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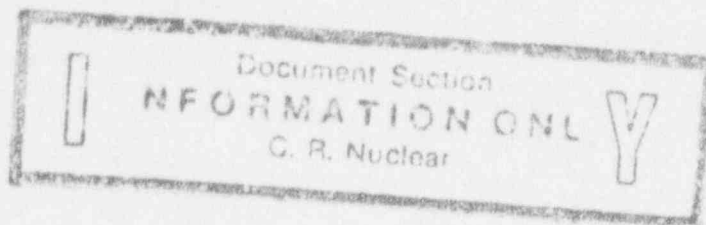
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Rev. 15

Effective Date

*10/11/94*  
*10/10/94*



ANNUNCIATOR RESPONSE

AR-302

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ESB ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

*[Signature]*  
(SIGNATURE ON FILE)

DATE:

*10-10-94*

INTERPRETATION CONTACT: Supervisor, Nuclear Operations  
Administrative Shift

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## 1.0 PURPOSE

- 1.1 Establish a reference document for each Annunciator Window on the ES (A)-KW2 Lampbox.
- 1.2 Establish operator actions for valid Annunciator alarms on the ES (A)-KW2 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ES(A)-KW2 Lampbox.

## 2.0 REFERENCES

### 2.1 IMPLEMENTING REFERENCES

- 2.1.1 EOP - EMERGENCY OPERATING PROCEDURE
- 2.1.2 OP-608 - OTSG's and Main Steam Systems
- 2.1.3 OP-402 - Makeup and Purification Systems
- 2.1.4 AR-901 - DG 'A' Annunciator Response
- 2.1.5 OP-401 - Core Flood System
- 2.1.6 AP-770 - Emergency Diesel Generator Actuation
- 2.1.7 OP-707 - Operation of the ES Emergency Diesel Generators
- 2.1.8 OP-302 - RC Pump Operation
- 2.1.9 OP-703 - Plant Distribution System
- 2.1.10 OP-417 - Containment Operating Procedure

### 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 MAR 94-07-07-01, CFT Level Setpoint

## 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)-KW2 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-01	B-01-01
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RB SPRAY  
ES A  
ACTUATION

## EVENT POINT 0935

### INDICATED CONDITION:

- o REACTOR BUILDING PRESSURE IS  $\geq 30$  PSIG AS SENSED BY TWO OUT OF THREE RB PRESSURE SWITCHES

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ES STATUS LIGHTS FOR RB SPRAY
- o BUILDING SPRAY PUMP IS RUNNING IF AN RB SPRAY PERMISSIVE IS PRESENT
- o RB PRESSURE CONTROL BOARD INDICATOR BS-90-PI, BS-16-PI
- o COMPUTER POINT P-254

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP

### DISCUSSION:

- o HPI ACTUATION THROUGH BLOCK 6 WILL GIVE A BUILDING SPRAY PERMIT.

REFERENCES: DRAWING 208-028 SHEET ESA-70

SENSING ELEMENT: 63-Z1/RB-4, RB-5, RB-6 ES ACTUATION RELAYS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-02	B-01-02
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RB SPRAY PP A  
TRIP

EVENT POINT 0044

INDICATED CONDITION:

- BSP-1A BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LIGHT ON WITH A RED FLAG ON BSP-1A CONTROL STATION
- AMBER ES STATUS LIGHT

OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE OF BREAKER TRIP
- CHECK BREAKER FOR DROP TARGET INDICATORS

DISCUSSION:

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-009 SHEET BS-01

SENSING ELEMENT: CS/SC, CS/O (CONTROL SWITCH CONTACTS) 52S, 52H

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-03	B-01-03
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RB SPRAY PP A  
MOTOR  
OVERLOAD

EVENT POINT 0059

INDICATED CONDITION:

- MOTOR AMPS  $\geq 115\%$  RATED LOAD

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- HIGH BUILDING SPRAY FLOW AS SEEN ON BS-1-FI1
- HIGH MOTOR AMPS
- BSP-1A TRIP

OPERATOR ACTIONS FOR A VALID ALARM:

- REDUCE BS FLOW BY THROTTLING BSV-3 CLOSED
- HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
- IF LOAD REMAINS HIGH ON BSP-1A CONSIDER TRIPPING BSP-1A

DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVER CURRENT OR 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 208-009 SHEET BS-01

SENSING ELEMENT: 51-IOC(INSTANTANEOUS) 51-TOC(TIMED) BREAKER CONTACTS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-04	B-01-04
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RB SPRAY PP A  
OUT OF SERVICE

EVENT POINT 0043

INDICATED CONDITION:

- BSP-1A BREAKER IS RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

DISCUSSION:

ADDRESS TS ADMINISTRATIVE REQUIREMENTS CONCERNING THIS CONDITION

REFERENCES: DRAWING 208-009 SHEET BS-01

SENSING ELEMENT: 52-H BREAKER CONTACT

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-04	B-01-04
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RB SPRAY PP A  
OUT OF SERVICE

EVENT POINT 0061

INDICATED CONDITION:

- BSP-1A BREAKER HAS NO DC CONTROL POWER

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY BSP-1A BREAKER DC KNIFE SWITCH IS CLOSED
- VERIFY DPDP-5A SWITCH 10 IS 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 208-009 SHEET BS-01

SENSING ELEMENT: 27C BREAKER RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-05	B-01-05
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RB SPRAY A  
FLOW  
HIGH/LOW

### EVENT POINT 0047

#### INDICATED CONDITION:

- BUILDING SPRAY FLOW IS  $\leq 1400$  GPM AS MEASURED BY BS-1-FS1 FOR 30 SEC. COINCIDENT WITH AN ES ACTUATION

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RB SPRAY FLOW INDICATOR BS-1-FI1 OR INDICATOR ON BSV-3 CONTROLLER

#### OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY PROPER OPERATION OF BSV-3, OPEN BSV-3 AS REQUIRED
- VERIFY BSP-1A NOT TRIPPED

#### DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-3 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK, THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-1-FS1



ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-05	B-01-05
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[illegible]

RB SPRAY A  
FLOW  
HIGH/LOW

EVENT POINT 0049

INDICATED CONDITION:
o BUILDING SPRAY FLOW IS $\geq 1700$ GPM AS MEASURED BY BS-1-FS1.
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
o RB SPRAY FLOW INDICATOR BS-1-FI1 OR INDICATOR ON BSV-3 CONTROLLER
OPERATOR ACTION'S FOR A VALID ALARM:
o VERIFY PROPER OPERATION OF BSV-3, THROTTLE BSV-3 AS REQUIRED TO REDUCE FLOW
DISCUSSION:
THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-3 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.
REFERENCES: DRAWING 208-009 SHEET BS-11
SENSING ELEMENT: BS-1-FS1

- INDICATED CONDITION:
- o BUILDING SPRAY FLOW IS  $\geq 1700$  GPM AS MEASURED BY BS-1-FS1.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RB SPRAY FLOW INDICATOR BS-1-F11 OR INDICATOR ON BSV-3 CONTROLLER

- REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
- RB SPRAY FLOW INDICATOR BS-1-F11 OR INDICATOR ON BSV-3 CONTROLLER

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-3, THROTTLE BSV-3 AS REQUIRED TO REDUCE FLOW

- OPERATOR ACTIONS FOR A VALID ALARM:
- o VERIFY PROPER OPERATION OF BSV-3, THROTTLE BSV-3 AS REQUIRED TO REDUCE FLOW

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-3 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-3 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-1-FS1



ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-05	8-01-05
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[illegible]

RB SPRAY A  
FLOW  
HIGH/LOW

EVENT POINT 0063

INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\leq 1100$  GPM AS MEASURED BY BS-81-FIS WITH DHV-42 OPEN

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-F11 OR INDICATOR ON BSV-3 CONTROLLER

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-3, OPEN BSV-3 AS REQUIRED
- o VERIFY BSP-1A NOT TRIPPED

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW WHILE TAKING A SUCTION FROM THE RB SUMP IS 1200 GPM, THIS IS TO ENSURE ADEQUATE NET POSITIVE SUCTION HEAD FOR THE BUILDING SPRAY PUMP. OPERATION IN THIS MODE IS TAKING LOCAL/AUTO CONTROL OF BSV-3, THIS WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK, THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-81-FIS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-01-05	B-01-05
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[illegible]

RB SPRAY A  
FLOW  
HIGH/LOW

EVENT POINT 0065

INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\geq 1300$  GPM AS MEASURED BY BS-81-FIS WITH DHV-42 OPEN

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-FI1 OR INDICATOR ON BSV-3 CONTROLLER

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-3, THROTTLE BSV-3 AS REQUIRED TO REDUCE FLOW

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW WHILE TAKING A SUCTION FROM THE RB SUMP IS 1200 GPM, THIS IS TO INSURE ADEQUATE NET POSITIVE SUCTION HEAD FOR THE BUILDING SPRAY PUMP. OPERATION IN THIS MODE IS TAKING LOCAL/AUTO CONTROL OF BSV-3, THIS WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK, THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-81-FIS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-01	B-02-01
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RB FAN A  
HIGH SPEED  
TRIP

## EVENT POINT 0348

### INDICATED CONDITION:

- o AHF-1A CONTROL HANDLE PUSHED IN, IN NORMAL AFTER START, AND HIGH SPEED WINDINGS NOT ENERGIZED.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN HIGH SPEED LIGHT WITH A RED FLAG ON CONTROL STATION, AND CONTROL HANDLE PUSHED IN.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF FAN TRIP
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

THIS ALARM WILL OCCUR IF THE FAN IS RUNNING IN HIGH SPEED AND AN ES ACTUATION OCCURS. THIS WILL TRIP THE FAN IN HIGH SPEED AND START THE ES SELECTED FANS IN SLOW SPEED.

