

Effective Date 10-1-98

# INFORMATION ONLY

Holder # 1242

ANNUNCIATOR RESPONSE

AR-301

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ESA ANNUNCIATOR RESPONSE

APPROVED BY: Procedure Owner

*Ronald W. ...*  
FOR MA TRUMP  
(SIGNATURE ON FILE)

DATE: 9/28/98

PROCEDURE OWNER: Manager, Nuclear Plant  
Operations Support

9810080220 981001  
PDR ADOCK 05000302  
P PDR

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## 1.0 PURPOSE

- 1.1 Establish a reference document for each Annunciator Window on the ES(A)-KW1 Lampbox.
- 1.2 Establish operator actions for valid Annunciator alarms on the ES(A)-KW1 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ES(A)-KW1 Lampbox.

## 2.0 REFERENCES

### 2.1 IMPLEMENTING REFERENCES

- 2.1.1 EOP, Emergency Operating Procedure
- 2.1.2 OP-404, Decay Heat Removal System
- 2.1.3 OP-703, Plant Distribution System
- 2.1.4 AP-880, Fire Protection
- 2.1.5 AP-330, Loss of Nuclear Services Water

### 2.2 DEVELOPMENTAL REFERENCES

- 2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures
- 2.2.2 Annunciator Window Engraving Drawing E-224-048
- 2.2.3 PT-169A, Decay Heat Removal/Building Spray Instrumentation Train "A"
- 2.2.4 SP-132, Engineered Safeguards Channel Calibration

## 3.0 PERSONNEL INDOCTRINATION

- 3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

## 4.0 INSTRUCTIONS

- 4.1 Respond to alarms on the ES(A)-KW1 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

|                          |               |         |
|--------------------------|---------------|---------|
| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-01 | A-01-01 |
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HPI  
ES A  
ACTUATION

**EVENT POINT 0921**

|   |
|---|
| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>○ HPI ACTUATION "A"</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>○ RCS PRESSURE &lt;1500 PSIG</li> <li>○ RCS PRESSURE &lt;500 PSIG</li> <li>○ RB PRESSURE &gt;4 PSIG</li> <li>○ MANUAL ACTUATION OF HPI</li> <li>○ ES STATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE</li> </ul>                          |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>○ REFER TO EOP</li> </ul>   |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES HPI HAS ACTUATED, OR SHOULD HAVE ACTUATED BY EITHER 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4 PSIG REACTOR BUILDING PRESSURE. UPON RECEIPT OF THIS ALARM ES SHOULD BLOCK LOAD.</p> <p>HPI BI-STABLES WILL TRIP AT ≤ 1540 PSIG AS SENSED BY RC-3A-PT3</p> |
| <p>REFERENCES: DRAWING 208-028 SHEET ESA-31</p>   |
| <p>SENSING ELEMENT: 63-Z1A/RC-1,RC-2,RC-3 ES ACTUATION RELAYS, RC-3A-PT3</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-02 | A-01-02 |
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LOAD SEQUENCE  
BLOCK 2  
ACTUATION A

**EVENT POINT 1020**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o LOADING SEQUENCE BLOCK 2 ACTUATION "A"</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o ES CHANNEL STATUS INDICATION</li> <li>o LOSS OF POWER TO AN ES ACTUATION CHANNEL CABINET</li> <li>o FAILURE OF AN ES CHANNEL SENSING ELEMENT</li> <li>o ES CHANNEL TESTING IN PROGRESS</li> </ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP</li> </ul>  |
| <p>DISCUSSION:</p> <p>HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS<br/><u>OR</u><br/>ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING</p> |
| <p>REFERENCES: DRAWING 208-028 SHEET ESA-25</p>  |
| <p>SENSING ELEMENT: 62X1/RC-1,RC-2,RC-3 ES ACTUATION RELAYS</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-03 | A-01-03 |
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LOAD SEQUENCE  
BLOCK 3  
ACTUATION A

**EVENT POINT 1021**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o LOADING SEQUENCE BLOCK 3 ACTUATION "A"</li> </ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o ES CHANNEL STATUS INDICATION</li> <li>o LOSS OF POWER TO AN ES ACTUATION CHANNEL CABINET</li> <li>o FAILURE OF AN ES CHANNEL SENSING ELEMENT</li> <li>o ES CHANNEL TESTING IN PROGRESS</li> </ul>                                   |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP</li> </ul>   |
| <p>DISCUSSION:</p> <p>HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS<br/>OR<br/>ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING</p> |
| <p>REFERENCES: DRAWING 208-028 SHEET ESA-25</p>   |
| <p>SENSING ELEMENT: 62X2B/RC-1,RC-2,RC-3 ES ACTUATION RELAY</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-04 | A-01-04 |
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LOAD SEQUENCE  
BLOCK 4  
ACTUATION A

**EVENT POINT 1022**

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| INDICATED CONDITION: <ul style="list-style-type: none"><li>o LOADING SEQUENCE BLOCK 4 ACTUATION "A"</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM: <ul style="list-style-type: none"><li>o ES CHANNEL STATUS INDICATION</li><li>o LOSS OF POWER TO AN ES ACTUATION CHANNEL CABINET</li><li>o FAILURE OF AN ES CHANNEL SENSING ELEMENT</li><li>o ES CHANNEL TESTING IN PROGRESS</li></ul>   |
| OPERATOR ACTIONS FOR A VALID ALARM: <ul style="list-style-type: none"><li>o REFER TO EOP</li></ul>  |
| DISCUSSION: <p>HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS<br/><u>OR</u><br/>ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING TO RESET A BLOCK 4 ACTUATION THE HPI SEAL IN RESET PUSH-BUTTON MUST BE DEPRESSED.</p> |
| REFERENCES: DRAWING 208-028 SHEET ESA-25  |
| SENSING ELEMENT: 62X3/RC-1,RC-2,RC-3 ES ACTUATION RELAYS  |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-05 | A-01-05 |
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LOAD SEQUENCE  
BLOCK 5  
ACTUATION A

