

JOB PERFORMANCE MEASURE SETUP SHEET

System: R14 – 120 V AC Vital Inverters

Time Critical: No Alternate Path: Yes

Safety Function: 6 - Electrical Applicability: RO/SRO

Setting: Plant (non-RRA) Validated Time: 24 Minutes

References: SOI-R14 Rev 15

Required Material: SOI-R14 - 120 V AC Vital Inverters, Pictures of INPUT POWER breaker and TRANSFER SWITCH

Task: 082-502-01-04 Start Up the Divisional ATWS UPS Inverter
082-505-01-04 Shift ATWS UPS Power Supplies

Task Standard: Transfer station 13Kv buses from Aux Transformer to Startup Transformer

K/A Data: 262002, Uninterruptable Power Supply (A.C./D.C.) – K4.01 Knowledge of Uninterruptable Power Supply (A.C./D.C.) design feature(s) and/or interlocks which provide for the following: Transfer from preferred power to alternate power supplies Importance: RO 3.4 / SRO 3.7

1. Setup Instructions: None
2. Location / Method: Plant / Simulation
3. Initial Condition: Plant is shutdown. Division 1 ATWS UPS is on the Alternate Source
4. Initiating Cue: Unit Supervisor directs you the Plant Operator to shift Division 1 ATWS UPS to the inverter in accordance with SOI-R14.

Start: _____ **Stop:** _____

Candidate: _____

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

Review SOI-R14

Standard: Operator reviews SOI-R14 and determines that a key is required for an inverter shift.

Instructor Cue: None

Notes: The key can be obtained from the CRA (Control Room Assistant).

SAT ___ **UNSAT** ___

Comment(s): _____

Step 2

SOI-R14 - 120 V AC Vital Inverters

7.4 Shifting Divisional ATWS UPS to the Inverter

NOTE
Performance of this section requires the transfer switch key.

7.4.1 IF the inverter is NOT in service, THEN REFER TO Section 4.3, Divisional ATWS UPS Inverter Startup, and ALIGN the system. 1R14-S012

Critical Step: Operator determines that the Div 1 ATWS inverter is not in service and will refer to section 4.3 to startup the inverter.

Instructor Cue:

- When arriving at Div 1 ATWS UPS show operator Picture #1 & Picture #2.
- If asked, inform Operator that if voltmeter switch moved to INV, voltage will be reading zero (0).

Notes: Picture #1 shows the INPUT POWER breaker (CB1) on the static transfer switch panel is in the OFF position.
Picture #2 shows right side of panel with appropriate lights illuminated and '0' input volts.

SAT ___ **UNSAT** ___

Comment(s): _____

Step 34.3 Divisional ATWS UPS Inverter Startup**NOTE**

This section assumes that the Div 1(2) ATWS UPS distribution system is being supplied from the Alternate Source. If the distribution system has been de-energized completely or a system casualty has occurred, the Recovery of Div 1(2) ATWS UPS, After Complete Shutdown section should be used.

- 4.3.1 CONFIRM the TRANSFER SWITCH in BYPASS at Div ATWS UPS to be started. 1R14-S012

Standard: Operator confirm the Transfer Switch in BYPASS.

Instructor Cue: Show operator Picture #3.

Notes: Picture #3 shows Transfer Switch in BYPASS position.

SAT ___ **UNSAT** ___

Comment(s): _____

Step 4

- 4.3.2 CLOSE the DIV ATWS UPS disconnect at Dist Panel for the UPS to be started. 1R14-S012
ED1A 06-22

Critical Step: Operator simulates closing breaker 06-22 on EDIA.

Instructor Cue: Initially: Disconnect 06-22 handle is pointing down to the right (OPEN)
After simulating closing breaker: Breaker 06-22 is SHUT.