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS. ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-28

SENSING ELEMENT: CS/IN, CS/SC, CS/O, 42/1F RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-02	B-02-02
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RB FAN A  
LOW SPEED  
TRIP

## EVENT POINT 0349

### INDICATED CONDITION:

- o AHF-1A CONTROL HANDLE PULLED OUT, IN NORMAL AFTER START, AND SLOW SPEED WINDINGS NOT ENERGIZED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LOW SPEED LIGHT WITH A RED FLAG ON CONTROL STATION, AND THE CONTROL HANDLE PULLED OUT

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF FAN TRIP
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS

ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION

REFERENCES: DRAWING 208-005 SHEET AH-28

SENSING ELEMENT: CS/OUT, CS/SC, CS/O, 42/1S RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-03	B-02-03
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RB FAN A  
AIR FLOW  
LOW

## EVENT POINT 0350

### INDICATED CONDITION:

- o AHF-1A CONTROL HANDLE PUSHED IN AND IN NORMAL AFTER START AND LOW AIR FLOW IS SENSED BY AH-17-DPS.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o REACTOR BUILDING TEMPS ARE INCREASING AS SEEN ON AH-536-TIR

### OPERATOR ACTIONS FOR A VALID ALARM:

- o IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

THIS ALARM MAY BE IN WHEN AN ES ACTUATION HAS STARTED A PREVIOUSLY RUNNING FAN IN SLOW SPEED. PLACING THE CONTROL HANDLE IN THE PULL OUT NORMAL AFTER START POSITION SHOULD CLEAR THE ALARM. ALSO IF THE FAN TRIPS THIS ALARM SHOULD ACTUATE.

REFERENCES: DRAWING 208-005 SHEET AH-28

SENSING ELEMENT: AH-17-DPS



ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-04	B-02-04
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[illegible]

RB FAN A  
VIBRATION  
HIGH

EVENT POINT 0351

INDICATED CONDITION:

- AHF-1A HIGH VIBRATION CONDITION IS SENSED BY AH-18-ME1/2

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FAN AND MOTOR TEMPS INCREASING ON AH-1003-TIR ON BACK OF CONTROL BOARD
- o IF FAN IS RUNNING IN SLOW SPEED THEN CURRENT ON THE FAN MAY BE OSCILLATING.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ATTEMPT TO RESET ALARM BY DEPRESSING RESET PUSHBUTTON ON CONTROL BOARD
- o IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417

### DISCUSSION:

ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE  
IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-132

SENSING ELEMENT: AH-18-ME1, AH-18-ME2

ESB ANNUNCIATOR RESPONSE	ESB-KW2-02-05	B-02-05
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[illegible]

RB FAN A  
CONDENSATE  
HIGH

EVENT POINT 1697

INDICATED CONDITION:

- o AHF-1A CONDENSATE FLOW IS  $\geq 1133$  CC PER MINUTE AS SENSED BY AH-656-FIS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- 0 REACTOR BUILDING SUMP RATE OF RISE IS INCREASING AS SEEN ON BS-93-PIR

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE SOURCE OF CONDENSATE

DISCUSSION:

SOME SOURCES OF HIGH CONDENSATION ARE:

RCS LEAK IN CONTAINMENT - CHECK PZR LEVEL AND MAKE UP TANK LEVEL TRENDS;

FEEDWATER/MAIN STEAM LEAK IN CONTAINMENT - CHECK FEEDWATER FLOWRATES;

RB FAN COOLER SW LEAKS - CHECK SW SURGE TANK LEVEL IF ON SW, OR CI SURGE TANK LEVELS IF ON CI.

REFERENCES: DRAWING 208-005 SHEET AH-131

SENSING ELEMENT: AH-656-FIS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-05	B-02-05
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THIS AR IS ONLY USED WHEN COLD LEG NOZZLE DAMS ARE INSTALLED PER MP-110C

[illegible]

RCSG-1A  
NOZZLE DAM  
PROBLEM

EVENT POINT 1697

INDICATED CONDITION:

- 0 "A" SIDE NOZZLE DAM CONTROL CONSOLE IS IN ALARM

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NOZZLE DAM PRESSURE  $\geq 9$  PSIG ON EITHER SEAL
- o NOZZLE DAM PRESSURE  $\leq 6.5$  PSIG ON EITHER SEAL
- o NOZZLE DAM AIR FLOW  $\geq 9$  SCFH
- o LOSS OF POWER TO THE CONTROL PANEL

OPERATOR ACTIONS FOR A VALID ALARM:

- o IMMEDIATELY INVESTIGATE SOURCE OF ALARM
- o REFER TO EOP-11, LOSS OF DECAY HEAT REMOVAL

DISCUSSION:

THIS ALARM INDICATES POSSIBLE NOZZLE DAM SEAL DEGRADATION. IF THE SEAL FAILS, A REACTOR COOLANT LEAK WOULD DEVELOP, FLOODING THE PRIMARY SIDE OF THE STEAM GENERATORS WHERE PERSONNEL MAY BE AT WORK.

THIS EVENT POINT IS ONLY IN USE ON A TEMPORARY BASIS WHEN NOZZLE DAMS ARE INSTALLED. THE WINDOW "RB FAN A CONDENSATE HIGH" IS REMOVED FROM THE ANNUNCIATOR PANEL WHEN THIS EVENT POINT IS IN EFFECT.

REFERENCES: MP-110C

SENSING ELEMENT: INTERNAL ALARM CIRCUITS INSIDE NOZZLE DAM CONTROL CONSOLE



ESB ANNUNCIATOR RESPONSE	ESA-KW2-02-06	B-02-06
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[illegible]

ES A  
ACTUATION  
TROUBLE

EVENT POINT 1230

INDICATED CONDITION:

- o "A" ES ACTUATION SIGNAL ON ONE OR MORE ES CHANNELS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ES STATUS LIGHTS
- o ES BISTABLE TRIP INDICATORS

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP

DISCUSSION:

THIS ALARM INDICATES THAT AT LEAST ONE OF THREE CHANNELS OF "A" ES HAS ACTUATED. ANY HPI OR LPI BISTABLE TRIPPED WITH ES NOT BYPASSED, OR ANY 4 PSIG ES PRESSURE SWITCH ACTUATED WILL GIVE THIS ALARM. PLACING THE RC PRESSURE TEST MODULE IN "TEST" DEFEATS THIS ALARM FROM LPI OR HPI. WHEN THE 4 PSIG TEST SWITCHES ARE IN THE "TEST" POSITION THIS ALARM IS DEFEATED FROM A 4 PSIG ACTUATION.

REFERENCES: DRAWING 208-028 SHEET ES-AB-05

SENSING ELEMENT: VARIOUS ES ACTUATION CONTACTS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-01	B-03-01
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RB FAN C  
HIGH SPEED  
TRIP

## EVENT POINT 0356

### INDICATED CONDITION:

- o AHF-1C CONTROL HANDLE PUSHED IN, IN NORMAL AFTER START WITH THE FAST SPEED WINDINGS NOT ENERGIZED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN HIGH SPEED LIGHT ON WITH A RED FLAG ON CONTROL STATION AND CONTROL HANDLE PUSHED IN

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF FAN TRIP
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

THIS ALARM WILL OCCUR IF THE FAN IS RUNNING IN HIGH SPEED AND AN ES ACTUATION OCCURS. THIS WILL TRIP THE FAN IN HIGH SPEED AND START THE ES SELECTED FANS IN SLOW SPEED.