**EVENT POINT 0851**

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| INDICATED CONDITION:<br><ul style="list-style-type: none"><li>o LOADING SEQUENCE BLOCK 5 ACTUATION "A"</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM:<br><ul style="list-style-type: none"><li>o ES CHANNEL STATUS INDICATION</li><li>o LOSS OF POWER TO AN ES ACTUATION CHANNEL CABINET</li><li>o FAILURE OF AN ES CHANNEL SENSING ELEMENT</li><li>o ES CHANNEL TESTING IN PROGRESS</li></ul>   |
| OPERATOR ACTIONS FOR A VALID ALARM:<br><ul style="list-style-type: none"><li>o REFER TO EOP</li></ul>  |
| DISCUSSION:<br><p>HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS<br/><u>OR</u><br/>ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING</p> |
| REFERENCES: DRAWING 208-028 SHEET ESA-25   |
| SENSING ELEMENT: 62X4 ES ACTUATION RELAY   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-01-06 | A-01-06 |
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LOAD SEQUENCE  
BLOCK 6  
ACTUATION A

**EVENT POINT 0852**

INDICATED CONDITION:

- o LOADING SEQUENCE BLOCK 6 ACTUATION "A"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ES CHANNEL STATUS INDICATION
- o LOSS OF POWER TO AN ES ACTUATION CHANNEL CABINET
- o FAILURE OF AN ES CHANNEL SENSING ELEMENT
- o ES CHANNEL TESTING IN PROGRESS

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP

DISCUSSION:

HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS  
OR  
ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING TO RESET A BLOCK 6 ACTUATION THE HPI SEAL IN RESET PUSH-BUTTON MUST BE DEPRESSED.

REFERENCES: DRAWING 208-028 SHEET ESA-25

SENSING ELEMENT: 62X5 ES ACTUATION RELAY

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-01 | A-02-01 |
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**DIVERSE  
CONTAINMENT  
ISOLATION A**

**EVENT POINT 1106**

|   |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
|---|---------|---------|---------|--------|--------|--------|--|-------|-------|---------|--------|--------|--------|--------|-------|--------|--------|---------|--------|--------|--------|--------|---------|---------|---------|--------|--|--|
| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o PARTIAL CONTAINMENT ISOLATION "A"</li> </ul>   |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o AUTOMATIC ACTUATION HPI "A"</li> </ul>  |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP</li> </ul>   |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES A PARTIAL CONTAINMENT ISOLATION HAS OCCURRED.<br/>THE FOLLOWING VALVES SHOULD CLOSE:</p> <table style="width: 100%; border: none;"> <tr> <td>LRV-70</td> <td>LRV-72</td> <td>MUV-</td> <td>CAV-1</td> <td>CAV-3</td> <td></td> <td></td> </tr> <tr> <td>CAV-4</td> <td>CAV-5</td> <td>CAV-126</td> <td>CFV-11</td> <td>CFV-12</td> <td>CFV-15</td> <td>CFV-16</td> </tr> <tr> <td>WDV-3</td> <td>WDV-60</td> <td>WDV-94</td> <td>WDV-406</td> <td>CFV-25</td> <td>CFV-26</td> <td>CFV-27</td> </tr> <tr> <td>CFV-28</td> <td>DWV-160</td> <td>MSV-130</td> <td>MSV-148</td> <td>MUV-27</td> <td></td> <td></td> </tr> </table> | LRV-70  | LRV-72  | MUV-    | CAV-1  | CAV-3  |        |  | CAV-4 | CAV-5 | CAV-126 | CFV-11 | CFV-12 | CFV-15 | CFV-16 | WDV-3 | WDV-60 | WDV-94 | WDV-406 | CFV-25 | CFV-26 | CFV-27 | CFV-28 | DWV-160 | MSV-130 | MSV-148 | MUV-27 |  |  |
| LRV-70  | LRV-72  | MUV-    | CAV-1   | CAV-3  |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| CAV-4   | CAV-5   | CAV-126 | CFV-11  | CFV-12 | CFV-15 | CFV-16 |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| WDV-3   | WDV-60  | WDV-94  | WDV-406 | CFV-25 | CFV-26 | CFV-27 |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| CFV-28  | DWV-160 | MSV-130 | MSV-148 | MUV-27 |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| <p>REFERENCES: DRAWING 208-028 SHEET ESA-57</p>   |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |
| <p>SENSING ELEMENT: 63Z-4B ES ACTUATION RELAY</p>   |         |         |         |        |        |        |  |       |       |         |        |        |        |        |       |        |        |         |        |        |        |        |         |         |         |        |  |  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-02 | A-02-02 |
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HPI A  
FLOW  
HIGH/LOW

### EVENT POINT 1067

INDICATED CONDITION:

- o LOOP A1 HPI FLOW IS >263 GPM AS SENSED BY MU-23-FS2

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o HPI WIDE RANGE FLOW METER, MU-23-FI4

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP-13 FOR HPI THROTTLING REQUIREMENTS
- o THROTTLE MUV-24 AS REQUIRED

DISCUSSION:

RUNOUT CONDITIONS FOR A MAKEUP PUMP MAY BE VERIFIED BY OBSERVING MAKE UP PUMP CURRENT INDICATION FOR FLUCTUATIONS. ALSO FLOW OSCILLATIONS MAY OCCUR DURING HIGH FLOW CONDITIONS. IF ANY OF THESE SYMPTOMS ARE EVIDENT ON OPERATING MAKE UP PUMPS, CONSIDERATION SHOULD BE GIVEN TO SHUT DOWN THE MAKE UP PUMP.

