JOB PERFORMANCE MEASURE SETUP SHEET

System: Fire Protection System
Time Critical: No
Applicability: RO/SRO
Safety Function: 8 – Plant Service Systems
Setting: Plant, Alternate Path, New
Validated: 20 minutes
References: SOI-P54 (Gas) Rev 4

Tasks: Manually initiate Control Room CO2 from outside the Control Room.

Task #: 286-518-04-01

K / A Data: 286000 A2.08 Ability to (a) predict the impacts of the failure to actuate when required on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations.

1. Simulator Setup Instructions: None

2. Location / Method: Plant / Simulation

3. Initial Condition: An electrical fire in the Control Room Center Subfloor Area required the evacuation of the Control Room. All immediate actions for ONI-C61, Evacuation of the Control Room, have been completed.

4. Initiating Cue: The Unit Supervisor has directed you, as an In-Plant Operator, to manually initiate the Carbon Dioxide System for the Control Room Center Subfloor Area in accordance with SOI-P54 (GAS).

JPM CUE SHEET

INITIAL CONDITIONS:	An electrical fire in the Control Room Center Subfloor Area required the evacuation of the Control Room. All immediate actions for ONI-C61, Evacuation of the Control Room, have been completed.
INITIATING CUE:	The Unit Supervisor has directed you, as an In-Plant Operator, to manually initiate the Carbon Dioxide System for the Control Room Center Subfloor Area in accordance with SOI-P54 (GAS).

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc… before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1

7.2 Carbon Dioxide System Manual Initiation

NOTES

• This section will normally be performed by the Fire Brigade.
• In the event of an associated Control Panel loss of power, the Master Valve will open and fill the header with CO2 up to the Selector Valve.

NA 7.2.1 IF there is a fire in a Reactor Recirc pump, THEN VERIFY the CNTMT CO2 SUPPLY OTBD ISOL is open in accordance with ONI-P54. 1P54-F340

Standard: Step is NA

Instructor Cue: None

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 2

7.2.2 BREAK the Selector Valve breakglass.

7.2.3 ROTATE the Selector Valve pilot valve clockwise.

CAUTION

Prior to opening Selector Valve pilot valve, and only if conditions allow, ensure the room is clear of personnel as no warning is given that carbon dioxide will be dumped.

7.2.4 HOLD the Selector Valve pilot valve open for the discharge time listed in Attachment 3.

Critical Step: Operator simulates breaking glass and rotating Selector Valve Pilot Valve P54-F3461 clockwise and holds open for 4 minutes.

Instructor Cue: Glass broken, Pilot Valve open, if asked about flow noise inform operator no flow noise has been heard.

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 3

7.2.5 CLOSE the Selector Valve pilot valve

NA 7.2.6 IF no CO2 discharge occurs, THEN PERFORM the following:

7.2.6.a OPEN the Selector Valve pilot valve.

Critical Step: Operator Opens or leaves open 1P54-F3461

Instructor Cue: No CO2 Discharge occurred

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 4

7.2.6.b BREAK the Master Valve breakglass.

7.2.6.c ROTATE the Master Valve pilot valve clockwise.

7.2.6.d HOLD the Master Valve pilot valve open for the discharge time specified in Attachment 3.

Critical Step: Operator simulates breaking glass and rotating Master Pilot Valve P54-F3441 clockwise and holds open for 4 minutes.

Instructor Cue: Glass broken, Pilot Valve open, if asked about flow noise inform operator flow noise can be heard.

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 5

7.2.6.e CLOSE the Master Valve pilot valve.

Standard: Operator closes Master Pilot Valve 1P54-F3441.

Instructor Cue: Valve Closed

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 6

7.2.6.f CLOSE the Selector Valve pilot valve.

7.2.7 VERIFY that at least 10 minutes have elapsed following the carbon dioxide discharge before opening OR ventilating the affected area

Standard: Operator closes Selector Pilot Valve 1P54-F3461.

Instructor Cue: Valve Closed

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Terminating Cue: Operator has initiated Control Room Center Subfloor CO2 using the Master Valve Pilot Valve.