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS. ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-30

SENSING ELEMENT: CS/IN, CS/SC, CS/O, 42/1F

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-02	R-03-02
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RB FAN C  
LOW SPEED  
TRIP

## EVENT POINT 0357

### INDICATED CONDITION:

- o AHF-1C CONTROL HANDLE PULLED OUT, IN NORMAL AFTER START, AND THE SLOW SPEED WINDINGS ARE NOT ENERGIZED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LOW SPEED LIGHT ON WITH A RED FLAG ON CONTROL STATION, AND CONTROL HANDLE PULLED OUT

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF FAN TRIP
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS. ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-30

SENSING ELEMENT: CS/OUT, CS/SC, CS/O, 42/1S RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-03	B-03-03
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RB FAN C  
AIR FLOW  
LOW

## EVENT POINT 0358

### INDICATED CONDITION:

- o AHF-1C CONTROL HANDLE PUSHED IN, IN NORMAL AFTER START AND LOW AIR FLOW AS SENSED BY AH-21-DPS.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o REACTOR BUILDING TEMPS ARE INCREASING AS SEEN ON AH-536-TIR

### OPERATOR ACTIONS FOR A VALID ALARM:

- o IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417
- o MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

THIS ALARM MAY BE IN WHEN AN ES ACTUATION HAS STARTED A PREVIOUSLY RUNNING FAN IN SLOW SPEED. PLACING THE CONTROL HANDLE IN THE PULL OUT NORMAL AFTER START POSITION SHOULD CLEAR THE ALARM. ALSO IF THE FAN TRIPS THIS ALARM SHOULD ACTUATE.

REFERENCES: DRAWING 208-005 SHEET AH-30

SENSING ELEMENT: AH-21-DPS, CS/OUT, CS/SC, CS/O, 42/1S RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-04	B-03-04
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RB FAN C  
VIBRATION  
HIGH

EVENT POINT 0359

INDICATED CONDITION:

- o AHF-1C HIGH VIBRATION CONDITION IS SENSED BY AH-22-ME1/2

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FAN AND MOTOR TEMPS INCREASING ON AH-1003-TIR ON BACK OF CONTROL BOARD
- o IF FAN IS RUNNING IN SLOW SPEED THEN CURRENT ON THE FAN MAY BE OSCILLATING.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ATTEMPT TO RESET ALARM BY DEPRESSING RESET PUSHBUTTON ON CONTROL BOARD
- o IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN
- o ENSURE TWO OPERABLE RB FANS ARE ES SELECTED PER OP-417

DISCUSSION:

ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-132

SENSING ELEMENT: AH-22-ME1, AH-22-ME2

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-05	B-03-05
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[illegible]

RB FAN C  
CONDENSATE  
HIGH

EVENT POINT 1699

INDICATED CONDITION:
o AHF-1C CONDENSATE FLOW IS $\geq 1133$ CC PER MINUTE AS SENSED BY AH-658-FIS
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
o REACTOR BUILDING SUMP RATE OF RISE IS INCREASING AS SEEN ON BS-93-PIR
OPERATOR ACTIONS FOR A VALID ALARM:
o INVESTIGATE SOURCE OF CONDENSATE
DISCUSSION:
SOME SOURCES OF HIGH CONDENSATION ARE:
RCS LEAK IN CONTAINMENT - CHECK PZR LEVEL AND MAKE UP TANK LEVEL TRENDS;
FEEDWATER/MAIN STEAM LEAK IN CONTAINMENT - CHECK FEEDWATER FLOWRATES;
RB FAN COOLER SW LEAKS - CHECK SW SURGE TANK LEVEL IF ON SW, OR CI SURGE TANK LEVELS IF ON CI.
REFERENCES: DRAWING 208-005 SHEET AH-131
SENSING ELEMENT: AH-658-FIS

- o AHF-1C CONDENSATE FLOW IS  $\geq 1133$  CC PER MINUTE AS SENSED BY AH-658-FIS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o REACTOR BUILDING SUM? RATE OF RISE IS INCREASING AS SEEN ON BS-93-PIR

- o REACTOR BUILDING SUMP RATE OF RISE IS INCREASING AS SEEN ON BS-93-PIR

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE SOURCE OF CONDENSATE

- o INVESTIGATE SOURCE OF CONDENSATE

DISCUSSION:

SOME SOURCES OF HIGH CONDENSATION ARE:

RCS LEAK IN CONTAINMENT - CHECK PZR LEVEL AND MAKE UP TANK LEVEL TRENDS;

FEEDWATER/MAIN STEAM LEAK IN CONTAINMENT - CHECK FEEDWATER FLOWRATES;

RB FAN COOLER SW LEAKS - CHECK SW SURGE TANK LEVEL IF ON SW, OR CI SURGE TANK LEVELS IF ON CI.

SOME SOURCES OF HIGH CONDENSATION ARE:

RCS LEAK IN CONTAINMENT - CHECK PZR LEVEL AND MAKE UP TANK LEVEL TRENDS;

FEEDWATER/MAIN STEAM LEAK IN CONTAINMENT - CHECK FEEDWATER FLOWRATES;

RB FAN COOLER SW LEAKS - CHECK SW SURGE TANK LEVEL IF ON SW, OR CI SURGE TANK LEVELS IF ON CI.

REFERENCES: DRAWING 208-005 SHEET AH-131

SENSING ELEMENT: AH-658-FIS

SENSING ELEMENT: AH-658-FIS



B-03-06

RB FAN C  
POWER SUPPLY  
MISALIGN

EVENT POINT 0799

INDICATED CONDITION:

- o AHF-1C SELECTED FOR "A" ES START AND ESMCC-3AB IS BEING POWERED FROM ES 480V BUS 3B

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o SWITCH IN ES ACTUATION RELAY CABINET 4D IS SELECTED TO "AHF-1C"
- o ESMCC-3AB POWER SOURCE STATUS LAMP INDICATES ABT IS SELECTED TO ES 480V BUS 3B

OPERATOR ACTIONS FOR A VALID ALARM:

- o SELECT AHF-1A FOR ES START ON ES "A" ACTUATION OR
- o SELECT ESMCC-3AB TO 480V ES BUS 3A POWER SOURCE

DISCUSSION:

THIS CONDITION VIOLATES REQUIREMENTS FOR ES TRAIN SEPARATION. OPERABILITY CONCERNS MUST BE ADDRESSED WHILE THIS CONDITION EXISTS. REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-005 SHEET AH-30

SENSING ELEMENT: MTXS-1,SS-BY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-03-06	B-03-06
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[illegible]

RB FAN C  
POWER SUPPLY  
MISALIGN

EVENT POINT 0801

INDICATED CONDITION:

- o AHF-1C SELECTED FOR "B" ES START, AND ES-MCC-3AB IS BEING POWERED FROM ES 480V BUS 3A

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o SWITCH IN ES ACTUATION RELAY CABINET 5D IS SELECTED TO "AHF-1C"
- o ES-MCC-3AB POWER SOURCE STATUS LAMP INDICATES ABT IS SELECTED TO ES 480V BUS 3A

OPERATOR ACTIONS FOR A VALID ALARM:

- o SELECT AHF-1B FOR ES START ON ES "B" ACTUATION OR
- o SELECT ES-MCC-3AB TO 480V ES BUS 3B POWER SOURCE

DISCUSSION:

THIS CONDITION VIOLATES REQUIREMENTS FOR ES TRAIN SEPARATION. OPERABILITY CONCERNS MUST BE ADDRESSED WHILE THIS CONDITION EXISTS.

REFERENCES: DRAWING 208-005 SHEET AH-30

SENSING ELEMENT: MTXS-1,SS-BY



ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-01	B-04-01
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MAKEUP PP A  
TRIP

## EVENT POINT 1035

### INDICATED CONDITION:

- o 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 OP-302 FOR RESTORATION OF RCP SERVICES PRIOR TO STARTING ANOTHER MUP
- o CONSIDERING MINIMIZING LETDOWN FLOW
- o INVESTIGATE MUP-1A BREAKER FOR DROPPED TARGETS
- o START ANOTHER MAKE-UP PUMP PER OP-402 IF CAUSE OF THIS TRIP WILL NOT TRIP ANOTHER PUMP

### DISCUSSION:

EXERCISE CARE WHEN STARTING ALTERNATE MU PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOWPATH, WHICH MAY HAVE DIRECTLY OR INDIRECTLY CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-01

SENSING ELEMENT: CS/SC, CS/O, 52H/B, 52S/B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-02	B-04-02
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MAKEUP PP A  
GEAR OIL PRESS  
LOW

## EVENT POINT 1057

### INDICATED CONDITION:

- o MUP-1A BREAKER CLOSED  $\geq 20$  SECONDS WITH GEAR OIL PRESS  $\leq 7$  PSIG AS SENSED BY MU-88-PS

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o BACK UP GEAR OIL PUMP AUTO STARTS
- o COMPUTER POINT X-067

### OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY MUP-5A DC BACK UP GEAR OIL PUMP STARTED
- o MONITOR MUP-1A VIA COMPUTER GROUP 70

### DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE UP PUMPS PER OP-402

REFERENCES: DRAWING 208-041 SHEET MU-49

SENSING ELEMENT: MU-88-PS, CS/SC, CS/O, 52H/B, 52S/B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-03	B-04-03
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MAKEUP PP A  
MOTOR  
OVERLOAD

EVENT POINT 1033

INDICATED CONDITION:

- o MOTOR AMPS  $\geq$  115% RATED LOAD

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o HIGH MOTOR AMPS
- o MUP-1A TRIP
- o HIGH FLOWRATES THROUGH MUP-1A

OPERATOR ACTIONS FOR A VALID ALARM:

- o THROTTLE MAKEUP FLOW TO MAINTAIN <540 GPM FLOW PER EOP-13.
- o HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS

DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR 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 208-041 SHEET MU-01

SENSING ELEMENT: 51 RELAY INSIDE BREAKER CUBICLE

ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-04	B-04-04
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MAKEUP PP A  
LUBE OIL PUMP  
TRIP

EVENT POINT 1048

INDICATED CONDITION:

- o MUP-2A CONTROL HANDLE IN NO. 1 POSITION AFTER START POSITION AND MOTOR NOT ENERGIZED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- o LOW LUBE OIL PRESSURE ALARM
- o MUP-3A BACK-UP LUBE OIL PUMP AUTO START

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE MUP-3A BACK-UP LUBE OIL PUMP STARTED

DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 70. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-05

SENSING ELEMENT: CS/SC, CS/O, 42B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-04	B-04-04
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[illegible]

MAKEUP PP A  
LUBE OIL PUMP  
TRIP

EVENT POINT 1052

INDICATED CONDITION:

- 0 MUP-3A CONTROL HANDLE IN THE NORMAL AFTER START POSITION AND MOTOR IS NOT ENERGIZED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- o MAKEUP PUMP OIL PRESSURE LOW ALARM
- o COMPUTER POINT X070

OPERATOR ACTIONS FOR A VALID ALARM:

- o MONITOR MUP-1A BEARING OIL TEMPERATURES

### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 70. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-30

SENSING ELEMENT: CS/SC, CS/O, CR1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-04-06	B-04-06
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[illegible]

AUX STEAM ISO  
(ASV-195)  
BYPASSED

EVENT POINT 1960

INDICATED CONDITION:
◦ CONTROL SWITCH FOR ASV-195 AUX STEAM SOLENOID VALVE IS IN THE OPEN/BYPASS POSITION
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
◦ ASV-195 SELECTOR SWITCH POSITION
OPERATOR ACTIONS FOR A VALID ALARM:
◦ REFER TO OP-608
DISCUSSION:
THIS ALARM INDICATES THAT THE AUTOMATIC CLOSURE OF ASV-195 ON HIGH OR LOW AUX STEAM PRESSURE IS DISABLED. THIS IS A HIGH ENERGY LINE BREAK CONCERN.
REFERENCES: DRAWING 208-008 SHEET AS-05
SENSING ELEMENT: CS/NC



ESB ANNUNCIATOR RESPONSE	ESA-KW2-05-02	B-05-02
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MAKEUP PP A  
LUBE OIL PRESS  
LOW

## EVENT POINT 1031

### INDICATED CONDITION:

- LUBE OIL PRESS AS SENSED BY MU-42-PS3 IS  $\leq 3$  PSIG

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- MUP-3A BACK UP LUBE OIL PUMP AUTO STARTS

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3A HAS STARTED

### DISCUSSION:

THIS ALARM INDICATES THAT THERE IS INADEQUATE LUBRICATION FOR MUP-1A. IF THE PUMP IS RUNNING THEN IT SHOULD BE SECURED AND AN ALTERNATE MAKEUP PUMP STARTED, REFER TO OP-402 FOR DIRECTIONS ON STARTING MAKEUP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-01

SENSING ELEMENT: CS/3A, MU-42-PS3

ESB ANNUNCIATOR RESPONSE	ESA-KW2-05-03	B-05-03
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MAKEUP PP A  
LUBE OIL PUMP  
AUTO START

## EVENT POINT 1051

### INDICATED CONDITION:

- MUP-3A CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION AND MOTOR IS ENERGIZED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RED LIGHT ON WITH A GREEN FLAG ON MUP-3A CONTROL STATION
- COMPUTER POINT X071

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3A IS RUNNING

### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 70. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-30

SENSING ELEMENT: CS/ST, CS/ST, CS/O, CR1



ESB ANNUNCIATOR RESPONSE	ESA-KW2-05-04	B-05-04
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[illegible]

MAKEUP PP A  
OUT OF SERVICE

EVENT POINT 1032

INDICATED CONDITION:

- o MUP-1A BREAKER HAS NO DC CONTROL POWER

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NO RED OR GREEN INDICATING LIGHTS ON CONTROL STATION
- o ES STATUS LIGHTS SHOW BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY CLOSED DPDP-5A SWITCH 10
- o VERIFY DC KNIFE SWITCH FOR MUP-1A BREAKER 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 208-041 SHEET MU-01

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR MUP-1A

ESB ANNUNCIATOR RESPONSE	ESA-KW2-05-04	B-05-04
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MAKEUP PP A  
OUT OF SERVICE

## EVENT POINT 1034

### INDICATED CONDITION:

- MUP-1A BREAKER IS RACKED OUT AND IS SELECTED FOR ES START

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

### DISCUSSION:

TWO PUMPS SHOULD BE SELECTED FOR ES START.  
REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-01

SENSING ELEMENT: 43/3A CUBICLE 3A9, 52H/b CUBICLE 3A9 FOR MUP-1A

ESB ANNUNCIATOR RESPONSE	ESA-KW2-05-06	B-05-06
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[illegible]

AUX STEAM ISO  
(ASV-195)  
AUTO CLOSED

EVENT POINT 1815

INDICATED CONDITION:

- o CONTROL SWITCH FOR ASV-195 AUX STEAM SOLENOID VALVE IS IN THE AUTO POSITION AND THE VALVE IS CLOSED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ASV-195 SELECTOR SWITCH IN AUTO
- o GREEN INDICATOR LIGHT ON SELECTOR SWITCH

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-608

DISCUSSION:

THIS ALARM INDICATES THAT THE AUTOMATIC CLOSURE OF ASV-195 ON EITHER LOW AUX STEAM PRESSURE OR HIGH AUX STEAM PRESSURE HAS OCCURRED. A LOW PRESSURE ACTUATION OCCURS AT <100 PSIG AND A HIGH PRESSURE ISOLATION OCCURS AT >250 PSIG AUX STEAM HEADER PRESSURE IN THE AUX BUILDING.

REFERENCES: DRAWING 208-008 SHEET AS-05

SENSING ELEMENT: 3ASV-195-SV-1, 33C/ASV-195-SV, AS-36-PS1, AS-36-PS-3

ESB ANNUNCIATOR RESPONSE	ESA-KW2-06-01	B-06-01
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MAKEUP PP B  
TRIP

## EVENT POINT 1041

### INDICATED CONDITION:

- MUP-1B BREAKER IS OPEN WITH CONTROL HANDLE IN NORMAL AFTER START POSITION

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LIGHT ON WITH A RED FLAG ON MUP-1B CONTROL STATION
- AMBER ES STATUS LIGHT

### OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO OP-302 FOR RESTORATION OF RCP SERVICES PRIOR TO STARTING ANOTHER MUP
- CONSIDER MINIMIZING LETDOWN FLOW
- INVESTIGATE MUP-1B BREAKER FOR DROPPED TARGETS
- START ANOTHER MAKE-UP PUMP PER OP-402 IF CAUSE OF THIS TRIP WILL NOT TRIP ANOTHER PUMP

### DISCUSSION:

EXERCISE CARE WHEN STARTING ALTERNATE MU PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOWPATH, WHICH MAY HAVE DIRECTLY OR INDIRECTLY CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: CS/SC, CS/O, 52H/B, 52S/B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-06-02	B-06-02
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MAKEUP PP B  
GEAR OIL PRESS  
LOW

## EVENT POINT 1058

### INDICATED CONDITION:

- o MUP-1B BREAKER CLOSED  $\geq 20$  SECONDS WITH GEAR OIL PRESS  $\leq 7$  PSIG AS SENSED BY MU-89-PS

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o MUP-5B BACK UP GEAR OIL PUMP AUTO STARTS
- o COMPUTER POINT X068

### OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY MUP-5B BACK UP GEAR OIL PUMP STARTED
- o MONITOR MUP-1B VIA COMPUTER GROUP 71

### DISCUSSION:

THIS ALARM INDICATES THAT THERE MAY BE INADEQUATE LUBRICATION FOR THE SPEED INCREASER GEAR BOX, CONSIDERATION SHOULD BE GIVEN TO TRANSFERRING TO ANOTHER MAKEUP PUMP PER OP-402.

