CONTROL in the "LOCAL" position.

Standard:

CS-55309, placed in the "LOCAL" position.

Evaluator Cue:

When examinee has simulated placing CS-55309 in local, then inform the examinee CS-55309 is in local.

Performance:

SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: Step 5.3.7

Critical N

B. At the D1 Diesel Generator Gauge Panel, check if the CONTROL AT ENGINE white indicating light is LIT.

Standard:

CONTROL AT ENGINE white indicating light is verified lit

Evaluator Cue:

When examinee has located the CONTROL AT ENGINE white light, then inform the examinee the light is lit.

Performance:

SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: Step 5.3.7

Critical N

C. At the Engine Generator Panel, momentarily, place CS-55308, D1 ENGINE CONTROL STOP/START, in the "START" position.

Standard:

CS-55308 momentarily placed in the "START" position.

**PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR**

**Evaluator Note:** The examinee may attempt to repeat this step, but starting the diesel using CS-55308 will NOT be successful.

**Evaluator Cue:** When examinee has simulated placing CS-55308 in the start position, then inform the examinee the diesel is NOT running.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Performance Step:** Step 5.3.7  
**Critical Y** D. IF the diesel fails to turn over when the start attempt is made, THEN manually OPEN air start valve CV-31954, D1 DSL GEN AIR START CV B.

**Standard:** CV-31954 is opened manually.

**Evaluator Cue:** When examinee has simulated opening CV-31954, then inform the examinee the diesel has turned over and is running.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Performance Step:** Step 5.3.7  
**Critical N** E. CLOSE CV-31954 after the diesel has started IF it was manually OPENED.

**Standard:** CV-31954 is closed.

**Evaluator Cue:** When examinee has simulated closing CV-31954, then inform the examinee CV-31954 is closed.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Performance Step:** Step 5.3.7  
**Critical Y** F. At the Engine Generator Panel, momentarily depress CS-55301, D1 DSL GEN MAN FIELD FLASH PB, to flash the field.

**Standard:** CS-55301 momentarily depressed.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐



## PERFORM LOCAL EMERGENCY START OF A DIESEL GENERATOR

Comments:

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Performance Step: Step 5.3.7

Critical N

G. At the Engine Generator Panel:

1. Adjust frequency to 60 Hz using CS-55306, D1 SPEED CONTROL.

Standard: CS-55306 raised to achieve 60 Hz.

Evaluator Cue: When examinee checks frequency then, using the meter indicate a frequency of 59 Hz.

When examinee has simulated raising frequency using CS-55306, then inform the examinee frequency is 60 Hz.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: Step 5.3.7

Critical N

G. At the Engine Generator Panel:

2. Adjust 4.16 Bus Voltage as necessary using CS-55314, D1 AUTO VOLTAGE ADJUSTER.

Standard: Voltage raised to 4.16 kV.

Evaluator Cue: When examinee checks voltage, then inform the examinee that voltage is 3600 volts.

When examinee has simulated raising voltage using CS-55314, then inform the examinee that voltage is 4.16 kV.

Upon completion of this step inform the examinee Steps H and I will be performed by another operator.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Terminating Cues: When D1 has been emergency started using the air start valve, then this JPM is complete.

Stop Time:

## START UP THE HYDROGEN RECOMBINER

**SITE:** PRAIRIE ISLAND

**JPM TITLE:** START UP THE HYDROGEN RECOMBINER

**RELATED PRA** NONE  
**INFORMATION:** PRA Identified Task

**TASK TITLE:** STARTUP AND SHUTDOWN THE HYDROGEN RECOMBINERS

**K/A NUMBERS:** 2.1.23

### APPLICABLE METHOD OF TESTING:

Discussion: ☐

Simulate/walkthrough: ☒

Perform: ☐

### EVALUATION LOCATION:

In-Plant: ☒

Control Room: ☐

Simulator: ☐

Other: ☐

Lab: ☐

Time for Completion: **13** Minutes Time Critical: **NO**

Alternate Path: **NO**

### TASK APPLICABILITY:

SRO: ☒

RO: ☒

## **START UP THE HYDROGEN RECOMBINER**

### **INITIAL CONDITIONS:**

- A LOCA has occurred on Unit 1.
- Containment H<sub>2</sub> concentration is 2%.
- Adequate power is available to supply the 11 Hydrogen Recombiner.

### **INITIATING CUES:**

- The SS directs you to start up 11 Containment Hydrogen Recombiner per C19.8, beginning at step 5.1.2.

## **START UP THE HYDROGEN RECOMBINER**

### **JPM PERFORMANCE INFORMATION**

**Required Materials:** Consumable copy of C19.8 Step 5.1 with Step 5.1.1 initialed, Figure 1 and a calculator.

**General References:** C19.8

**Task Standards:** 11 Containment Hydrogen Recombiner is in service at the required power setting.

**Start Time:**

## START UP THE HYDROGEN RECOMBINER

Performance Step: 5.1.2

Critical N At the recombiner panel, verify the PWR ADJ potentiometer is set to zero.

Standard: PWR ADJ potentiometer verified to be set at zero.