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 5

- 4.3.3 PERFORM the following at the Divisional ATWS UPS to be started: 1R14-S012
- 4.3.3.a MOMENTARILY DEPRESS the PRE-CHARGE button.
- 4.3.3.b WAIT 10 seconds.
- 4.3.3.c CLOSE the INPUT POWER breaker. CB1

Critical Step: Operator depresses the PRE-CHARGE button waits 10 seconds and closes CB1

Instructor Cue:

- PRE-CHARGE button is depressed.
- CB1 is closed
- 60 hz hum is heard

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 6

- 4.3.4 PLACE the Voltmeter Selector Switch in the INV position.
- 4.3.5 CONFIRM 117.5 to 122.5 VAC as indicated on AC OUTPUT VOLTAGE.

Standard: Operator simulates placing the Voltmeter Selector Switch in the INV position and checks voltage.

Instructor Cue:

1. Voltmeter Selector Switch in the INV position.
2. Voltage is “as is” (or 120 VAC*).

Notes: * It is anticipated that the Inverter will be in service during performance of this JPM. If not, inform operator voltage is 120 VAC.

SAT ___ **UNSAT** ___

Comment(s): _____

Step 7

4.3.6 CONFIRM the following lights are lit.

- SYNC LOSS
- REV. XFER
- ALT SOURCE NOT AVAIL

4.3.7 PLACE the Voltmeter Selector Switch in the A.C. output position

4.3.8 PERFORM Independent Verification of required components.

Standard: Operator confirms lights are lit, Simulates placing Voltmeter Selector Switch in the A.C. output position, and requests an IV

Instructor Cue:

- Lights are lit*.
- Another operator will perform IV.
- When Voltmeter placed in the A.C. output position, Voltage is “as is” (or 120 VAC*).

Notes: * It is anticipated that the Inverter will be in service during performance of this JPM. If so, the lights will be off.

Same lights as shown on Picture #2 are still on.

SAT ___ UNSAT ___

Comment(s): _____

Step 8

4.3.9	Loads are supplied from the Alternate Source.
	It is desired to supply the loads from the inverter.
	THEN REFER TO Section 7.4, Shifting Divisional ATWS UPS to the Inverter, and ALIGN the system.

Standard:	Operator returns to Section 7.4 to finish shift.
Instructor Cue:	None
Notes:	None
SAT ____	UNSAT ____
Comment(s):	_____

Step 97.4 Shifting Divisional ATWS UPS to the Inverter

7.4.2 CONFIRM the following:

- Alternate Source Not Available lamp is on. (Indicates the alternate supply is not available to the static switch.)
- Synch Loss lamp is on. (With the static switch bypassed, the inverter synch sensing circuit is isolated from the alternate source.) System AC loading can be verified by observation of the AC Ammeter at the static switch compartment.

7.4.3 REMOVE the TRANSFER SWITCH locking device.

7.4.4 PLACE the Voltmeter Selector Switch to INV position.

7.4.5 CONFIRM 118 to 127 VAC.

7.4.6 PLACE Voltmeter Selector Switch to the AC output position.

Standard: Operator confirms Alternate Source Not Available and Synch Loss lamps are ON and simulates moving Voltmeter Selector Switch to check voltage.

Instructor Cue:

- TRANSFER SWITCH locking device is removed.
- Voltmeter Selector Switch in INV position
- Voltage is 124 VAC or as is.
- Voltmeter Selector Switch in the AC output position.

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 10

7.4.7 IF the REV XFER light is off, THEN PERFORM the following:

7.4.7.a MOMENTARILY DEPRESS REV XFER.

S102

7.4.7.b CONFIRM REV XFER light comes on.

Standard:	Operator observes REV XFER light.
Instructor Cue:	REV XFER light is ON.
Notes:	REV XFER light was previously identified as ON. Steps 7.4.7.a & .b are N/A.
SAT ___	UNSAT ___
Comment(s):	_____

Step 11

7.4.8 PLACE the TRANSFER SWITCH in INVERTER.

<u>Critical Step:</u>	Operator simulates placing TRANSFER SWITCH in INVERTER.
Instructor Cue:	Switch in INVERTER.
Notes:	None
SAT ___	UNSAT ___
Comment(s):	_____

Step 12

7.4.9 CONFIRM the SYNC LOSS light is off.

7.4.10 CONFIRM the ALT SOURCE NOT AVAIL is off.

Standard:	Operator confirms SYNC LOSS light and ALT SOURCE NOT AVAIL lights are off.
Instructor Cue:	Show operator Picture #4.
Notes:	Lights are OFF.
SAT ___	UNSAT ___
Comment(s):	_____