REFERENCES: DRAWING 208-041 SHEET MU-047

SENSING ELEMENT: MU-23-FS2

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-02 | A-02-02 |
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HPI A  
FLOW  
HIGH/LOW

**EVENT POINT 1068**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o LOOP A2 HPI FLOW &gt;263 GPM AS SENSED BY MU-23-FS4</li></ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o HPI WIDE RANGE FLOW METER, MU-23-FI2</li></ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o REFER TO EOP-13 FOR HPI THROTTLING REQUIREMENTS</li><li>o THROTTLE MUV-23 AS REQUIRED</li></ul>   |
| <p>DISCUSSION:</p> <p>RUNOUT CONDITIONS FOR A MAKEUP PUMP MAY BE VERIFIED BY OBSERVING MAKE UP PUMP CURRENT INDICATION FOR FLUCTUATIONS. ALSO FLOW OSCILLATIONS MAY OCCUR DURING HIGH FLOW CONDITIONS. IF ANY OF THESE SYMPTOMS ARE EVIDENT ON OPERATING MAKE UP PUMPS, CONSIDERATION SHOULD BE GIVEN TO SHUTTING THE MAKE UP PUMP DOWN.</p> |
| <p>REFERENCES: DRAWING 208-041 SHEET MU-047</p>  |
| <p>SENSING ELEMENT: MU-23-FS4</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-02 | A-02-02 |
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HPI A  
FLOW  
HIGH/LOW

**EVENT POINT 1071**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o LOOP A1 HPI FLOW &lt;75 GPM AS SENSED BY MU-23-FS2, COINCIDENT WITH A HPI ACTUATION SIGNAL</li></ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o HPI LOW RANGE FLOW METER, MU-23-FI8-1</li></ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o REFER TO EOP-13 FOR HPI THROTTLING REQUIREMENTS</li><li>o VERIFY PROPER MAKE UP PUMP OPERATION</li><li>o ENSURE EITHER, &gt;200 GPM TOTAL HPI FLOW PER RUNNING MAKEUP PUMP OR BOTH MAKE UP PUMP RECIRC VALVES, MUV-53 AND MUV-257 ARE OPEN</li></ul> |
| <p>DISCUSSION:</p> <p>LOW FLOW CONDITIONS FOR AN OPERATING MAKE PUMP CAN RESULT IN MAKE UP PUMP DAMAGE. DURING PERIODS OF LOW FLOW THE MAKE UP PUMP RECIRC VALVES MUST BE OPEN.</p>   |
| <p>REFERENCES: DRAWING 208-041 SHEET MU-047</p>   |
| <p>SENSING ELEMENT: MU-23-FS2</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-02 | A-02-02 |
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HPI A  
 FLOW  
 HIGH/LOW

**EVENT POINT 1072**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o LOOP A2 HPI FLOW IS &lt;75 GPM AS SENSED BY MU-23-FS4, COINCIDENT WITH A HPI ACTUATION SIGNAL</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o HPI LOW RANGE FLOW METER, MU-23-FI6-1</li> </ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP-13 FOR HPI THROTTLING REQUIREMENTS</li> <li>o VERIFY PROPER MAKE UP PUMP OPERATION</li> <li>o ENSURE EITHER, &gt;200 GPM TOTAL HPI FLOW PER RUNNING MAKEUP PUMP OR BOTH MAKE UP PUMP RECIRC VALVES, MUV-53 AND MUV-257 ARE OPEN</li> </ul> |
| <p>DISCUSSION:</p> <p>LOW FLOW CONDITIONS FOR AN OPERATING MAKE PUMP CAN RESULT IN MAKE UP PUMP DAMAGE. DURING PERIODS OF LOW FLOW THE MAKE UP PUMP RECIRC VALVES MUST BE OPEN.</p>   |
| <p>REFERENCES: DRAWING 208-041 SHEET MU-047</p>   |
| <p>SENSING ELEMENT: MU-23-FS4</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-03 | A-02-03 |
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LPI  
(DHV-5)  
OPEN

**EVENT POINT 0217**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o DHV-5 NOT FULL CLOSED AND RCS PRESSURE IS &gt;200 PSIG AS SENSED BY RC-3A-PS4.</li> </ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o DHV-5 INDICATION</li> <li>o RCS PRESSURE INDICATION</li> </ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP-08 IF ON LPI</li> <li>o IF ON DECAY HEAT REMOVAL THEN ENSURE PROPER DH FLOW PATH</li> <li>o REFER TO OP-404 FOR MINIMUM FLOW LIMITATIONS</li> </ul>  |
| <p>DISCUSSION:</p> <p>THIS ALARM MAY INDICATE THE ACI SETPOINT IS BEING APPROACHED (ABOUT 250#) IF THIS IS OCCURRING THEN THE OPERATOR SHOULD REDUCE RCS PRESSURE. CARE SHOULD BE TAKEN AS TO NOT OVERPRESSURIZE THE DECAY HEAT SYSTEM. WHILE ON LPI THIS ALARM WOULD INDICATE A LOW FLOW CONDITION ON THE OPERATING DECAY HEAT PUMP.</p> |
| <p>REFERENCES: DRAWING 208-021 SHEET DH-05</p>  |
| <p>SENSING ELEMENT: RC-3A-PS4 AND 33 AC (CLOSED LIMIT SWITCH FOR DHV-5)</p>   |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-04 | A-02-04 |
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LPI A  
FLOW  
HIGH/LOW

### EVENT POINT 0227

INDICATED CONDITION:

- o DHP 1A FLOW >3750 GPM AS SENSED BY DH-1-FS1 (3650 TO 3850 GPM)

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o DECAY HEAT FLOW INDICATOR DH-1-FI1 INDICATES HIGH FLOW

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-404 FOR MAXIMUM DECAY HEAT FLOW LIMITATIONS
- o VERIFY PROPER OPERATION OF DHV-110, "A" DECAY HEAT CONTROL VALVE
- o REDUCE FLOW BY EITHER THROTTLING DHV-110 OR DHV-5, CLOSED

DISCUSSION:

THIS ALARM MAY INDICATE THE DECAY HEAT PUMP IS EXCEEDING ITS MAXIMUM FLOW. IF THIS OCCURS PUMP DAMAGE MAY RESULT FROM CAVITATION INDUCED BY PUMP RUNOUT. IF INDICATIONS OF CAVITATION EXIST THEN CONSIDERATION SHOULD BE GIVEN TO SECURING THE DECAY HEAT PUMP.

