

**FINAL AS-ADMINISTERED JPM RO-B.2-09**

**FOR THE PALISADES INITIAL EXAMINATION - MAY 2005**

**REGION III  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**JPM RO-B.2-09**

**Operate P-55C from Bus 13**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

REGION III  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

Task: Operate P-55C from Bus 13

Alternate Path: NONE

Facility JPM #: TBAM 03 (Modified)

K/A Rating: 022AA1.01 Importance: SRO 3.3 RO 3.4

K/A Statement: Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup: CVCS letdown and charging

Task Standard: Charging Pump P-55C is aligned to LCC-13.

Preferred Evaluation Location: Simulator \_\_\_\_\_ In Plant X

Preferred Evaluation Method: Perform \_\_\_\_\_ Simulate X

References: SOP-2A, Chemical and Volume Control System

Validation Time: 25 minutes Time Critical: NO

Candidate: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Finish: \_\_\_\_\_

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

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

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

Tools/Equipment/Procedures Needed:

**SOP-2A, Section 7.1.3.** After candidate describes where and which procedure would be obtained, provide a copy to candidate.

### READ TO OPERATOR

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The Control Room is NOT habitable. Load Center 11 is NOT available. P-55A and P-55B are NOT available. P-55C was powered from LCC 11 and is NOT operating.

INITIATING CUES:

During the performance of ONP 25.2, "Alternate Safe Shutdown Procedure", the Shift Supervisor directs you to operate P-55C from Bus 13, referring to SOP-2A, "Chemical and Volume Control System," Section 7.1.3.

START TIME: \_\_\_\_\_

<p>STEP 1:            Obtains current procedure</p> <p>STANDARD:       Obtains copy of SOP-2A, Section 7.1.3</p> <p>NOTES:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:            Ensure P-55C not operating</p> <p>STANDARD:       Determines P-55C not operating by observing green OPEN flag is showing on breaker 52-1105</p> <p>NOTES:            <i>Cue: Green OPEN flag is showing.</i></p> <p>                      <i>NOTE: This was also provided in INITIAL CONDITIONS, so candidate may not check this.</i></p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>*STEP 3:           Rack out breaker 52-1105 to disconnect position</p> <p>STANDARD:       Attaches racking tool and racks out breaker 52-1105</p> <p>NOTES:            <i>Critical step to allow power to be aligned to alternate source.</i></p> <p>                      <i>Cue: Breaker 52-1105 is racked out to disconnect.</i></p> <p>COMMENTS:</p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

<p><b>*STEP 4:</b>            Ensure open and rack breaker 52-1308 into connect position and leave open</p> <p><b>STANDARD:</b>        Observes green OPEN flag showing on breaker 52-1308, attaches racking tool, and racks into connect position</p> <p><b>NOTES:</b>            <i>Critical step to allow power to be aligned to alternate source.</i></p> <p>                          <i>Cue: Breaker 52-1308 has the green OPEN flag showing and is racked into connect position.</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 5:</b>            Ensure OFF breaker 52-1308B</p> <p><b>STANDARD:</b>        At JL255 in charging pump room, verifies 52-1308B is OFF</p> <p><b>NOTES:</b>            <i>Cue: Breaker 52-1308B is OFF.</i></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>*STEP 6:            Place to ON breaker 52-1308A</p> <p>STANDARD:        At JL255 in charging pump room, places breaker 52-1308A to ON position</p> <p>NOTES:            <i>Critical step to allow power to be aligned to alternate source.</i></p> <p>                      <i>Cue: Breaker 52-1308A is ON.</i></p> <p>COMMENTS:</p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p>*STEP 7:            Place to OFF breaker 52-1105A</p> <p>STANDARD:        At JL257 in charging pump room, places breaker 52-1105A to OFF position</p> <p>NOTES:            <i>Critical step to allow power to be aligned to alternate source.</i></p> <p>                      <i>Cue: Breaker 52-1105A is OFF.</i></p> <p>COMMENTS:</p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><b>*STEP 8:</b> Place to ON breaker 52-1105B</p> <p><b>STANDARD:</b> At JL257 in charging pump room, places breaker 52-1105B to ON position</p> <p><b>NOTES:</b> <i>Critical step to allow power to be aligned to alternate source.</i></p> <p><i>Cue: Breaker 52-1105B is ON.</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 9:</b> Place Seal Coolant Pump Control Switch for P-55C in HAND</p> <p><b>STANDARD:</b> Places switch in HAND position</p> <p><b>NOTES:</b> <i>Cue: The seal coolant pump is running.</i></p> <p><i>If discharge pressure checked, provide cue that it is approximately 20 psi.</i></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>*STEP 10:</p> <p>STANDARD:</p> <p>NOTES:</p> <p>COMMENTS:</p>	<p>Test operate breaker 52-1308 to start and stop P-55C to ensure proper breaker operation</p> <p>Closes breaker 52-1308, verifying red CLOSED flag showing, then opens breaker 52-1308, verifying green OPEN flag showing</p> <p><b><i>Cue: When closing 52-1308, the red CLOSED flag is showing.</i></b></p> <p><b><i>When opening 52-1308, the green OPEN flag is showing.</i></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 11:</p> <p>STANDARD:</p> <p>NOTES:</p> <p>COMMENTS:</p>	<p>Notify Shift Supervisor that P-55C is aligned to LCC-13</p> <p>Notifies Shift Supervisor</p> <p><b><i>CUE: If asked, tell candidate to leave P-55C OFF.</i></b></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: \_\_\_\_\_