Step 13

7.4.11 MOMENTARILY DEPRESS the FWD XFER to transfer Loads to the Inverter through the Static Transfer Switch. S101

<u>Critical Step:</u>	Operator simulates depressing the FWD XFER button.
Instructor Cue:	None
Notes:	None
SAT ___	UNSAT ___
Comment(s):	_____

Step 14

7.4.12 CONFIRM the REV. XFER S102 light goes out.

7.4.13 CONFIRM all control panel lights off with the exception of FWD XFER.

7.4.14 INSTALL the TRANSFER SWITCH locking device.

7.4.15 PERFORM Independent Verification of the required components.

Standard:	Operator confirms lights and simulates installing locking device.
Instructor Cue:	Lights are as is. Locking device is installed. IV will be done by another operator.
Notes:	If inverter is shutdown at time of JPM, show picture #5 Terminate the JPM
SAT ____	UNSAT ____
Comment(s):	_____

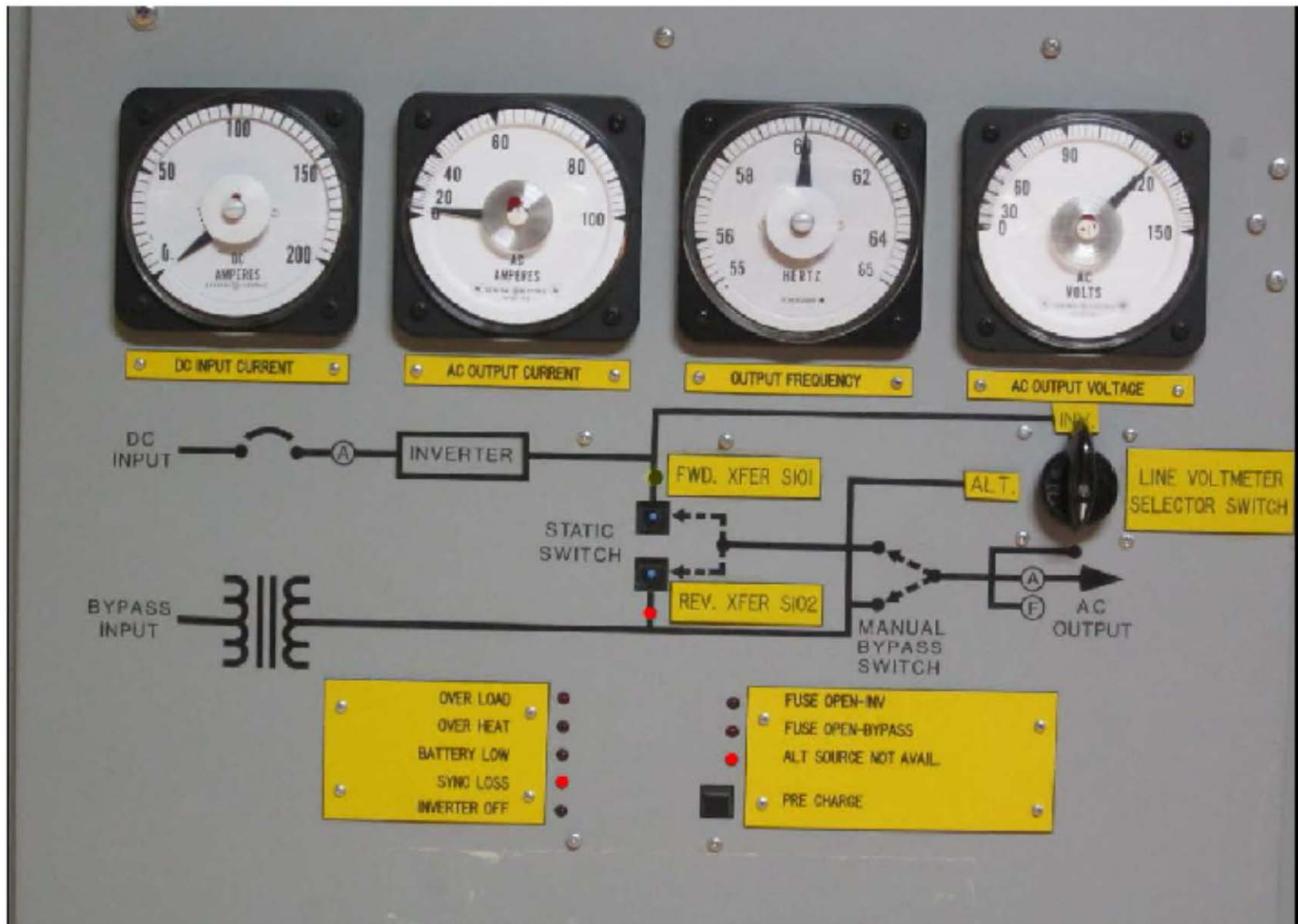
Terminating Cue: Candidate starts up the Division 1 ATWS Inverter and transfers the UPS to the inverter.