REFERENCES: DRAWING 208-021 SHEET DH-24

SENSING ELEMENT: DH-1-FS1

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-04 | A-02-04 |
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LPI A  
 FLOW  
 HIGH/LOW

**EVENT POINT 0229**

INDICATED CONDITION:

- o DHP-1A FLOW <2800 GPM AS SENSED BY DH-1-FS1 FOR >5 SEC COINCIDENT WITH LPI ACTUATION "A" (2700 TO 2900 GPM)

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o DECAY HEAT FLOW INDICATOR, DH-1-FI1, INDICATES LOW FLOW

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP
- o VERIFY PROPER OPERATION OF DHP-1A
- o VERIFY PROPER OPERATION OF DHV-110, "A" DECAY HEAT CONTROL VALVE
- o INCREASE DECAY HEAT FLOW BY EITHER THROTTLING DHV-110 OR DHV-5, OPEN

DISCUSSION:

REFERENCES: DRAWING 208-021 SHEET DH-24

SENSING ELEMENT: DH-1-FS1

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-05 | A-02-05 |
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**ES A  
 ACTUATION  
 NOT BYPASSED**

**EVENT POINT 0929**

**INDICATED CONDITION:**

- o RCS PRESSURE <1640 PSIG AS SENSED BY RC-3A-PS6 AND HPI NOT BYPASSED
- o RCS PRESSURE <750 PSIG AS SENSED BY RC-3A-PS5 AND LPI NOT BYPASSED

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**REDUNDANT INDICATION WHICH WILL VERIFY ALARM:**

- o RCS PRESSURE INDICATION
- o ES STATUS LIGHTS INDICATE ES NOT BYPASSED

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**OPERATOR ACTIONS FOR A VALID ALARM:**

- o IF DIRECTED BY AN APPROVED PROCEDURE AND WITH THE CONCURRENCE OF THE NSS/ANSS, THEN BYPASS HPI AND/OR LPI AS REQUIRED.

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**DISCUSSION:**

THIS ALARM INDICATES THE ES SYSTEMS ARE STILL ABLE TO ACTUATE AND RCS PRESSURE IS DECREASING. IF THIS CONDITION OCCURS DURING A NORMAL PLANT COOL DOWN THEN ES MUST BE BYPASSED IN ORDER TO PREVENT INADVERTENT ACTUATION. IF, HOWEVER A PLANT TRANSIENT IS IN PROGRESS THIS ALARM INFORMS THE OPERATOR THAT ES ACTUATION IS IMMINENT.

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**REFERENCES:** DRAWING 208-028 SHEET ESAB-06

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**SENSING ELEMENT:** 62-A ES ACTUATION RELAY, RC-3A-PS5, RC-3A-PS6

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-02-06 | A-02-06 |
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ES A  
ACTUATION  
NOT RESET

**EVENT POINT 0927**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o RCS PRESSURE &gt;1640 PSIG AS SENSED BY RC-3A-PS6 AND HPI NOT RESET</li><li>o RCS PRESSURE &gt;750 PSIG AS SENSED BY RC-3A-PS5 AND LPI NOT RESET</li></ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o RCS PRESSURE INDICATION</li><li>o ES STATUS LIGHTS INDICATE ES NOT RESET</li></ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o IF DIRECTED BY AN APPROVED PROCEDURE AND WITH THE CONCURRENCE OF THE NSS/ANSS, THEN RESET HPI AND/OR LPI AS REQUIRED.</li></ul>   |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES THE ES SYSTEMS ARE STILL BYPASSED AND RCS PRESSURE IS INCREASING. IF HPI/LPI RC PRESSURE BI-STABLES ARE NOT RESET PRIOR TO EXCEEDING 1750 PSIG (HPI) OR 900 PSIG (LPI) HPI AND LPI WILL ACTUATE WHEN THE ACTUATION CIRCUIT BYPASS BITABLE AUTOMATICALLY RESETS AND REMOVES THE CHANNEL FROM BYPASS.</p> |
| <p>REFERENCES: DRAWING 208-028 SHEET ESAB-06</p>   |
| <p>SENSING ELEMENT: RC-3A-PS5, RC-3A-PS6</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-01 | A-03-01 |
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LPI  
ES A  
ACTUATION

**EVENT POINT 0922**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o RCS PRESSURE IS &lt;500 PSIG</li> <li>o REACTOR BUILDING PRESSURE &gt;4 PSIG</li> <li>o MANUAL ACTUATION LPI "A"</li> </ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o RCS PRESSURE INDICATION</li> <li>o RB PRESSURE INDICATION</li> <li>o ES STATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE</li> </ul>   |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP</li> </ul>   |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES LPI HAS ACTUATED OR SHOULD HAVE ACTUATED BY EITHER 2 OUT OF 3 LPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM 4 PSIG REACTOR BUILDING PRESSURE, OR THAT A MANUAL LPI ACTUATION HAS OCCURRED. LPI BI-STABLES WILL TRIP AT <math>\leq 560</math> PSIG AS SENSED BY RC-3A-PT3</p> |
| <p>REFERENCES: DRAWING 208-028 SHEET ESA-42</p>   |
| <p>SENSING ELEMENT: 63Z3 ES ACTUATION RELAY, RC-3A-PT3</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-02 | A-03-02 |
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DH PUMP A  
TRIP

**EVENT POINT 0219**

INDICATED CONDITION:

- o DHP-1A BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- o AMBER ES STATUS LIGHT

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP-11
- o PLACE "B" DECAY HEAT TRAIN IN SERVICE PER OP-404
- o INVESTIGATE CAUSE OF PUMP TRIP

DISCUSSION:

IF CAUSE OF PUMP TRIP IS NOT APPARENT CARE SHOULD BE EXERCISED IN STARTING DHP-1B. SUCTION AND DISCHARGE FLOW PATHS SHOULD BE VERIFIED PRIOR TO ALTERNATE DECAY HEAT TRAIN STARTUP.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-021 SHEET ESA-42

SENSING ELEMENT: DHP-1A CONTROL SWITCH CONTACTS CS/SC AND CS/O

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-03 | A-03-03 |
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DH PUMP A  
MOTOR  
OVERLOAD