**CANDIDATE CUE SHEET**  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

**INITIAL CONDITIONS:**

The Control Room is NOT habitable. Load Center 11 is NOT available. P-55A and P-55B are NOT available. P-55C was powered from LCC 11 and is NOT operating.

**INITIATING CUES:**

During the performance of ONP 25.2, "Alternate Safe Shutdown Procedure", the Shift Supervisor directs you to operate P-55C from Bus 13, referring to SOP-2A, "Chemical and Volume Control System," Section 7.1.3.

**TITLE: CHEMICAL AND VOLUME CONTROL SYSTEM**

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**7.1.3 To Transfer P-55B (or P-55C) from Normal Power Supply to Bus 13**

**NOTE:** Operation of molded case breakers and load control center breakers locally is a Hazard Category 0 requiring 100% natural fabric. | e

**CAUTION**

All interlocks and permissive features are lost while operating the pump on the alternate power supply.

- a. Refer to System Operating Procedure SOP-30, "Station Power," for all load center breaker racking operations in this section. | e
- b. To supply P-55B power from Bus 13, **PERFORM** the following:
1. **ENSURE** P-55B not operating.
  2. **RACK OUT** breaker 52-1206 to DISCONNECT position.
  3. **ENSURE OPEN AND RACK** breaker 52-1308 into CONNECT position **AND LEAVE OPEN**.
  4. At JL255 in charging pump room:
    - (a) **ENSURE OFF** breaker 52-1308A.
    - (b) **PLACE** to ON breaker 52-1308B.
  5. At JL256 in charging pump room:
    - (a) **PLACE** to OFF breaker 52-1206A.
    - (b) **PLACE** to ON breaker 52-1206B.

**NOTE:** Seal Lube Pump is not required for emergency operations.

6. **PLACE** in HAND Seal Lube Pump Control Switch for P-55B.
7. Test operate breaker 52-1308 to start and stop P-55B to ensure proper breaker operation.
8. **OPERATE** breaker 52-1308 to start and stop P-55B as needed.

**TITLE: CHEMICAL AND VOLUME CONTROL SYSTEM**

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- c. To supply P-55C power from Bus 13, **PERFORM** the following:
1. **ENSURE** P-55C not operating.
  2. **RACK OUT** breaker 52-1105 to DISCONNECT position.
  3. **ENSURE OPEN AND RACK** into CONNECT position breaker 52-1308 **AND LEAVE OPEN.**
  4. At JL255 in charging pump room:
    - (a) **ENSURE OFF** breaker 52-1308B.
    - (b) **PLACE** to ON breaker 52-1308A.
  5. At JL257 in charging pump room:
    - (a) **PLACE** to OFF breaker 52-1105A.
    - (b) **PLACE** to ON breaker 52-1105B.

**NOTE:** Seal Lube Pump is not required for emergency operations.

6. **PLACE** in HAND Seal Lube Pump Control Switch for P-55C.
7. Test operate breaker 52-1308 to start and stop P-55C to ensure proper breaker operation.
8. **OPERATE** breaker 52-1308 to start and stop P-55C as needed.

**TASK MATRIX**

**Switchgear/Load Centers (600V or Less)**

**Boundaries:**

- Flash protection boundary – 10 feet for (racking) of breakers, 4 feet for other activities  
**EXCEPTION:** (engineering arc flash calculations have been performed for these specific areas): Plant 480 VAC MCCs/LCCs ALL activities: 4 FEET
- Limited Approach (Un-qualified Employees) – 3 feet 6 inches
- Restricted Approach (Qualified Employees) – 1 foot