Evaluation Results: SAT_____ UNSAT_____

End Time: _____



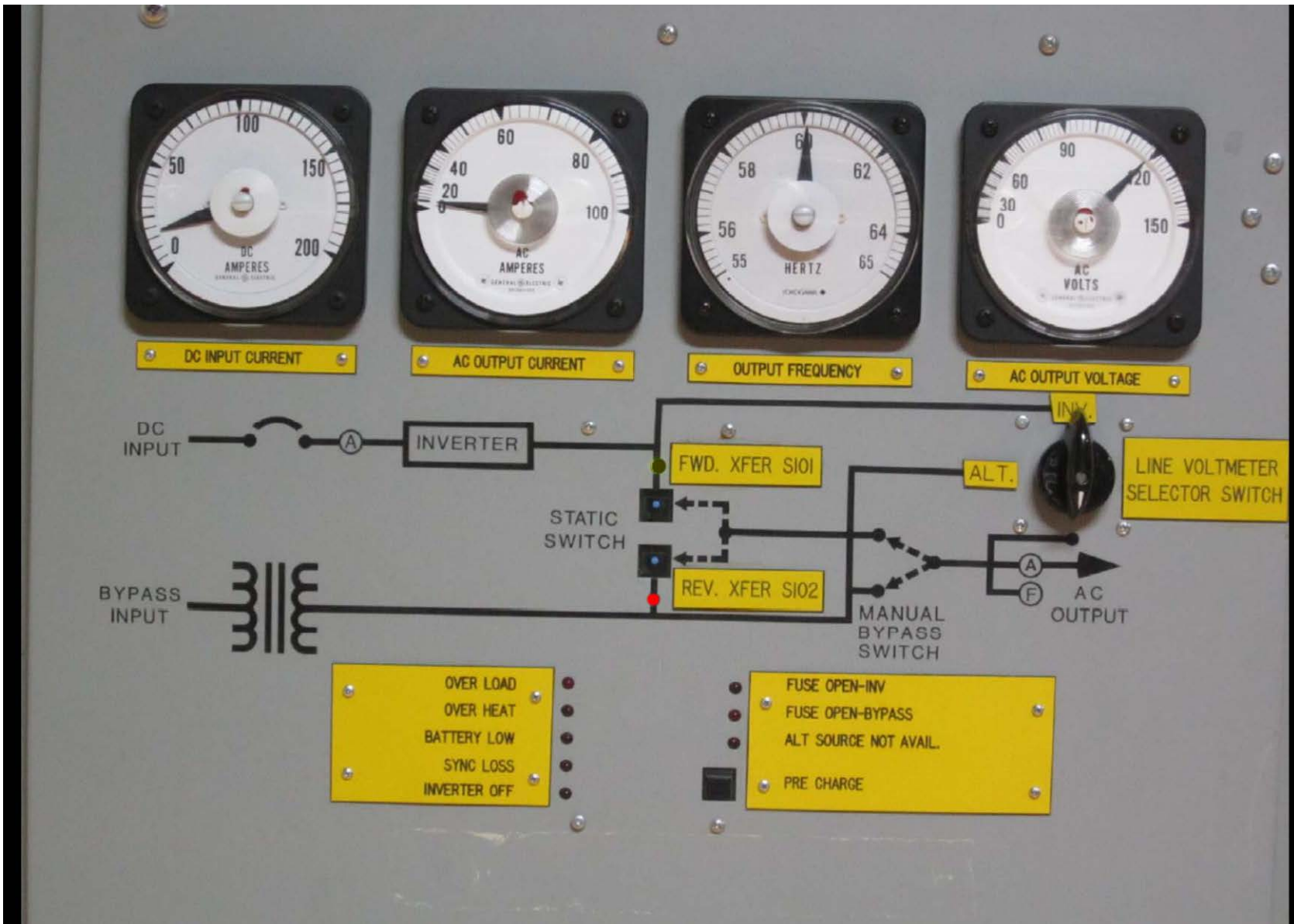
Picture 1



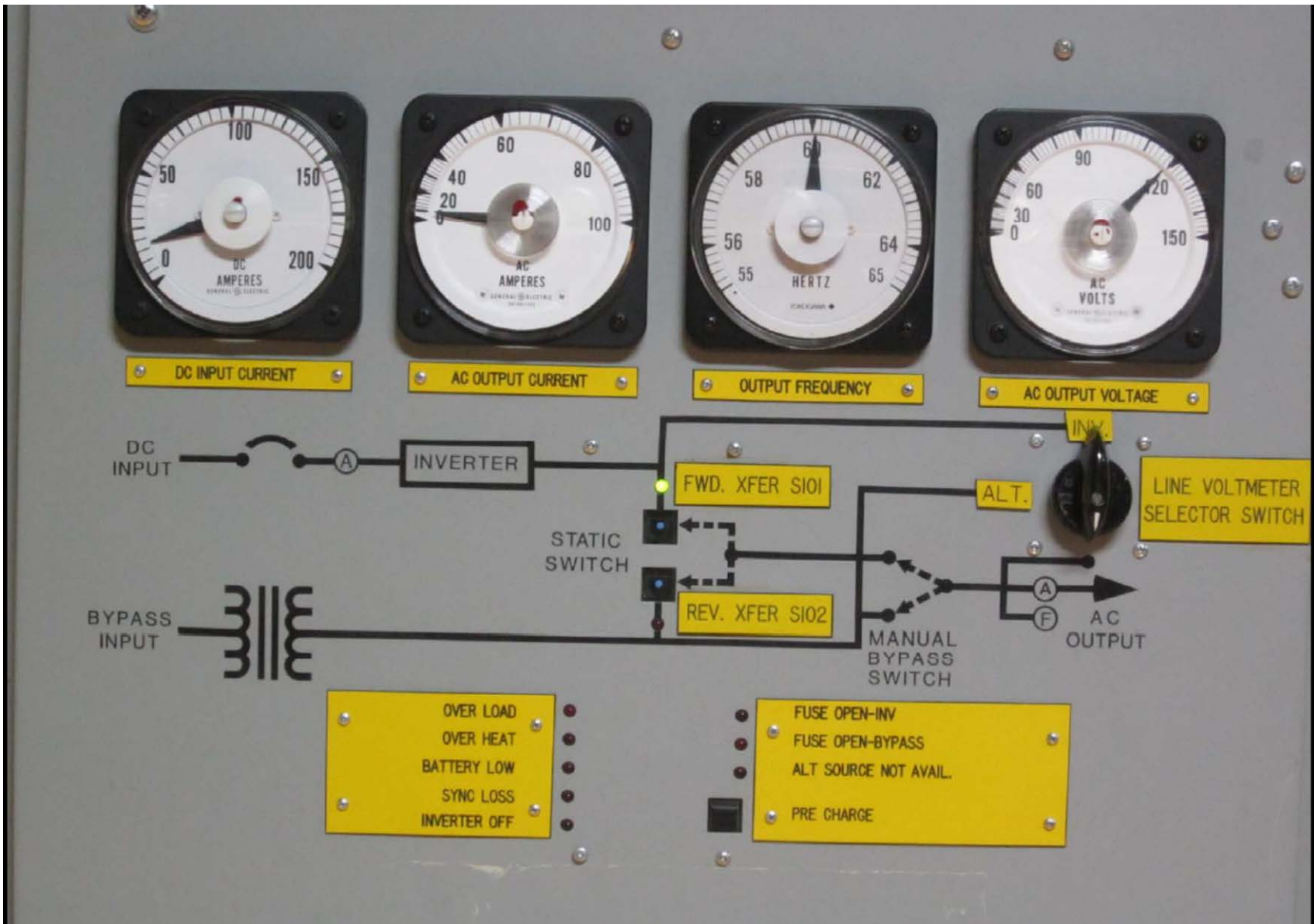
Picture 2



Picture 3



Picture 4



Picture 5

JPM CUE SHEET

<p>INITIAL CONDITIONS:</p>	<p>Plant is shutdown. Division 1 ATWS UPS is on the Alternate Source.</p>
<p>INITIATING CUE:</p>	<p>Unit Supervisor directs you the Plant Operator to shift Division 1 ATWS UPS to the inverter in accordance with SOI-R14.</p>

JOB PERFORMANCE MEASURE SETUP SHEET

System: C11 – Control Rod Drive Hydraulic System

Time Critical: No Alternate Path: No

Safety Function: 2 - Reactor Water Inventory Control Applicability: RO/SRO

Setting: Plant (RRA) Validated: 35 minutes

References: EOP-SPI 4.1 Rev 1

Tasks: 201-531-05-04 Assist in CRDH Pump Start for RPV Injection
201-565-05-01 Start a Second CRD Pump for CRD Alternate Injection

Task Standard: Perform in-field actions to Align CRD Pumps for additional CRD Alternate Injection per EOP-SPI 4.1

Required Material: EOP-SPI 4.1, CRD Alternate Injection