**EVENT POINT 0223**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o DHP-1A MOTOR AMPS &gt;115% RATED LOAD</li></ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o DHP-1A HIGH MOTOR AMPS</li><li>o DHP-1A TRIPS</li></ul>   |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o REDUCE DHP-1A LOAD BY THROTTLING DHV-110 OR DHV-5</li><li>o IF LOAD REMAINS HIGH ON DHP-1A CONSIDER ALTERNATING DECAY HEAT TRAINS PER OP-404</li><li>o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS</li></ul> |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR INSTANTANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER.</p> <p>IT IS POSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP.</p>      |
| <p>REFERENCES: DRAWING 208-021 SHEET DH-01</p>   |
| <p>SENSING ELEMENT: DHP-1A OVERCURRENT DEVICES (51 IOC OR 51 TOC)</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-04 | A-03-04 |
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DH PUMP A  
 OUT OF SERVICE

**EVENT POINT 0221**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o DHP-1A BREAKER IS RACKED OUT.</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o NO INDICATING LIGHTS ON CONTROL STATION</li> <li>o NO ES STATUS INDICATION</li> </ul> |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT</li> </ul>                                   |
| <p>DISCUSSION:</p> <p>ADDRESS TS REQUIREMENTS CONCERNING THIS CONDITION</p>   |
| <p>REFERENCES: DRAWING 208-021 SHEET DH-01</p>  |
| <p>SENSING ELEMENT: DHP-1A BREAKER RELAY (52 H)</p>   |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-04 | A-03-04 |
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DH PUMP A  
OUT OF SERVICE

**EVENT POINT 0242**

INDICATED CONDITION:

- o DHP-1A BREAKER HAS NO DC CONTROL POWER.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NO INDICATING LIGHTS ON DHP-1A CONTROL STATION
- o ES STATUS LIGHTS INDICATE BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY CLOSED DPDP-5A SWITCH 10
- o VERIFY DC KNIFE SWITCH FOR DHP-1A IS CLOSED

DISCUSSION:

THIS CONDITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. REFER TO OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-021 SHEET DH-01

SENSING ELEMENT: DHP-1A BREAKER RELAY (27C)

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-03-05 | A-03-05 |
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DH PUMP A  
SUCT TEMP  
HIGH

**EVENT POINT 0231**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o DHP-1A SUCTION TEMP IS &gt;280°F AS SENSED BY DH-6-TS1</li></ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o DHP-1A SUCTION TEMP. INDICATOR, DH-6-TI1 INDICATES HIGH</li></ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o VERIFY PROPER "A" DC SYSTEM OPERATION BY CHECKING DC SURGE TANK LEVEL, DC PUMP RUNNING AND DC CONTROL VALVES SETPOINT NORMAL.</li><li>o VERIFY PROPER DC RAW WATER OPERATION BY CHECKING RWP-3A RUNNING, RWP-3A DISCHARGE PRESSURE GOOD AND DC RAW WATER TEMP NORMAL</li><li>o INCREASE DC COOLING TO THE DC HEAT EXCHANGER BY INCREASING SETPOINT</li><li>o IF RCS TEMPERATURE CONTINUES TO RISE CONSIDER ALTERNATING DECAY HEAT TRAINS PER OP-404.</li></ul> |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES A LOSS OF COOLING TO THE RCS IS OCCURRING. CORE COOLING MUST BE REGAINED AS SOON AS POSSIBLE.</p>  |
| <p>REFERENCES: DRAWING 208-021 SHEET DH-24</p>  |
| <p>SENSING ELEMENT: DH-6-TS1</p>  |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-04-02 | A-04-02 |
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DC PUMP A  
TRIP

**EVENT POINT 0200**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o DCP-1A BREAKER OPEN AND CONTROL HANDLE IN NORMAL AFTER START</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION</li> </ul>  |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o IF DH SYSTEM IS IN OPERATION CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404</li> <li>o INVESTIGATE DCP-1A PUMP, MOTOR, AND BREAKER</li> </ul>   |
| <p>DISCUSSION:</p> <p>DCP-1A TRIP REMOVES COOLING FROM THE DH PUMP, BS PUMP, DC RW PUMP AND THE DC COOLED MAKE UP PUMP. ANY OF THESE PUMPS RUNNING WHEN THE DC PUMP TRIPS SHOULD BE SECURED AS SOON AS POSSIBLE. WITH THE EXCEPTION OF THE MAKE UP PUMP WHICH SHOULD BY SWAPPED OVER TO SW COOLING PER OP-408.</p> <p>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p> |
| <p>REFERENCES: DRAWING 208-019 SHEET DC-01</p>   |
| <p>SENSING ELEMENT: CONTACTS IN THE DC PUMP CONTROL STATION</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-04-03 | A-04-03 |
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DC PUMP A  
MOTOR  
OVERLOAD

**EVENT POINT 0198**

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| INDICATED CONDITION: <ul style="list-style-type: none"><li>o DCP-1A MOTOR <b>AMPS</b> &gt;115% RATED LOAD</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM: <ul style="list-style-type: none"><li>o DCP-1A HIGH MOTOR AMPS</li></ul>  |
| OPERATOR ACTIONS FOR A VALID ALARM: <ul style="list-style-type: none"><li>o INSPECT PUMP AND MOTOR FOR PROPER OPERATION</li><li>o IF INSPECTION REVEALS MOTOR OR PUMP MALFUNCTION CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DH TRAINS PER OP-404</li></ul>   |
| DISCUSSION: <p>THE LOSS OF A DC PUMP REMOVES COOLING FOR THE DH PUMP, BS PUMP, DC RW PUMP AND THE DC COOLED MAKE UP PUMP. ANY OF THESE PUMPS RUNNING WHEN THE DC PUMP TRIPS SHOULD BE SECURED AS SOON AS POSSIBLE. WITH THE EXCEPTION OF THE MAKE UP PUMP WHICH SHOULD BY SWAPPED OVER TO SW COOLING. IF DC PUMP HAS TO BE TRIPPED AFTER AN ES ACTUATION, HPI SEAL IN RESET MUST BE DEPRESSED BEFORE THE PUMP CAN BE SECURED.</p> |
| REFERENCES: DRAWING 208-019 SHEET DC-01   |
| SENSING ELEMENT: 49X RELAY IN BREAKER CUBICLE   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-04-04 | A-04-04 |
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DC PUMP A  
OUT OF SERVICE