REFERENCES: DRAWING 208-041 SHEET MU-50

SENSING ELEMENT: CS/SC, CS/O, 52H/B, 52S/A, MU-89-PS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-06-03	B-06-03
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MAKEUP PP B  
MOTOR  
OVERLOAD

## EVENT POINT 1039

### INDICATED CONDITION:

- MOTOR AMPS >115% RATED LOAD

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- HIGH MOTOR AMPS
- >540 GPM TOTAL INDICATED FLOW THROUGH MUP-1B
- MUP-1B TRIP

### OPERATOR ACTIONS FOR A VALID ALARM:

- THROTTLE MAKEUP FLOW TO MAINTAIN <540 GPM FLOW PER EOP-13
- HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
- REFER TO OP-302 FOR RESTORATION OF RCP SERVICES

### DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR 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 208-041 SHEET MU-02

SENSING ELEMENT: 51 RELAY INSIDE BREAKER CUBICLE



ESB ANNUNCIATOR RESPONSE	ESA-KW2-06-04	B-06-04
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[illegible]

MAKEUP PP B  
LUBE OIL PUMP  
TRIP

EVENT POINT 1049

INDICATED CONDITION:

- o MUP-2B MOTOR IS NOT ENERGIZED WITH THE CONTROL HANDLE IN NORMAL AFTER START POSITION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- o LOW LUBE OIL PRESSURE ALARM
- o MUP-3B BACK-UP LUBE OIL PUMP AUTO START

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE MUP-3B BACK-UP LUBE OIL PUMP STARTED

DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 71. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-06

SENSING ELEMENT: CS/SC, CS/O, 42B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-06-04	B-06-04
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[illegible]

MAKEUP PP B  
LUBE OIL PUMP  
TRIP

EVENT POINT 1054

INDICATED CONDITION:

- 0 MUP-3B MOTOR IS NOT ENERGIZED WITH THE 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 MAKEUP PUMP OIL PRESSURE LOW ALARM
- o COMPUTER POINT X071

OPERATOR ACTIONS FOR A VALID ALARM:

- o MONITOR MUP-1B PUMP TEMPS

### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 71. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-31

SENSING ELEMENT: CS/SC, CS/O, CR1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-07-02	B-07-02
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MAKEUP PP B  
LUBE OIL PRESS  
LOW

## EVENT POINT 1037

### INDICATED CONDITION:

- LUBE OIL PRESS AS SENSED BY MU-45-PS3 IS  $\leq 3$  PSIG

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- MUP-3B BACK UP LUBE OIL PUMP AUTO STARTS

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3B HAS STARTED

### DISCUSSION:

THIS ALARM INDICATES THAT THERE IS INADEQUATE LUBRICATION FOR MUP-1B. IF MUP-1B IS RUNNING THEN IT SHOULD BE SECURED AND AN ALTERNATE MAKEUP PUMP STARTED PER OP-402.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: 43CS/3B7-3B, MU-45-PS3

ESB ANNUNCIATOR RESPONSE	ESA-KW2-07-03	B-07-03
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MAKEUP PP B  
LUBE OIL PUMP  
AUTO START

EVENT POINT 1053

INDICATED CONDITION:

- MUP-3B CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION AND MOTOR IS ENERGIZED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RED LIGHT ON WITH A GREEN FLAG ON MUP-3B CONTROL STATION
- COMPUTER POINT X071

OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3A IS RUNNING

DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 71. CONSIDERATION SHOULD BE GIVEN TO STARTING ANOTHER MAKE-UP PUMP.

REFERENCES: DRAWING 208-041 SHEET MU-31

SENSING ELEMENT: CS/ST, CS/ST, CS/O, CR1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-07-04	B-07-04
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[illegible]

MAKEUP PP B  
OUT OF SERVICE

EVENT POINT 1038

INDICATED CONDITION:

- o MUP-1B 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-5B SWITCH 10
- o VERIFY DC KNIFE SWITCH FOR MUP-1B BREAKER CLOSED

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR MUP-1B

ESB ANNUNCIATOR RESPONSE	ESA-KW2-07-04	B-07-04
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[illegible]

MAKEUP PP B  
OUT OF SERVICE

EVENT POINT 1040

INDICATED CONDITION:

- 0 MUP-1B BREAKER IS RACKED OUT AND MUP-1B IS SELECTED FOR ES START

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:

TWO PUMPS SHOULD BE SELECTED FOR ES START.  
REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: 43/3B ON CUBICLE 3A10, 52H/b IN CUBICLE 3A9 FOR MUP-1B



ESB ANNUNCIATOR RESPONSE	ESA-KW2-07-06	B-07-06
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[illegible]

H2 SAMPLING  
PANEL A  
TROUBLE

EVENT POINT 0080

INDICATED CONDITION:

- o PASS RB H2 ANALYZER "A" MALFUNCTION
- o HIGH RB H2 CONCENTRATION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOSS OF POWER TO PANEL
- o OVERPRESSURE TO PANEL AT  $\geq 4$  PSIG
- o LOW FLOW TO PANEL AT  $\leq 1$  SCFH
- o THERMO ELECTRIC COOLER  $\leq 0.1$  AMPS
- o RB H2 CONCENTRATION  $> 3\%$

OPERATOR ACTIONS FOR A VALID ALARM:

- o NOTIFY SSOD AND EC OF HYDROGEN CONCENTRATION
- o VERIFY PROPER VALVE LINEUP PER OP-417
- o NOTIFY I&C SUPERVISION OF H2 ANALYZER MALFUNCTION

DISCUSSION:

THIS ALARM INDICATES EITHER THE POST ACCIDENT H2 CONCENTRATION INSIDE THE RB IS HIGH, OR THE PASS H2 ANALYZER IS MALFUNCTIONING. TS ADMINISTRATIVE CONSIDERATION SHOULD BE MADE PRIOR TO REMOVING BOTH H2 SAMPLERS FROM SERVICE

REFERENCES: DRAWING 208-062 SHEET WS-04

SENSING ELEMENT: VARIOUS FLOW/PRESSURE/CURRENT SWITCHES INSIDE THE SAMPLER

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-01	B-08-01
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DIESEL GEN A  
FAILED  
TO START

## EVENT POINT 1204

### INDICATED CONDITION:

- o "A" EGDG HAS A START COMMAND AND LUBE OIL PRESSURE AS SENSED BY DL-9-PS IS  $\leq 6$  PSIG AFTER 7 SECONDS OR
- o "A" EGDG HAS A START COMMAND AND ENGINE SPEED AS SENSED BY EG-19-SS IS  $\leq 250$  RPM AFTER 7 SECONDS

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o EGDG-1A TRIPS
- o CONTROL BOARD "CRANK" LIGHT GOES OUT AND WHITE "READY" LIGHT DOES NOT COME ON
- o EGDG-1A STARTING AIR PRESSURE LOW ALARM ANNUNCIATES

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INSPECT EGDG-1A FOR CAUSE OF FAILURE TO START
- o RESET PUSHBUTTON MUST BE DEPRESSED ON EGDG GAUGE BOARD PRIOR TO EGDG RESTART

### DISCUSSION:

THIS ALARM INDICATES THE DIESEL TRIED TO START AND DID NOT. SOME POSSIBLE CAUSES OF THIS ARE: PROBLEMS WITH DIESEL FUEL SYSTEM, LUBE OIL SYSTEM PROBLEMS OR DIESEL SPEED SENSOR PROBLEMS.  
THIS ALARM IS STILL ACTIVE WITH AN ES SIGNAL PRESENT BUT WILL NOT DE-ENERGIZE THE STARTING AIR SOLENOIDS, SO THE DIESEL WILL CRANK UNTIL IT EITHER STARTS OR RUNS OUT OF AIR.

REFERENCES: DRAWING 208-027 SHEET EG-17, EG-03, EG-01, EG-05

SENSING ELEMENT: DL-9-PS, DL-19-SS, START FAIL RELAY

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-01	B-08-01
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DIESEL GEN A  
FAILED  
TO START

## EVENT POINT 1214

### INDICATED CONDITION:

- o "A" EGDG HAS TRIPPED IT'S PHASE DIFFERENTIAL CURRENT RELAY
- o "A" EGDG TRIPS AND BREAKER 3209 OPENS
- o "A" EGDG 86 LOCKOUT RELAY HAS ACTUATED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ES 4160V BUS 3A DE-ENERGIZES
- o CONTROL BOARD "RUN" LIGHT GOES OUT

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-770
- o INSPECT EGDG-1A FOR CAUSE OF DIFFERENTIAL CURRENT CONDITION
- o LOCKOUT RELAY MUST BE MANUALLY RESET ONCE PROBLEM IS RESOLVED.

### DISCUSSION:

THIS ALARM INDICATES THE DIESEL GENERATOR HAS EITHER, A PHASE TO PHASE SHORT OR A PHASE TO GROUND SHORT. THIS CONDITION WILL TRIP THE DIESEL AND PREVENT IT FROM STARTING. THE CAUSE OF THIS PROBLEM MUST BE RESOLVED PRIOR TO ANY ATTEMPT BEING MADE TO RESTART AND RELOAD THE DIESEL GENERATOR.