K / A Data: 295031, Reactor Low Water Level; EA1.10 Ability to operate and/or monitor the following as they apply to Reactor Low Water Level: Control rod drive. RO 3.6 / SRO 3.7

1. Setup Instructions: Provide operator with full copy of EOP-SPI 4.1.
2. Location / Method: Plant / Simulation
3. Initial Condition: Plant is operating in EOP-1 RPV Control. Additional high pressure vessel injection is needed. The Unit Supervisor directs the performance of EOP-SPI 4.1, CRD Alternate Injection. Steps 1 – 9 have been completed by the Control Room Operator. CRD A pump is operating and CRD Pump B is available.
4. Initiating Cue: The Field Supervisor directs you, a Plant Operator, to co-ordinate with the Reactor Operator to start a second CRD Pump in accordance with EOP-SPI 4.1.

Start Time: _____ **End Time:** _____

Candidate: _____

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

Review EOP-SPI 4.1, obtain necessary equipment, and proceed through RP Control Point.

Standard:	Operator prepares for task by reviewing SPI, obtaining tools, and reviewing RWP.
Instructor Cue:	When Operator identifies where to obtain a copy of EOP-SPI 4.1, provide him/her with a yellow copy.
Notes:	None
SAT ____	UNSAT ____
Comment(s):	_____

Step 2

EOP-SPI 4.1, CRD ALTERNATE INJECTION

NOTE
Two CRD pumps in operation may result in accelerated CRD Pump filter clogging.

10.0	Additional CRD Injection is required
	A second CRD Pump is available
	THEN START the second CRD Pump as follows:

- 10.1 AT IB 574' C/08, CRD Pump Room, VERIFY the following valves are OPEN:
- Pump Suction Filter Bypass 1C11-F116
 - Pump Suction Filter Bypass 1C11-F117

Critical Step: Operator simulates opening 1C11-F116 and F117.

Instructor Cue: Valves are open.

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 3

10.2 AT IB 574' E/08, CRD Pump Room, VERIFY the following valves are open:

- Drive Water Fltr A Inlet Isolation 1C11-F020A
- Drive Water Fltr A Outlet Isolation 1C11-F021A
- Drive Water Fltr B Inlet Isolation 1C11-F020B
- Drive Water Fltr B Outlet Isolation 1C11-F021B

Critical Step: Operator simulates verifying all valves open.