Evaluation Results: SAT_____ UNSAT_____

ATTACHMENT 3 - Carbon Dioxide Master & Selector Valves and Discharge Times
Page 1 of 1

ROOM	PANEL	MASTER VALVE PILOT VALVE LOCATION	SELECTOR VALVE PILOT VALVE LOCATION	DISCHARGE TIME
Div. 1 Diesel Generator Room	1H51-P199	P54-F3631 CC-620-E/05	1P54-F3411 DG Corridor	1 minute
HPCS Diesel Generator Room	1H51-P200	P54-F3631 CC-620-E/05	1P54-F3421 DG Corridor	1 minute
Div. 2 Diesel Generator Room	1H51-P201	P54-F3631 CC-620-E/05	1P54-F3431 DG Corridor	1 minute
Control Room - East Subfloor	1H51-P205	P54-F3441 CC-620-E/05	1P54-F3471 CC-638-C/02	4 minutes
Control Room - West Subfloor	1H51-P203	P54-F3441 CC-620-E/05	1P54-F3451 CC-638-C/02	4 minutes
Control Room – Center – Subfloor	1H51-P204	P54-F3441 CC-620-E/05	1P54-F3461 CC-638-C/02	4 minutes
Computer Room	1H51-P206	P54-F3441 CC-620-E/05	1P54-F3481 CC-638-C/03	2 minutes
Control Complex Hose Reels	H51-P208	P54-F3501 CC-620-E/05	NA	NA
Recirc Pump A	1H51-P212	1P54-F3521 FHB-620-D/09	1P54-F3591 C-599-285°	1 minute
Recirc Pump B	1H51-P781	1P54-F3521 FHB-620-D/09	1P54-F3581 C-599-320°	1 minute
Lube Oil Storage Room	1H51-P214	1P54-F3551 TB-620-D/16	1P54-F3531 TB-620-D/16	1 minute
Lube Oil Purifier Room	1H51-P213	1P54-F3551 TB-620-D/16	1P54-F3541 TB-593-D/15	1 minute
Turbine Power Complex Hose Reels	1H51-P782	1P54-F3601 TB-620-D/16	NA	NA

JOB PERFORMANCE MEASURE SETUP SHEET

System: High Containment Hydrogen Concentration
Time Critical: No
Applicability: RO/SRO
Safety Function: 5 – EPE / Containment Integrity
Setting: Bank, Alternate Path
Validated: 20 minutes
References: SOI-M51/56 Rev. 16

Tasks: Start a Hydrogen Recombiner and then secure the Recombiner due to high hydrogen concentration in containment.

Task #: 229-505-05-04

K / A Data: 500000 EA1.03 Ability to operate the Containment Atmosphere Control System as it applies to High Containment Hydrogen Control.

1. Simulator Setup Instructions: NA

2. Location / Method: Plant / Simulation

3. Initial Condition: Small Break LOCA has occurred. Drywell Hydrogen concentration is 7%, Hydrogen Igniters have been started. Containment Hydrogen is 3%, and containment pressure is 5.0 psig and stable. Pre-LOCA containment temperature was 80 degrees.

4. Initiating Cue: The Unit Supervisor directs you as a Plant Operator to start Division 2 Hydrogen Recombiner per SOI-M51/56 Section 4.5.

JPM CUE SHEET

INITIAL CONDITIONS:	Small Break LOCA has occurred. Drywell Hydrogen concentration is 7%, Hydrogen Igniters have been started. Containment Hydrogen is 3%, and containment pressure is 5.0 psig and stable. Pre-LOCA containment temperature was 80 degrees.
INITIATING CUE:	The Unit Supervisor directs you as a Plant Operator to start Division 2 Hydrogen Recombiner per SOI-M51/56 Section 4.5.

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc… before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1

4.5 Hydrogen Recombiner Startup Post LOCA

CAUTION

The Hydrogen Recombiner must be shutdown if hydrogen concentration reaches 6% to preclude Recombiner damage.

NOTES

All controls for the Hydrogen Recombiners are on 1H51-P094 AND 1H51-P095, located in the Control Complex on ELEV. 620' in the Division 1 AND 2 Switchgear Rooms.
Complete startup of a Hydrogen Recombiner can take approximately six hours.

4.5.1 VERIFY the PWR ADJ potentiometer is set at zero. (000)

4.5.2 PLACE the PWR OUT SW to ON.

Critical Step: Operator verifies power adjust at 0 and simulates power switch to On.

Instructor Cue: Power Switch in On, Red Light On

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 2

4.5.3 IF the red light on the control plate is NOT ON, THEN VERIFY the oncoming Hydrogen Recombiner breaker is closed. EF1D12

4.5.4 IF the red light on the control plate is NOT ON, THEN VERIFY fuses F1 AND F2 in the panel are NOT blown. 1M51-S002

Standard: Steps 4.5.3 and 4.5.4 are NA.