REFERENCES: DRAWING 208-027 SHEET EG-15

SENSING ELEMENT: 86-DG-3A, 87A, 87B, 87C DIFFERENTIAL CURRENT RELAYS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-02	B-08-02
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DIESEL GEN A  
TROUBLE

EVENT POINT 1202

INDICATED CONDITION:

- "A" EGDG LUBE OIL TEMP AS SENSED BY DL-11-TS IS  $\leq 110^{\circ} \text{ F}$  OR
- "A" EGDG JACKET COOLANT TEMP AS SENSED BY DJ-28-TS  $\leq 115^{\circ} \text{ F}$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- LOCAL TEMP INDICATION FOR LUBE OIL OR JACKET COOLANT TEMPS LOW
- DIESEL GENERATOR ALARM PANEL DROP TARGET FOR LOW LUBE OIL/JACKET COOLANT TEMP.

OPERATOR ACTIONS FOR A VALID ALARM:

- INSURE PROPER OPERATION OF LUBE OIL HEATERS DLHE-3
- INSURE PROPER OPERATION OF JACKET COOLANT HEATER DJHE-1
- REFER TO OP-707

DISCUSSION:

EGDG LUBE OIL TEMP MUST BE MAINTAINED  $> 110^{\circ} \text{ F}$

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS

REFERENCES: DRAWING 208-027 SHEET EG-07

SENSING ELEMENT: DL-11-TS, DJ-28-TS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-02	B-08-02
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DIESEL GEN A  
TROUBLE

EVENT POINT 1205

INDICATED CONDITION:

- "A" EGDG LOCAL ALARM PANEL HAS A DROPPED TARGET

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- INFORMED BY THE PRIMARY PLANT OPERATOR OF EGDG-1A LOCAL ALARM PANEL DROP TARGET.

OPERATOR ACTIONS FOR A VALID ALARM:

- NOTIFY PRIMARY PLANT OPERATOR TO INVESTIGATE CAUSE OF DROP TARGET.
- REFER TO AR-901

DISCUSSION:

THIS ALARM INDICATES A DIESEL GENERATOR LOCAL ANNUNCIATOR DROP TARGET HAS DROPPED. IMMEDIATE INVESTIGATION OF ALARM CAUSE SHOULD BE INITIATED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-17

SENSING ELEMENT: VARIOUS SENSORS ASSOCIATED WITH LOCAL ALARM PANEL

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-03	B-08-03
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DIESEL GEN A  
OUT OF SERVICE

## EVENT POINT 1195

### INDICATED CONDITION:

- "A" EGDG HAS HAD A LOSS OF DC CONTROL POWER

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- EGDG-1A STARTS WITH NO AUTO START SIGNAL
- EGDG-1A CONTROL CIRCUIT INDICATOR LIGHTS ON MAIN CONTROL BOARD OR INSIDE THE DIESEL GENERATOR ROOM ARE OFF

### OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY DPDP-6A SWITCHES 12 AND 14 ARE CLOSED
- CHECK EGDG-1A CONTROL POWER FUSES
- REFER TO OP-707

### DISCUSSION:

A LOSS OF DC CONTROL POWER WILL EFFECT THE DIESEL DIFFERENTLY DEPENDING ON WHICH CIRCUIT LOSES POWER. IF ALL DC POWER IS LOST THE DIESEL WILL START AND YOU WILL ONLY BE ABLE TO SHUT IT DOWN LOCALLY BY TRIPPING THE FUEL RACKS. IF OTHER FUSES ARE BLOWN THE EFFECT WILL VARY FROM LOSS OF GOVERNOR CONTROL TO A LOSS OF PROTECTIVE RELAYING ASSOCIATED WITH THE DIESEL. THE CAUSE OF THIS ALARM SHOULD BE INVESTIGATED IMMEDIATELY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-17, EG-03, EG-09, EG-05, EG-15

SENSING ELEMENT: A,B,C,D,E, LOSS OF POWER RELAYS



ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-03	B-08-03
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DIESEL GEN A  
OUT OF SERVICE

## EVENT POINT 1206

### INDICATED CONDITION:

- "A" EGDG START AIR AS SENSED BY EG-11-PS IS <225 PSIG

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE CAUSE OF LOW AIR PRESSURE
- VERIFY EGDG-1A AIR COMPRESSOR, EGP-1A RUNNING
- CHECK EGDG-1A FOR AIR LEAKS

### DISCUSSION:

A LOSS OF STARTING AIR WILL EVENTUALLY CAUSE THE DIESEL TO START WHEN PRESSURE IS NO LONGER HIGH ENOUGH TO HOLD THE AUTO START VALVES CLOSED. IF EGP-1A IS OUT OF SERVICE THEN CONSIDERATION SHOULD BE GIVEN TO CROSS CONNECTING THE DIESEL START AIR SYSTEMS BY OPENING EGV-25 AND EGV-26.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-17, EG-07

SENSING ELEMENT: EG-11-PS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-03	B-08-03
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DIESEL GEN A  
OUT OF SERVICE

## EVENT POINT 1207

### INDICATED CONDITION:

- o ANY "A" EGDG AUTO/MANUAL CONTROL SWITCH NOT IN THE AUTO POSITION

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NOTIFIED BY PRIMARY PLANT OPERATOR EGDG-1A CONTROL SWITCH NOT IN AUTO

### OPERATOR ACTIONS FOR A VALID ALARM:

- o NOTIFY PRIMARY PLANT OPERATOR TO RETURN CONTROL SWITCH TO AUTO

### DISCUSSION:

THE FOLLOWING SWITCHES NOT IN AUTO WILL GIVE YOU THIS ALARM:

JACKET COOLING PUMP	JACKET COOLANT HEATER	STANDBY LUBE OIL PUMP
DC FUEL OIL PUMP	DC FUEL OIL XFER PUMP	AC FUEL OIL XFER PUMP
AC AIR COMPRESSOR	DIESEL AUTO/MAN (MCB)	

NORMAL/AT ENGINE SWITCH ON DIESEL GAUGE BOARD IN "AT ENGINE"

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-17, EG-07

SENSING ELEMENT: VARIOUS EGDG-1A CONTROL SWITCH CONTACTS

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-04	B-08-04
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[illegible]

CF TANK A  
LEVEL  
HIGH/LOW

EVENT POINT 0109

INDICATED CONDITION:

- o CFT-1A LEVEL AS SENSED BY CF-2-LS1 IS  $>13'4"$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI1 OR CF-2-LI2
- o COMPUTER POINT P200

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

A HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES OR CORE FLOOD ADDITION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-04	B-08-04
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CF TANK A  
LEVEL  
HIGH/LOW

## EVENT POINT 0110

### INDICATED CONDITION:

- o CFT-1A LEVEL AS SENSED BY CF-2-LS2 IS  $\geq 13'4"$

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI1 OR CF-2-LI2
- o COMPUTER POINT P200

### OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- o REFER TO OP-401 FOR THIS CONDITION

### DISCUSSION:

HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES OR CORE FLOOD ADDITION VALVES LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS2

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-04	B-08-04
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CF TANK A  
LEVEL  
HIGH/LOW

EVENT POINT 0111

INDICATED CONDITION:

- o CFT-1A LEVEL AS SENSED BY CF-2-LS1 IS  $\leq 1/3"$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI1 OR CF-2-LI2
- o COMPUTER POINT P200

OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

A LOW CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD ISOLATION VALVES OR CFT SAMPLE ISOLATION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-Q13 SHEET CF-13

SENSING ELEMENT: CF-2-LS1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-04	B-08-04
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[illegible]

CF TANK A  
LEVEL  
HIGH/LOW

EVENT POINT 0112

INDICATED CONDITION:

- o CFT-1A LEVEL AS SENSED BY CF-2-LS2 IS  $\leq 12'3''$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI1 OR CF-2-LI2
- o COMPUTER POINT P200

OPERATOR ACTIONS FOR A VALID ALARM:

- 6 DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL

DISCUSSION:

A LOW CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD ISOLATION VALVES OR CFT SAMPLE ISOLATION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS2



ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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[illegible]

CF TANK A  
PRESS  
HIGH/LOW

EVENT POINT 0105

INDICATED CONDITION:

- 0 CFT-1A PRESSURE AS SENSED BY CF-1-PS1 IS >615 PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES, OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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[illegible]

CF TANK A  
PRESS  
HIGH/LOW

EVENT POINT 0106

INDICATED CONDITION:

- o CFT-1A PRESSURE AS SENSED BY CF-1-PS2 IS  $\geq 615$  PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS2

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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[illegible]

CF TANK A  
PRESS  
HIGH/LOW

EVENT POINT 0105

INDICATED CONDITION:

- o CFT-1A PRESSURE AS SENSED BY CF-1-PS1 IS  $\geq 615$  PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES, OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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[illegible]

CF TANK A  
PRESS  
HIGH/LOW

EVENT POINT 0106

INDICATED CONDITION:

- 0 CFT-1A PRESSURE AS SENSED BY CF-1-PS2 IS >615 PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS2

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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[illegible]

CF TANK A  
PRESS  
HIGH/LOW

EVENT POINT 0107

INDICATED CONDITION:

- o CFT-1A PRESSURE AS SENSED BY CF-1-PS1 IS  $\leq 585$  PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

DECREASING REACTOR BUILDING TEMPERATURES OR DECREASING CORE FLOOD TANK LEVELS MAY CAUSE CORE FLOOD TANK PRESSURE TO DECREASE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS1

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-05	B-08-05
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CF TANK A  
PRESS  
HIGH/LOW

### EVENT POINT 0108

#### INDICATED CONDITION:

- o CFT-1A PRESSURE AS SENSED BY CF-1-PS2 IS  $\leq 585$  PSIG

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI1 OR CF-1-PI2

#### OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

#### DISCUSSION:

DECREASING REACTOR BUILDING TEMPERATURES OR DECREASING CORE FLOOD TANK LEVELS MAY CAUSE CORE FLOOD TANK PRESSURE TO DECREASE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS2



ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-06	B-08-06
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[illegible]

CF TANK A  
DISCH VALVE  
OPEN/CLOSED

EVENT POINT 0101

INDICATED CONDITION:
◦ RCS PRESSURE AS SENSED BY RC-3A-PS3 IS $\leq 690$ PSIG AND CFV-5 IS NOT FULL CLOSED
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
◦ CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-5 POSITION INDICATION
OPERATOR ACTIONS FOR A VALID ALARM:
◦ CLOSE CFV-5 OR STOP RCS PRESSURE DECREASE
DISCUSSION:
CFV-5 MOTOR IS NORMALLY DE-ENERGIZED. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.
REFERENCES: DRAWING 208-013 SHEET CF-13
SENSING ELEMENT: RC-3A-PS3, 33C VALVE CLOSED CONTACT

- 0 RCS PRESSURE AS SENSED BY RC-3A-PS3 IS  $\leq 690$  PSIG AND CFV-5 IS NOT FULL CLOSED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-5 POSITION INDICATION

- o CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-5 POSITION INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

- CLOSE CFV-5 OR STOP RCS PRESSURE DECREASE

- o CLOSE CFV-5 OR STOP RCS PRESSURE DECREASE

DISCUSSION:

CFV-5 MOTOR IS NORMALLY DE-ENERGIZED. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.

CFV-5 MOTOR IS NORMALLY DE-ENERGIZED. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: RC-3A-PS3, 33C VALVE CLOSED CONTACT

ESB ANNUNCIATOR RESPONSE	ESA-KW2-08-06	B-08-06
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[illegible]

CF TANK A  
DISCH VALVE  
OPEN/CLOSED

EVENT POINT 0102

INDICATED CONDITION:

- RCS PRESSURE AS SENSED BY RC-3A-PS3 IS  $\geq 702.5$  PSIG AND CFV-5 IS NOT FULL OPEN.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-5 POSITION INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

- 0 OPEN CFV-5 OR STOP RCS PRESSURE INCREASE

DISCUSSION:

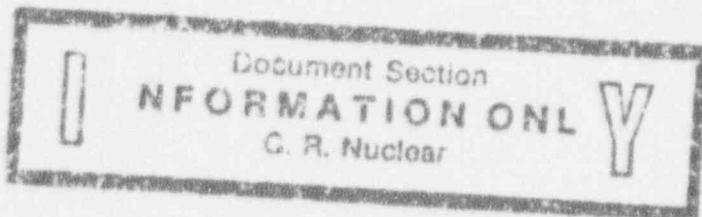
CFV-5 MOTOR IS NORMALLY DEENERGIZED. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: RC-3A-PS3, 33 VALVE OPEN CONTACT

Rev. 20

Effective Date 10/11/94



ANNUNCIATOR RESPONSE

AR-305

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ES E ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

De Jona  
(SIGNATURE ON FILE)

DATE:

10-10-94

INTERPRETATION CONTACT: Supervisor, Nuclear Operations  
Administrative Shift

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## 1.0 PURPOSE

- 1.1 Establish a reference document for each Annunciator Window on the ES (B)-JH2 Lampbox.
- 1.2 Establish operator actions for valid Annunciator alarms on the ES (B)-JH2 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ES(B)-JH2 Lampbox.

## 2.0 REFERENCES

### 2.1 IMPLEMENTING REFERENCES

- 2.1.1 EOP - EMERGENCY OPERATING PROCEDURE
- 2.1.2 OP-703 - Plant Distribution System
- 2.1.3 OP-608 - OTSG's and Main Steam Systems
- 2.1.4 OP-402 - Makeup and Purification Systems
- 2.1.5 OP-417 - Containment Operating Procedure
- 2.1.6 AR-902 - DG 'B' Annunciator Response
- 2.1.7 OP-401 - Core Flood System
- 2.1.8 AP-770 - Emergency Diesel Generator Actuation
- | 2.1.9 OP-302 - RC Pump Operation
- | 2.1.10 OP-707 - Operation of the ES Emergency Diesel Generator

### 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 MAR 94-07-07-01 CFT Level Setpoint

## 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(B)-JH2 Lampbox as indicated on Enclosure 1, Annunciator Response.

#### 5.0 FOLLOW-UP ACTIONS

None



ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-01	E-01-01
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[illegible]

RB SPRAY  
ES B  
ACTUATION

EVENT POINT 0936

INDICATED CONDITION:

- o REACTOR BUILDING PRESSURE IS  $\geq 30$  PSIG AS SENSED BY TWO OUT OF THREE RB PRESSURE SWITCHES

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- ES STATUS LIGHTS FOR RB SPRAY
- BUILDING SPRAY PUMP IS RUNNING IF A RB SPRAY PERMISSIVE IS PRESENT
- RB PRESSURE CONTROL BOARD INDICATOR BS-91-PI, BS-17-PI
- COMPUTER POINT P-254

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO EOP

DISCUSSION:

HPI ACTUATION THROUGH BLOCK 6 WILL GIVE A BUILDING SPRAY PERMIT

REFERENCES: DRAWING 208-028 SHEET ESB-70

SENSING ELEMENT: 63-Z1/RB-4,RB-5,RB-6 ES ACTUATION RELAYS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-02	E-01-02
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RB SPRAY PP B  
TRIP

## EVENT POINT 0046

### INDICATED CONDITION:

- BSP-1B BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LIGHT ON WITH A RED FLAG ON BSP-1B CONTROL STATION
- AMBER ES STATUS LIGHT

### OPERATOR ACTIONS FOR A VALID ALARM:

- HAVE BREAKER CUBICLE CHECKED FOR DROPPED RELAY TARGETS

### DISCUSSION:

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS

REFERENCES: DRAWING 208-009 SHEET BS-02

SENSING ELEMENT: CS/SC, CS/O (CONTROL SWITCH CONTACTS) 52S, 52H

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-03	E-01-03
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RE SPRAY PP B  
MOTOR  
OVERLOAD

EVENT POINT 0060

INDICATED CONDITION:

- MOTOR AMPS  $\geq 115\%$  RATED LOAD

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- HIGH BUILDING SPRAY FLOW AS SEEN ON BS-01-FI2
- HIGH MOTOR AMPS
- BSP-1B TRIP

OPERATOR ACTIONS FOR A VALID ALARM:

- THROTTLE BSV-4 TO REDUCE LOAD ON BSP-1B
- HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
- IF LOAD REMAINS HIGH CONSIDER TRIPPING BSP-1B

DISCUSSION:

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

REFERENCES: DRAWING 208-009 SHEET BS-02

SENSING ELEMENT: 51-IOC(INSTANTANEOUS) 51-TOC(TIMED) BREAKER CONTACTS

E-01-04

RB SPRAY PP B  
OUT OF SERVICE

EVENT POINT 0045

INDICATED CONDITION:

- 0 BSP-1B 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:

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS

REFERENCES: DRAWING 208-009 SHEET BS-02

SENSING ELEMENT: 52-H BREAKER CONTACT

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-04	E-01-04
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RB SPRAY PP B  
OUT OF SERVICE

## EVENT POINT 0062

### INDICATED CONDITION:

- BSP-1B BREAKER HAS NO DC CONTROL POWER

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

### OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY CLOSED DPDP-5B SWITCH 10
- VERIFY DC KNIFE SWITCH FOR BSP-1B 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 208-009 SHEET BS-02

SENSING ELEMENT: 27C BREAKER RELAY

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-05	E-01-05
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RB SPRAY B  
FLOW  
HIGH/LOW

EVENT POINT 0048

INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\leq 1400$  GPM AS MEASURED BY BS-1-FS2 FOR 30 SEC. COINCIDENT WITH AN ES ACTUATION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-F12 OR INDICATOR ON BSV-4 CONTROLLER