**EVENT POINT 0210**

INDICATED CONDITION:

- o DCP-1A BREAKER IS RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NO INDICATING LIGHTS ON CONTROL STATION
- o NO ES STATUS INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

DISCUSSION:

ADDRESS TS REQUIREMENTS CONCERNING THIS CONDITION  
THIS IS AN EXPECTED ALARM FOR BREAKER TAGGING OPERATIONS

REFERENCES: DRAWING 208-019 SHEET DC-01

SENSING ELEMENT: B/P CONTACTS IN THE DC PUMP BREAKER CUBICLE

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-04-04 | A-04-04 |
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DC PUMP A  
OUT OF SERVICE

**EVENT POINT 0212**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o DCP-1A BREAKER HAS NO DC CONTROL POWER</li> </ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o NO INDICATING LIGHTS ON CONTROL STATION</li> <li>o ES STATUS LIGHTS INDICATE BREAKER POSITION</li> </ul>              |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o VERIFY CLOSED DPDP-5A SWITCH 9</li> </ul>   |
| <p>DISCUSSION:</p> <p>THIS CONDITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING REFER TO OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION.</p> <p>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p> |
| <p>REFERENCES: DRAWING 208-019 SHEET DC-01</p>  |
| <p>SENSING ELEMENT: CONTACTS IN THE DC PUMP BREAKER (27C)</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-04-05 | A-04-05 |
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DC PUMP A  
DISCH PRESS  
LOW

**EVENT POINT 0199**

**INDICATED CONDITION:**

- o DCP-1A DISCHARGE PRESSURE IS <30 PSIG FOR > 5 SEC. AS SENSED BY DC-55-PS WITH DCP-1A BREAKER CLOSED.

**REDUNDANT INDICATION WHICH WILL VERIFY ALARM:**

- o DCP-1A DISCHARGE PRESSURE INDICATOR DC-5-PI
- o DCP-1A CURRENT INDICATOR

**OPERATOR ACTIONS FOR A VALID ALARM:**

- o VERIFY DC SURGE TANK IS >8.5 FEET IF NOT NOTIFY AUX BLDG OPERATOR TO MANUALLY FILL DCT-1.
- o IF DISCHARGE PRESSURE CANNOT BE RECOVERED THEN CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404

**DISCUSSION:**

THE LOSS OF A DC PUMP REMOVES COOLING FOR THE DH PUMP, BS PUMP, DC RAW PUMP AND THE DC COOLED MAKE UP PUMP. ANY OF THESE PUMPS RUNNING WHEN THE DC PUMP IS LOST SHOULD BE SECURED AS SOON AS POSSIBLE, WITH THE EXCEPTION OF THE MAKE UP PUMP, WHICH SHOULD BE SWAPPED OVER TO SW COOLING. IF DC PUMP HAS TO BE TRIPPED AFTER AN ES ACTUATION, HPI SEAL IN RESET MUST BE DEPRESSED BEFORE THE PUMP CAN BE SECURED.

REFERENCES: DRAWING 208-019 SHEET DC-01

SENSING ELEMENT: DC-55-PS







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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-05-01 | A-05-01 |
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RC LOOP A  
VENT VALVES  
OPEN

**EVENT POINT 1878**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o BOTH "A" LOOP VENT VALVES, RCV-157 AND RCV-158 OR BOTH PRESSURIZER VENT VALVES, RCV-159 AND RCV-160 ARE ENERGIZED.</li></ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o LOOP OR PRESSURIZER VENT VALVE POSITION INDICATION IS OPEN ON MCB</li><li>o LOOP OR PRESSURIZER VENT VALVE FLOW INDICATION WHITE INDICATING LIGHT IS ON</li><li>o RCS PRESSURE DECREASING</li></ul> |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o CLOSE THE OPEN VALVES IF NECESSARY</li></ul>  |
| <p>DISCUSSION:</p> <p>OPENING ONLY ONE VALVE SHOULD NOT CAUSE AN RCS LEAK SINCE EACH PAIR ARE MOUNTED IN SERIES</p>  |
| <p>REFERENCES: DRAWING 208-047 SHEET RC-32 AND RC-34</p>   |
| <p>SENSING ELEMENT: POSITION SWITCH ON VALVES (33)</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-05-03 | A-05-03 |
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AH FAN 15A  
TROUBLE

**EVENT POINT 0395**

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| <p><b>INDICATED CONDITION:</b></p> <ul style="list-style-type: none"><li>o AHF-15A BREAKER OPEN AND CONTROL HANDLE IN THE NORMAL AFTER START POSITION.</li></ul>  |
| <p><b>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</b></p> <ul style="list-style-type: none"><li>o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION</li><li>o AMBER ES STATUS LIGHT</li></ul>  |
| <p><b>OPERATOR ACTIONS FOR A VALID ALARM:</b></p> <ul style="list-style-type: none"><li>o START AHF-15B</li><li>o INVESTIGATE CAUSE OF AIR HANDLING FAN TRIP.</li></ul>   |
| <p><b>DISCUSSION:</b></p> <p>AHF-15A IS THE COOLING FAN FOR DCP-1A AND DCP-1B. THE PUMPS NORMALLY OPERATE WITHOUT EITHER AIR HANDLING FAN IN OPERATION BUT ARE REQUIRED DURING ACCIDENT SCENARIOS WHEN HEAT LOAD IN THE SEA WATER ROOM IS HIGH.</p> |
| <p><b>REFERENCES:</b> DRAWING 208-005 SHEET AH-42</p>   |
| <p><b>SENSING ELEMENT:</b> CONTACTS ON CONTROL HANDLE AND RUN INDICATION (42/15CR)</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-05-03 | A-05-03 |
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AH FAN 15A  
TROUBLE

**EVENT POINT 0396**

INDICATED CONDITION:

- o AHF-15A AIR FLOW IS <0.07" H<sub>2</sub>O AS SENSED BY AH-27-DPS AND THE CONTROL HANDLE IS IN NORMAL AFTER START.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

OPERATOR ACTIONS FOR A VALID ALARM:

- o START AHF-15B
- o INVESTIGATE CAUSE OF LOW AIR FLOW

DISCUSSION:

AHF-15A IS THE COOLING FAN FOR DCP-1A AND DCP-1B. THE PUMPS NORMALLY OPERATE WITHOUT EITHER AIR HANDLING FAN IN OPERATION BUT ARE REQUIRED DURING ACCIDENT SCENARIOS WHEN HEAT LOAD IN THE SEA WATER ROOM IS HIGH. PRIMARY PLANT OPERATOR MAY CHECK LOCAL DIFFERENTIAL PRESSURE GAUGES AH-597-DPI (AHF-15A) AND AH-598-DPI (AHF-15B) TO DETERMINE FILTER AIR FLOW CONDITIONS.