Instructor Cue: Red Light ON

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 3

4.5.5 CALCULATE the initial Recombiner Power Setting using the applicable portions of the Hydrogen Recombiner Record (Attachment 8) as follows:

4.5.5.a DETERMINE Post LOCA containment average pressure.

4.5.5.b DETERMINE Pre LOCA containment average temperature.

4.5.5.c DETERMINE the Pressure Factor (CP) from the Pressure Factor vs. Containment Pressure graph in Attachment 1.

NOTE

Reference Power is 37.8 KW for Recombiner A AND 41.4 KW for Recombiner B.

4.5.5.d MULTIPLY CP by Reference Power to obtain the initial Recombiner Power Setting.

4.5.5.e RECORD required data on Hydrogen Recombiner Record (Attachment 8).

4.5.5.f IF containment pressure changes by 1 psig, THEN RECALCULATE Power.

Critical Step: Operator calculates Recombiner Power Setting

Instructor Cue: Initial conditions CTMT Pressure 5.0 psig and CTMT Temp 80.

Notes: 41.4 x 1.25 = 51.75 KW

SAT ___ UNSAT ___

Comment(s):_____

Step 4

CAUTION

Do NOT allow the output power as indicated on the PWR OUT meter to exceed 75 KW OR the heater temperature to exceed 1400°F as indicated on the TEMP OUT meter.

NOTE

There is a lag between the meter reading AND the potentiometer setting. The potentiometer setting should be adjusted slowly while monitoring the PWR OUT meter to minimize overshoot.

4.5.6 ADJUST the PWR ADJ potentiometer UNTIL 5 KW is obtained on the PWR OUT meter.

4.5.7 MAINTAIN 5 KW for 10 minutes.

Critical Step: Operator simulates adjusting power to 5KW.

Instructor Cue: Power ADJ at 5KW

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 5

4.5.8 ADJUST the PWR ADJ potentiometer UNTIL 10 KW is obtained on the PWR OUT meter.

4.5.9 MAINTAIN 10 KW for 10 minutes.

4.5.10 ADJUST the PWR ADJ potentiometer UNTIL 20 KW is obtained on the PWR OUT meter.

4.5.11 MAINTAIN 20 KW for 5 minutes.

Critical Step: Adjust the PWR ADJ to 10 KW and then to 20 KW

Instructor Cue: Containment Hydrogen is 6%

Notes: At 6% Recombiner to be secured.

SAT ___ UNSAT ___

Comment(s):_____

Step 6

6.4 Hydrogen Recombiner Shutdown

CAUTION

The Hydrogen Recombiners must be shutdown if hydrogen concentration reaches 6% to preclude Recombiner damage.

6.4.1 DECREASE PWR ADJ potentiometer to zero (000). 1H51-P095

Critical Step: Operator adjusts PWR ADJ to zero

Instructor Cue: Power adjusted

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 7

6.4.2 PLACE the PWR OUT SW to OFF. 1H51-P095

6.4.3 VERIFY the PWR OUT SW red status light on the switch control plate is OFF. 1H51-P095

6.4.4 PERFORM independent verification of the required components.

Critical Step: Power off Switch in Off

Instructor Cue: Switch in Off, Red light Off

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Terminating Cue: Recombiner B shutdown due to high hydrogen per SOI -M51 / 56.

Evaluation Results: SAT_____ UNSAT_____

JOB PERFORMANCE MEASURE SETUP SHEET

System: Partial or Complete Loss of AC Power
Time Critical: No
Applicability: RO/SRO
Safety Function: 6 – Electrical
Setting: RCA, Bank
Validated: 25 minutes
References: ONI-SPI-D2 Rev 1

Tasks: Load Shed Balance of Plant DC Bus

Task #: 263-510-04-01

K / A Data: 295003 AA1.04 Ability to operate the DC electrical distribution system as it applies to a Partial or Complete Loss of AC Power.

1. Simulator Setup Instructions: NA

2. Location / Method: Plant / Simulation

3. Initial Condition: Station Blackout has occurred; plant is operating in ONI-R10. Div 1 DG is damaged and will not be restored. Preparations are underway to restore Div 2 DG to service. Div 3 DG is carrying EH13 bus. Divisional DC Load shed, steps 1.1 through 1.8 are being performed by another Plant Operator.