Instructor Cue: Valves as found. Valves are open.

Notes: One set of valves will be OPEN and one set will be CLOSED
Valves are located in a Radiation Area.

SAT ___ **UNSAT** ___

Comment(s): _____

Step 4

10.3 IF starting CRD PUMP A, THEN PERFORM the following:

10.4 IF starting CRD PUMP B, THEN PERFORM the following:

Standard: Step 10.3 is N/A as given in the initial conditions.
Operator contacts Control Room to start CRD B.

Instructor Cue: CRD Pump B Started.
Additional CRD Injection is required.

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 5

11.0 IF additional CRD Injection is required, THEN CLOSE Minimum flow Isolations as follows:

11.1 IF CRD PUMP A is running, THEN UNLOCK AND CLOSE Pump A Minimum Flow Isolation. 1C11-F015A

11.2 IF CRD PUMP B is running, THEN UNLOCK AND CLOSE Pump B Minimum Flow Isolation. 1C11-F015B

<u>Critical Step:</u>	Operator simulates unlocking and closing 1C11-F015A and B.
Instructor Cue:	Additional CRD Injection is required. Valves as found. After simulation, valves are closed
Notes:	Terminate JPM
SAT ____	UNSAT ____
Comment(s):	_____

Terminating Cue: Field action complete for CRD Alternate Injection.

Evaluation Results: SAT_____ UNSAT_____

End Time: _____

JPM CUE SHEET

<p>INITIAL CONDITIONS:</p>	<ul style="list-style-type: none"> • Plant is operating in EOP-1 RPV Control. • Additional high pressure vessel injection is needed. • The Unit Supervisor directs the performance of EOP-SPI 4.1, CRD Alternate Injection. • Steps 1 – 9 have been completed by the Control Room Operator. • CRD A pump is operating and CRD Pump B is available.
<p>INITIATING CUE:</p>	<p>The Field Supervisor directs you, a plant operator, to co-ordinate with the Reactor Operator to start a second CRD Pump in accordance with EOP-SPI 4.1.</p>

JOB PERFORMANCE MEASURE SETUP SHEET

System: P54 - Fire Protection

Time Critical: No Alternate path: Yes

Safety Function: 8 – Plant Service Systems Applicability: RO/SRO

Setting: Plant (non-RRA) Validated: 20 minutes

References: SOI-P54 (GAS) Rev 7, SOI-M43 Rev 12

Required Material: SOI-P54 GAS), Section 7.2 and Att. 3
SOI-M43, Section

Task #: 286-519-04-04 Manually Imitate Carbon Dioxide Dump
286-519-04-01 Respond to a Fire

Task Standard: Manually Initiate the Div 1 Diesel Generator Room C02 System per SOI-P54 (GAS)

K / A Data: 286000, Fire Protection System; A2.08 Ability to (a) predict the impacts of the following 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: Failure to actuate when required RO 3.2 / SRO 3.3

1. Setup Instructions: N/A
2. Location / Method: Plant / Simulation
3. Initial Condition: There is a fire in the Division 1 Diesel Generator Room. The carbon dioxide system failed to automatically initiate. DG room fans 1M43-C001A and 1M43-C002A have been overridden off from the control room.
4. Initiating Cue: The Unit Supervisor directs you, as an In-Plant Operator (Fire Brigade Member), to manually initiate the Carbon Dioxide System for the Division 1 Diesel Generator Room in accordance with SOI-P54 (GAS).

Start Time: _____ **End Time:** _____

Candidate: _____

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

SOI-P54 (GAS), FIRE PROTECTION SYSTEM – GAS

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.

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 7.2.1 is N/A.