Evaluator Cue: If examinee simulates adjusting the PWR ADJ potentiometer, then inform the examinee the PWR ADJ potentiometer is set to zero.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: 5.1.3

Critical N At the recombiner control panel, verify the PWR IN AVAIL lamp is "LIT".

Standard: PWR IN AVAIL lamp verified to be lit.

Evaluator Cue: When examinee observes PWR IN AVAIL lamp, then inform the examinee PWR IN AVAIL lamp is illuminated.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: 5.1.4

Critical Y Turn the PWR OUT SW to the "ON" position. The red lamp on the switch face plate should be "LIT".

Standard: PWR OUT SW turned to the ON position.

Evaluator Cue: When examinee has simulated placing the PWR OUT SW is in the ON position then inform the examinee the PWR OUT SW is in the ON position and the red lamp is LIT.

Performance: SATISFACTORY ☐ UNSATISFACTORY ☐

Comments:

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Performance Step: 5.1.5

Critical N Obtain the following plant conditions:  
Present post-LOCA Containment Pressure \_\_\_\_\_ PSIG

## START UP THE HYDROGEN RECOMBINER

Pre-LOCA Containment Temperature from plant computer logs Point 258 (1U1001A [2U1001A]) \_\_\_\_\_ °F

Pre-LOCA Containment Pressure from plant computer logs Point 257 (1U1000A [2U1000A]) \_\_\_\_\_ PSIG

**Standard:** Present post-LOCA Containment Pressure and pre-LOCA Containment Temperature and Pressure obtained.

**Evaluator Cue:** When examinee has simulated contacting the control room, then, as the RO, inform examinee:

Present post-LOCA containment pressure is 3.6 psig.

Pre-LOCA Containment Temperature was 90 °F.

Pre-LOCA Containment Pressure was 0 PSIG.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

**Comments:**

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**Performance Step:** 5.1.6

**Critical** Y Determine the pressure factor, Cp, from the Recombiner Power Correction Factor Versus Containment Pressure Curve (Figure 1) Cp = \_\_\_\_\_

**Standard:** Cp determined to be  $1.20 \pm 0.01$ .

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

**Comments:**

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**Performance Step:** 5.1.7

**Critical** Y Multiply Cp, determined above, by the reference power setting to determine required recombiter power setting.

Ref. Power Setting x Cp = Required Power Setting

\_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

**Standard:** Required recombiter power setting determined to be 45 to 47 KW (1.2 X 38.25 KW ~ 46 KW).

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

**Comments:**

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**Performance Step:** 5.1.8

## START UP THE HYDROGEN RECOMBINER

**Critical** N Turn the PWR ADJ potentiometer clockwise until 5 KW is obtained on the PWR OUT meter.

**Standard:** PWR ADJ potentiometer turned clockwise until 5 kw is indicated on the PWR OUT meter.

**Evaluator Cue:** When examinee has simulated adjusting the PWR ADJ potentiometer then inform the examinee the PWR OUT meter indicates 5 KW.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Performance Step:** 5.1.9  
**Critical** N Hold at 5 KW for ten (10) minutes, then advance to 10 KW.

**Standard:** PWR OUT meter maintained at 5 KW for 10 minutes, subsequently PWR ADJ potentiometer turned clockwise to achieve 10 KW on the PWR OUT meter.

**Evaluator Cue:** When examinee indicates that he/she would hold for 10 minutes, then inform the examinee 10 minutes has elapsed.

When examinee has simulated adjusting the PWR ADJ potentiometer, then inform the examinee the PWR OUT meter indicates 10 KW.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Performance Step:** 5.1.10  
**Critical** Y Hold at 10 KW for TEN (10) minutes, then advance to 20 KW.

**Standard:** PWR OUT meter maintained at 10 KW for 10 minutes, subsequently PWR ADJ potentiometer turned clockwise to achieve 20 KW on the PWR OUT meter.

**Evaluator Cue:** When examinee indicates that he/she would hold for 10 minutes, then inform the examinee 10 minutes has elapsed.

When examinee has simulated adjusting the PWR ADJ potentiometer, then inform the examinee the PWR OUT meter indicates 20 KW.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

## START UP THE HYDROGEN RECOMBINER

**Performance Step:** 5.1.11  
**Critical** Y Hold at 20 KW for five (5) minutes, then advance to power setting obtained above (Step 5.1.7).

**Standard:** PWR OUT meter maintained at 20 KW for 5 minutes, subsequently PWR ADJ potentiometer turned clockwise to achieve power setting obtained in Step 5.1.7 on the PWR OUT meter.

**Evaluator Cue:** When examinee indicates that he/she would hold for 5 minutes, then inform the examinee 5 minutes has elapsed.

When examinee has simulated adjusting the PWR ADJ potentiometer, then inform the examinee the PWR OUT meter indicates the power setting obtained in Step 5.1.7.

**Performance:** SATISFACTORY ☐ UNSATISFACTORY ☐

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

**Terminating Cues:** When 11 Containment Hydrogen Recombiner is in service at the required power setting, then this JPM is complete.

**Stop Time:**