4. Initiating Cue: The Unit Supervisor directs you as a Plant Operator to perform ONI-SPI D2 Non Essential DC Loads, and shed all non-essential loads for Balance of Plant buses.

JPM CUE SHEET

INITIAL CONDITIONS:	Station Blackout has occurred; plant is operating in ONI-R10. Div 1 DG is damaged and will not be restored. Preparations are underway to restore Div 2 DG to service. Div 3 DG is carrying EH13 bus. Divisional DC Load shed, steps 1.1 through 1.8 are being performed by another Plant Operator.
INITIATING CUE:	The Unit Supervisor directs you as a Plant Operator to perform ONI-SPI D2 Non Essential DC Loads, and shed all non-essential loads for Balance of Plant buses.

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc… before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1

NOTES

- One non-licensed operator should be assigned to perform the following actions.
- A Radiation Protection Technician may be required to perform Steps 1.9 thru 1.13 and Steps 2.6 thru 2.10.
- Steps and sub-steps may be performed in any order.

1.0 Removing Nonessential DC Loads

CAUTION

Opening the following breakers on D-1-B may result in bearing damage to the associated component if the component is still rotating.

1.9 **AT** Bus D-1-B (TPC 620), **VERIFY** the following Brkrs OPEN:

- TURB EMG BEARING OIL PUMP, 1N34-C007 **D1B05**
- RFPT A EMG LUBE OIL PUMP, 1N27-C006A **D1B09**
- RFPT B EMG LUBE OIL PUMP, 1N27-C006B **D1B11**
- MFP DC LUBE OIL PUMP, 1N27-C012 **D1B12**

Critical Step: Simulates opening breakers D1B05, 9, 11, and 12 at D1B

Instructor Cue: Components have stopped rotating , Breakers open

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 2

1.10 **AT** Distribution Panel D1A06 (TPC 620),
VERIFY the following disconnects OPEN:

- RWCU FILTER DEMIN PANEL, 1G36-P002 **Disc 3**
- OSCILLOGRAPH/B.A.T. CABINENT, H13-P910 **Disc 11**
- POST ACCIDENT SAMPLE SYS ANNUN, P87-P005 **Disc 12**
- LOCAL ANN **Disc 13**
- SCREEN WASH PNLS, H51-P006, H51-P010A LOCAL ANN **Disc 14**

Critical Step: Simulates opening disconnects 3, 11, 12, 13 and 14 at D1A06.

Instructor Cue: Disconnects open

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 3

1.11 **AT** Distribution Panel D1B06 (TPC 620),
VERIFY the following disconnects OPEN:

- RCIRC AUX RELAY PANEL, 1B33-P001A **Disc 4**
- LFMG BRKRS 2A & 2B CONTROL POWER **Disc 20**

Critical Step: Simulates opening disconnects 4 and 20 at D1B06.

Instructor Cue: Disconnects open

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Step 4

1.12 **AT** Distribution Panel D1B07 (TPC 620), **VERIFY** the following disconnects OPEN:

- TURB BLDG & HTR BAY HVAC CONT PANEL ANNUN, 1H51-P042. **Disc 3**
- CIRC WATER ACID ADDITION CONTROL PANEL ANNUN, 1H51-P063. **Disc 17**
- RCIRC AUX RELAY PANEL, 1B33-P001B **Disc 19**
- WASTE/FLOOR DRAIN FILTER PANEL ANNUN, H51-P133 **Disc 21**
- RADWASTE CONTROL PANEL INST, H51-P031 **Disc 22**
- STATOR COOLING CABINET, 1H51-P176 **Disc 23**

Critical Step: Simulates opening disconnects 3, 17, 19, 21, 22, and 23 at D1B07

Instructor Cue: Disconnects open

Notes: Disc 17 is now a spare. Procedure change should be processed prior to exam.

SAT ___ UNSAT ___

Comment(s):_____

Step 5

NOTE
Panel V-1-B supplies the ICS Computer System.

1.13 **AT** DB-1-A Static Transfer Switch, 1R14-S008 (TPC 620), **VERIFY** the 120VAC XFMRS 1R14-S018(S019) TO V-1-B (V-1-B1), 1R14-S009(S017) breaker OPEN: **CB 2**

Critical Step: Simulates opening CB2 at DB1A

Instructor Cue: CB2 open

Notes: None

SAT ___ UNSAT ___

Comment(s):_____

Terminating Cue: DC Load shed complete for BOP buses.

Evaluation Results: SAT_____ UNSAT_____