Instructor Cue: None

Notes: None

SAT ___ **UNSAT** ___

Comment(s): _____

Step 2

7.2.2 IF there is a fire in any of the following rooms, THEN VERIFY the associated ventilation fans are shutdown:

- Division 1 Diesel Generator Room 1M43-C001A
C002A
C003A

<u>Critical Step:</u>	Operator simulates shutting down Aux Fan 1M43-C003A by placing control switch in OFF.
Instructor Cue:	Initially: Red light ON, Green light OFF, & switch in AUTO After fan shutdown: Red light OFF, Green light ON, & switch in OFF
Notes:	Aux Fan should be running with high temp in room. Control switch is maintained on OFF. Operator may use SOI-M43 Section 6.4 to shutdown M43-C003A. After Operator identifies where they would obtain a copy of SOI-M43, provide him/her with a yellow copy.
SAT ____	UNSAT ____
Comment(s):	_____

Step 3

- 7.2.3 BREAK the Selector Valve breakglass.
- 7.2.4 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.

- 7.2.5 HOLD the Selector Valve pilot valve open for the discharge time listed in Attachment 3.
- 7.2.6 CLOSE the Selector Valve pilot valve

Standard: Operator simulates breaking glass and rotating Selector Valve Pilot Valve P54-F3411 clockwise and holds open for 1 minute.
Operator simulates closing the Selector valve.

Instructor Cue:

- If asked, inform operator that room is clear of personnel.
- Glass broken.
- Pilot Valve handle rotated clockwise.
- One minute has elapsed.
- Pilot valve is closed
- If asked about flow noise, inform operator no flow noise has been heard , no frost on piping, etc.

Notes: Time compression may be used to shorten 1 minute wait time

Per Attachment 3, Carbon Dioxide Master & Selector Valves and Discharge Times, Selector Valve is 1P54-F3411 and discharge time is 1 minute.

SAT ___ **UNSAT** ___

Comment(s): _____

Step 3

7.2.7 IF no CO2 discharge occurs, THEN PERFORM the following:

7.2.7.a OPEN the Selector Valve pilot valve.

<u>Critical Step:</u>	Operator simulates opening or leaves open 1P54-F3411
Instructor Cue:	If asked, no CO2 Discharge occurred
Notes:	The next Step will require entry into the RCA.
SAT ____	UNSAT ____
Comment(s):	_____

Step 4

7.2.7.b BREAK the Master Valve breakglass.

7.2.7.c ROTATE the Master Valve pilot valve clockwise.

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

<u>Critical Step:</u>	Operator simulates breaking glass and rotating Master Valve Pilot Valve P54-F3631 clockwise and holds open for 1 minute. Operator simulates closing the Master valve.
Instructor Cue:	<ul style="list-style-type: none"> • Glass broken. • Pilot Valve open. • One minutes has elapsed. • If asked about flow noise inform operator flow noise <u>has</u> been heard.
Notes:	Time compression may be used to shorten 1 minute wait time Per Attachment 3, Carbon Dioxide Master & Selector Valves and Discharge Times, Master Valve is 1P54-F3631 and discharge time is 1 minute.
SAT ____	UNSAT ____
Comment(s):	_____

Step 5

7.2.7.e CLOSE the Master Valve pilot valve.

7.2.7.f CLOSE the Selector Valve pilot valve.

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

Standard:	Operator simulates closing Master Pilot Valve 1P54-F3631.
	Operator simulates closing Selector Pilot Valve 1P54-F3411
Instructor Cue:	Valve is closed Valve is closed
Notes:	Terminate JPM after Step 7.2.7.f.
SAT ____	UNSAT ____
Comment(s):	_____

Terminating Cue: Operator has initiated CO2 for the div 1 Diesel Generator room using the Master Valve Pilot Valve.

Evaluation Results: SAT ____ UNSAT ____

End Time _____

JPM CUE SHEET

<p>INITIAL CONDITIONS:</p>	<ul style="list-style-type: none"> • There is a fire in the Division 1 Diesel Generator Room. • The carbon dioxide system failed to automatically initiate. • DG room fans 1M43-C001A and 1M43-C002A have been overridden off from the control room.
<p>INITIATING CUE:</p>	<p>The Unit Supervisor directs you, as an In-Plant Operator (Fire Brigade Member), to manually initiate the Carbon Dioxide System for the Division 1 Diesel Generator Room in accordance with SOI-P54 (GAS).</p>