<u>Task</u>	<u>Hazard/Risk Category</u> Refer to Attachment 7	<u>Voltage Rated Gloves</u>	<u>Insulated Tools</u>	<u>Flash Protection &amp; Minimum Clothing Requirements</u>
Operating breakers (door closed)	(0)			100% Natural Fabric
Operating breakers (door open)	(1)			FR Clothing Arc Face Shield
Racking Load Center breakers (door closed)	(2)			FR Clothing Arc Face Shield
Racking Load Center breakers (door open)	(3)			Flash Suit Switching Hood
Diagnostic testing <ul style="list-style-type: none"> <li>verifying voltage</li> <li>verifying current</li> <li>installing/removing test equipment</li> </ul>	(2*)	X	X	FR Clothing Arc Face Shield <b>See Note 12</b>
Working on Control Circuits while within the restricted approach boundary of exposed energized parts >120VAC/125VDC	(2*)	X	X	FR Clothing Switching Hood
Working on Control Circuits while within the restricted approach boundary of exposed energized parts 120VAC/125VDC or below	(0)	<b>See Note 8</b>	X	100% Natural Fabric
Working on energized parts	(2*)	X	X	FR Clothing Switching Hood
Installing temporary protective grounds (after voltage test)	(2*)	X		FR Clothing Switching Hood
Removing temporary protective grounds (tags/locks in place)		Not considered a shock or flash hazard		
Removing bolted covers to expose live parts (line voltage)	(2*)			FR Clothing Switching Hood
Opening hinged covers to expose live parts (line voltage)	(2)			FR Clothing Arc Face Shield

**EXAMPLES OF ARC PROTECTIVE APPAREL**

**NOTE:** The tables below depict the minimum calorie requirements required for arc flash protection for various Hazard Categories per NFPA 70E. Personnel should be familiar with the process of layering clothing, natural and FR, to achieve the desired calorie requirements for arc flash protection.

100% natural cotton denim pants of average weight satisfies the 4 calorie requirement.

The site has purchased specific kits with FR clothing that exceeds the minimum NFPA 70 E requirements. The tables below denotes these kit articles

<b>Protective Clothing and Personal Protective Equipment</b>		
<b>Hazard Category -1</b>	<b>Hazard Category 0, NFPA 70E <u>minimum</u> cal requirement 2 cal/cm<sup>2</sup></b>	<b>Hazard Category 1 NFPA 70E <u>minimum</u> cal requirement 4 cal/cm<sup>2</sup></b>
Shirt –Short sleeve Natural fiber	Shirt –Long sleeve Natural fiber	Shirt-short sleeve Natural fiber
Pants-long Natural fiber	Pants-long Natural fiber	Pants-long Natural fiber
		Shirt-Long Sleeve-FR
If required –Hard Hat	If required –Hard Hat	Hard Hat
Safety glasses	Safety glasses	Safety glasses
		If required - Arc rated face shield
If required - Leather gloves	If required - Leather gloves	If required-Leather gloves
Leather work shoes	Leather work shoes	Leather work shoes
required- voltage rated gloves	If required- voltage rated gloves	If required- voltage rated gloves

<b>Protective Clothing and Personal Protective Equipment</b>			
<b>Hazard Category 2 NFPA 70E <u>minimum</u> cal requirement 8 cal/cm<sup>2</sup></b>	<b>Hazard Category 2* NFPA 70E <u>minimum</u> cal requirement 8 cal/cm<sup>2</sup> including double layer switching hood</b>	<b>Hazard Category 3 NOTE: Kits have not been purchased to specifically cover Category 3  NFPA 70E <u>minimum</u> cal requirement 25 cal/cm<sup>2</sup></b>	<b>Hazard Category 4 NFPA 70E <u>minimum</u> cal requirement 40 cal/cm<sup>2</sup></b>
Shirt –short sleeve Natural fiber	Shirt –short sleeve Natural fiber	Shirt –short sleeve Natural fiber	Shirt –short sleeve Natural fiber
Pants-long Natural fiber	Pants-long Natural fiber	Pants-long Natural fiber	Pants-long Natural fiber
<b>KIT-11 Cal coveralls AND associated hood-FR</b>	<b>KIT- 20 Cal Long Lab Coat- FR AND 5 cal Nomex Coveralls (for complete leg protection)-FR OR 11 Cal Coveralls –FR</b>	<b>20 Cal Long Lab Coat- FR AND 5 cal Nomex Coveralls FR OR 20 Cal Long Lab Coat- FR AND 11 Cal Coveralls –FR</b>	<b>KIT- 50 Cal Flash suit pants –FR KIT- 50 Cal Flash suit jacket -FR</b>
Hard Hat	Hard Hat	Hard Hat	Hard Hat
Safety glasses	Safety glasses	Safety glasses	Safety glasses
Hearing protection	Hearing protection	Hearing protection	Hearing protection
<b>KIT- Hard hat with Arc rated face shield</b>	<b>KIT-20 Cal Double layer switching hood-FR</b>	50 Cal Flash suit hood-FR	<b>KIT- 50 Cal Flash suit hood-FR</b>
<b>KIT-Leather gloves</b>	<b>KIT- Leather gloves</b>	Leather gloves	<b>KIT- Leather gloves</b>
Leather work shoes	Leather work shoes	Leather work shoes	Leather work shoes
required- voltage rated gloves	If required- voltage rated gloves	If required- voltage rated gloves	If required- voltage rated gloves