REFERENCES: DRAWING 208-005 SHEET AH-42

SENSING ELEMENT: CONTACTS ON CONTROL HANDLE AND AH-27-DPS

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-05-03 | A-05-03 |
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AH FAN 15A  
TROUBLE

**EVENT POINT 0397**

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| INDICATED CONDITION: <ul style="list-style-type: none"><li>o AHF-15A DISCHARGE DUCT TEMPERATURE IS &gt;135°F AS SENSED BY AH-315-TS</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM: <ul style="list-style-type: none"><li>o AHF-15A TRIPS</li><li>o AHF-15A WHITE TEMPERATURE PERMISSIVE LIGHT IS OFF</li></ul>   |
| OPERATOR ACTIONS FOR A VALID ALARM: <ul style="list-style-type: none"><li>o INVESTIGATE CAUSE OF HIGH DUCT TEMPERATURE</li><li>o DO NOT ATTEMPT A START OF AHF-15B UNTIL CAUSE OF HIGH TEMP IS DETERMINED</li></ul> |
| DISCUSSION: <p>THIS CONDITION MAY INDICATE A FIRE IN THE EXHAUST DUCTWORK OF AHF-15A. IF A FIRE CONDITION DOES EXIST REFER TO AP-880 FOR FURTHER GUIDANCE.</p>  |
| REFERENCES: DRAWING 208-005 SHEET AH-42   |
| SENSING ELEMENT: AH-315-TS  |









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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-06-02 | A-06-02 |
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DH RW PUMP A  
TRIP

**EVENT POINT 0014**

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| INDICATED CONDITION:<br><ul style="list-style-type: none"><li>o RWP-3A BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.</li></ul>  |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM:<br><ul style="list-style-type: none"><li>o GREEN LIGHT WITH RED FLAG ON CONTROL STATION</li><li>o AMBER ES STATUS LIGHT</li></ul>                                 |
| OPERATOR ACTIONS FOR A VALID ALARM:<br><ul style="list-style-type: none"><li>o CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER -404</li></ul>  |
| DISCUSSION:<br><br>THE AMOUNT OF DECAY HEAT LOAD AND THE INITIAL TEMPERATURE OF SYSTEM WILL DETERMINE HOW FAST THE DECAY HEAT TRAINS SHOULD BE TRANSFERRED.<br><br>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS. |
| REFERENCES: DRAWING 208-050 SHEET RW-04   |
| SENSING ELEMENT: 52S/B, 52H/A, CS/SC, CS/O  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-06-03 | A-06-03 |
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DH RW PUMP A  
MOTOR  
OVERLOAD

**EVENT POINT 0013**

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|---|
| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"><li>o RWP-3A MOTOR AMPS &gt;115% RATED LOAD</li></ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"><li>o HIGH MOTOR AMPS</li><li>o RWP-3A TRIPS</li></ul>   |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"><li>o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS</li><li>o CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-04</li></ul>  |
| <p>DISCUSSION:</p> <p>THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE INSTANTANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER.</p> <p>IT IS POSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP.</p> |
| <p>REFERENCES: DRAWING 208-050 SHEET RW-02</p>  |
| <p>SENSING ELEMENT: RELAY 51</p>  |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-06-04 | A-06-04 |
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DH RW PUMP A  
OUT OF SERVICE

**EVENT POINT 0012**

INDICATED CONDITION:

- o RWP-3A BREAKER HAS NO DC CONTROL POWER

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NO INDICATING LIGHTS ON CONTROL STATION
- o ES STATUS LIGHTS INDICATE BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY CLOSED DPDP-5A SWITCH 10
- o VERIFY DC KNIFE SWITCH FOR RWP-3A BREAKER CLOSED

DISCUSSION:

THIS CONDITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. REFER TO OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION. THIS IS AN EXPECTED ALARM FOR BREAKER TAGGING OPERATIONS.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-04

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR RWP-3A

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-06-04 | A-06-04 |
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DH RW PUMP A  
OUT OF SERVICE

**EVENT POINT 0015**

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|---|
| INDICATED CONDITION: <ul style="list-style-type: none"><li>o RWP-3A BREAKER IS RACKED OUT</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM: <ul style="list-style-type: none"><li>o NO INDICATING LIGHTS ON CONTROL STATION</li><li>o NO ES STATUS INDICATION</li></ul> |
| OPERATOR ACTIONS FOR A VALID ALARM: <ul style="list-style-type: none"><li>o INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT</li></ul>                                  |
| DISCUSSION: <p>THIS IS AN EXPECTED ALARM FOR BREAKER TAGGING OPERATIONS.<br/>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p>   |
| REFERENCES: DRAWING 208-050 SHEET RW-04   |
| SENSING ELEMENT: CONTACT 52H/b IN BREAKER CUBICLE FOR RWP-3A  |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-07-01 | A-07-01 |
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RB ISOLATION  
ES A  
ACTUATION

### EVENT POINT 0931

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o RB ISOLATION ACTUATION "A"</li> </ul>   |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o RB PRESSURE &gt;4 PSIG</li> <li>o MANUAL ACTUATION OF RB ISOLATION AND COOLING</li> <li>o ES STATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE</li> </ul>                     |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o REFER TO EOP</li> </ul>  |
| <p>DISCUSSION:</p> <p>THIS INDICATES THAT THERE IS AN A SIDE RB ISOLATION ACTUATION ON TWO OUT OF THREE OF THE CIRCUITS, OR AN A SIDE MANUAL RB ISOLATION ACTUATION RB PRESSURE BI-STABLE WILL TRIP AT <math>\geq 3.34 \pm 0.2</math> PSIG AS SENSED BY BS-24/25/26-PS</p> |
| <p>REFERENCES: DRAWING 208-029 SHEET ESA-55</p>  |
| <p>SENSING ELEMENT: 63Z1/RB1, 63Z1/RB2, 63Z/RB3, OR 1X1F/RBA, BS-24-PS, BS-25-PS, BS-26-PS</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-07-02 | A-07-02 |
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SW PUMP A  
TRIP

**EVENT POINT 1825**

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| <p><b>INDICATED CONDITION:</b></p> <ul style="list-style-type: none"> <li>o SWP-1A BREAKER IS OPEN WITH CONTROL SWITCH IN THE NORMAL AFTER START POSITION</li> </ul>   |
| <p><b>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</b></p> <ul style="list-style-type: none"> <li>o GREEN LIGHT WITH RED FLAG ON CONTROL STATION</li> <li>o AMBER ES STATUS LIGHT</li> </ul>  |
| <p><b>OPERATOR ACTIONS FOR A VALID ALARM:</b></p> <ul style="list-style-type: none"> <li>o START SWP-1B</li> <li>o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS</li> <li>o REFER TO AP-330</li> </ul>  |
| <p><b>DISCUSSION:</b></p> <p>EXERCISE CARE WHEN STARTING ALTERNATE SW PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOW PATH OR SURGE TANK VOLUME, WHICH MAY HAVE DIRECTLY OR INDIRECTLY CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED. ADDRESS TS REQUIREMENTS.</p> |
| <p><b>REFERENCES:</b> DRAWING 208-056 SHEET SW-02</p>  |
| <p><b>SENSING ELEMENT:</b> 52S/B, 52H/A, CS/SC, CS/O</p>   |



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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-07-03 | A-07-03 |
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SW PUMP A  
MOTOR  
OVERLOAD

**EVENT POINT 1824**

INDICATED CONDITION:

- o SWP-1A MOTOR AMPS  $\geq$  115% RATED LOAD.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o HIGH MOTOR AMPS
- o SWP-1A TRIPS

OPERATOR ACTIONS FOR A VALID ALARM:

- o START SWP-1B
- o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS

DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE INSTANTANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER.

IT IS POSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP.

REFERENCES: DRAWING 208-056 SHEET SW-02

SENSING ELEMENT: RELAY 51

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-07-04 | A-07-04 |
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SW PUMP A  
 OUT OF SERVICE

**EVENT POINT 1826**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o SWP-1A BREAKER RACKED OUT</li> </ul>  |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o NO INDICATING LIGHT ON CONTROL STATION</li> <li>o NO ES STATUS INDICATION</li> </ul> |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT</li> </ul>                                  |
| <p>DISCUSSION:</p> <p>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p>   |
| <p>REFERENCES: DRAWING 208-050 SHEET SW-02</p>   |
| <p>SENSING ELEMENT: CONTACT 52H/b IN BREAKER CUBICLE</p>   |

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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-07-04 | A-07-04 |
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SW PUMP A  
OUT OF SERVICE

**EVENT POINT 1853**

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|---|
| INDICATED CONDITION: <ul style="list-style-type: none"><li>o SWP-1A BREAKER HAS NO DC CONTROL POWER</li></ul>   |
| REDUNDANT INDICATION WHICH WILL VERIFY ALARM: <ul style="list-style-type: none"><li>o NO INDICATING LIGHTS ON CONTROL STATION</li><li>o ES STATUS LIGHTS INDICATE BREAKER POSITION</li></ul>  |
| OPERATOR ACTIONS FOR A VALID ALARM: <ul style="list-style-type: none"><li>o VERIFY CLOSED DPDP-5A SWITCH 10</li><li>o VERIFY DC KNIFE SWITCH FOR SWP-1A IS CLOSED</li></ul>   |
| DISCUSSION: <p>THIS CONDITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. REFER TO OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION. THIS IS AN EXPECTED ALARM FOR BREAKER TAGGING OPERATIONS.</p> <p>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p> |
| REFERENCES: DRAWING 208-050 SHEET SW-02   |
| SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR SWP-1A  |





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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-08-02 | A-08-02 |
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SW RW PUMP A  
TRIP

**EVENT POINT 0005**

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| <p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o RWP-2A BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION</li> </ul>                                |
| <p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o GREEN LIGHT WITH A RED FLAG ON THE CONTROL STATION</li> <li>o AMBER ES STATUS LIGHT</li> </ul> |
| <p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o ENSURE RWP-2B HAS STARTED</li> <li>o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS</li> </ul>         |
| <p>DISCUSSION:</p> <p>ENSURE A COMMON FAILURE DOES NOT RENDER RWP-2B INOPERABLE/UNAVAILABLE.<br/>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p>  |
| <p>REFERENCES: DRAWING 208-050 SHEET RW-02</p>   |
| <p>SENSING ELEMENT: 52S/B, 52H/A, CS/SC, CS/O CONTACTS</p>   |







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| ESA ANNUNCIATOR RESPONSE | ESA-KW1-08-04 | A-08-04 |
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SW RW PUMP A  
OUT OF SERVICE

**EVENT POINT 0022**

**INDICATED CONDITION:**

- o RWP-2A IS BREAKER RACKED OUT

**REDUNDANT INDICATION WHICH WILL VERIFY ALARM:**

- o NO INDICATING LIGHTS ON RWP-2A CONTROL STATION
- o NO ES STATUS INDICATION FOR RWP-2A

**OPERATOR ACTIONS FOR A VALID ALARM:**

- o INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

**DISCUSSION:**

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

**REFERENCES:** DRAWING 208-050 SHEET RW-02

**SENSING ELEMENT:** CONTACT 52H/b IN BREAKER CUBICLE FOR RWP-2A