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-4, OPEN BSV-4 AS REQUIRED
- o VERIFY BSP-1B NOT TRIPPED

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-4 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-1-FS2



ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-05	E-01-05
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RB SPRAY B  
FLOW  
HIGH/LOW

## EVENT POINT 0050

### INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\geq 1700$  GPM AS MEASURED BY BS-1-FS2.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-FI2 OR INDICATOR ON BSV-4 CONTROLLER

### OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-4, THROTTLE BSV-4 AS REQUIRED TO REDUCE FLOW

### DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW DURING AN ES ACTUATION IS 1550 GPM. TAKING LOCAL/AUTO CONTROL OF BSV-4 WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-1-FS2

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-05	E-01-05
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RB SPRAY B  
FLOW  
HIGH/LOW

EVENT POINT 0064

INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\leq 1100$  GPM AS MEASURED BY BS-82-FIS WITH DHV-43 OPEN

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-FI2 OR INDICATOR ON BSV-4 CONTROLLER

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-4, OPEN BSV-4 AS REQUIRED
- o VERIFY BSV-1B NOT TRIPPED

DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW WHILE TAKING A SUCTION FROM THE RB SUMP IS 1200 GPM, THIS IS TO INSURE ADEQUATE NET POSITIVE SUCTION HEAD FOR THE BUILDING SPRAY PUMP. OPERATION IN THIS MODE IS TAKING LOCAL/AUTO CONTROL OF BSV-4, THIS WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK, THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-82-FIS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-01-05	E-01-05
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RB SPRAY 3  
FLOW  
HIGH/LOW

### EVENT POINT 0066

#### INDICATED CONDITION:

- o BUILDING SPRAY FLOW IS  $\geq 1300$  GPM AS MEASURED BY BS-82-FIS WITH DHV-43 OPEN

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RB SPRAY FLOW INDICATOR BS-1-FI2 OR INDICATOR ON BSV-4 CONTROLLER

#### OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER OPERATION OF BSV-4, THROTTLE BSV-4 AS REQUIRED TO REDUCE FLOW

#### DISCUSSION:

THE NORMAL BUILDING SPRAY PUMP FLOW WHILE TAKING A SUCTION FROM THE RB SUMP IS 1200 GPM, THIS IS TO INSURE ADEQUATE NET POSITIVE SUCTION HEAD FOR THE BUILDING SPRAY PUMP. OPERATION IN THIS MODE IS TAKING LOCAL/AUTO CONTROL OF BSV-4, THIS WILL ALLOW THE OPERATOR TO USE THE THUMBWHEEL ON THE VALVE CONTROLLER TO SET THE FLOW RATE. IF THIS DOES NOT WORK, THEN MANUAL CONTROL OF THE VALVE SHOULD BE ATTEMPTED FROM THE CONTROL BOARD STATION.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-82-FIS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-01	E-02-01
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RB FAN B  
HIGH SPEED  
TRIP

## EVENT POINT 0352

### INDICATED CONDITION:

- AHF-1B CONTROL HANDLE PUSHED IN, IN NORMAL AFTER START, AND HIGH SPEED WINDINGS NOT ENERGIZED.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN HIGH SPEED LIGHT WITH A RED FLAG ON CONTROL STATION, AND CONTROL HANDLE PUSHED IN.

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE CAUSE OF FAN TRIP
- ENSURE TWO OPERABLE FANS ARE ES SELECTED PER OP-417
- MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

THIS ALARM WILL OCCUR IF THE FAN IS RUNNING IN HIGH SPEED AND AN ES ACTUATION OCCURS. THIS WILL TRIP THE FAN IN HIGH SPEED AND START THE FAN IN SLOW SPEED.

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS. ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE 1B 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-29

SENSING ELEMENT: CS/IN, CS/SC, CS/O, 42/1F RELAY

ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-02	E-02-02
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RB FAN B  
LOW SPEED  
TRIP

## EVENT POINT 0353

### INDICATED CONDITION:

- AHF-1B CONTROL HANDLE PULLED OUT, IN NORMAL AFTER START, AND SLOW SPEED WINDINGS NOT ENERGIZED.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LOW SPEED LIGHT WITH A RED FLAG ON CONTROL STATION, AND THE CONTROL HANDLE PULLED OUT.

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE CAUSE OF FAN TRIP.
- ENSURE TWO OPERABLE FANS ARE ES SELECTED PER OP-417
- MONITOR RB TEMPERATURE AND PRESSURE

### DISCUSSION:

SOME THINGS TO CHECK AFTER A FAN TRIP ARE: FAN AND MOTOR TEMPS AS READ ON AH-1003-TIR ON THE BACK OF THE CONTROL BOARD OR FAN VIBRATION ALARMS. ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-29

SENSING ELEMENT: CS/OUT, CS/SC, CS/O, CONTROL SWITCH CONTACTS 42/1S

ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-03	E-02-03
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RB FAN B  
AIR FLOW  
LOW

### EVENT POINT 0354

#### INDICATED CONDITION:

- AHF-1B CONTROL HANDLE PUSHED IN AND IN NORMAL AFTER START AND LOW AIR FLOW IS SENSED BY AH-19-DPS.

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- REACTOR BUILDING TEMPS ARE INCREASING AS SEEN ON AH-536-TIR

#### OPERATOR ACTIONS FOR A VALID ALARM:

- IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN
- ENSURE TWO OPERABLE FANS ARE ES SELECTED PER OP-417
- MONITOR RB TEMPERATURE AND PRESSURE

#### DISCUSSION:

THIS ALARM MAY BE PRESENT WHEN AN ES ACTUATION HAS STARTED A PREVIOUSLY RUNNING FAN IN SLOW SPEED. PLACING THE CONTROL HANDLE IN THE PULL OUT NORMAL AFTER START POSITION SHOULD CLEAR THE ALARM. ALSO IF THE FAN TRIPS THIS ALARM SHOULD ACTUATE.

REFERENCES: DRAWING 208-005 SHEET AH-29

SENSING ELEMENT: AH-19-DPS



ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-04	E-02-04
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RB FAN B  
VIBRATION  
HIGH

EVENT POINT 0355

INDICATED CONDITION:

- AHF-1B HIGH VIBRATION CONDITION AS SENSED BY AH-20-ME1/2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- FAN AND MOTOR TEMPS INCREASING ON AH-1003-TIR ON BACK OF CONTROL BOARD
- IF FAN IS RUNNING IN SLOW SPEED THEN CURRENT ON THE FAN MAY BE OSCILLATING.

OPERATOR ACTIONS FOR A VALID ALARM:

- ATTEMPT TO RESET ALARM BY DEPRESSING RESET PUSHBUTTON ON CONTROL BOARD.
- IF CONDITION CANNOT BE CORRECTED THEN CONSIDERATION SHOULD BE MADE TO SECURE THE FAN.
- ENSURE TWO OPERABLE FANS ARE ES SELECTED PER OP-417

DISCUSSION:

ENGINEERING CAN MONITOR FAN VIBRATION AT AN EXTERNAL PANEL IN THE IB 119' ELEVATION.

REFERENCES: DRAWING 208-005 SHEET AH-137

SENSING ELEMENT: AH-20-ME1, AH-20-ME2

ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-05	E-02-05
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RB FAN B  
CONDENSATE  
HIGH

### EVENT POINT 1698

#### INDICATED CONDITION:

- AHF-1B CONDENSATE FLOW IS  $\geq 1133$  CC PER MINUTE AS SENSED BY AH-657-FIS.

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- REACTOR BUILDING SUMP RATE OF RISE IS INCREASING AS SEEN ON BS-93-PIR.

#### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE SOURCE OF CONDENSATE.

#### DISCUSSION:

SOME SOURCES OF HIGH CONDENSATION ARE:

RCS LEAK IN CONTAINMENT - CHECK PZR LEVEL AND MAKE UP TANK LEVEL TRENDS;

FEEDWATER/MAIN STEAM LEAK IN CONTAINMENT - CHECK FEEDWATER FLOWRATES;

RB FAN COOLER SW LEAKS - CHECK SW SURGE TANK LEVEL IF ON SW, OR CI SURGE TANK LEVELS IF ON CI.

REFERENCES: DRAWING 208-005 SHEET AH-131

SENSING ELEMENT: AH-657-FIS

ESB ANNUNCIATOR RESPONSE	ESB-JH2-02-05	E-02-05
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THIS AR IS ONLY USED WHEN COLD LEG NOZZLE DAMS ARE INSTALLED PER MP-110C

[illegible]

# RCSG-1B NOZZLE DAM PROBLEM

EVENT POINT 1698

INDICATED CONDITION:

- 0 "B" SIDE NOZZLE DAM CONTROL CONSOLE IS IN ALARM

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NOZZLE DAM PRESSURE  $\geq 9$  PSIG ON EITHER SEAL
- o NOZZLE DAM PRESSURE  $\leq 6.5$  PSIG ON EITHER SEAL
- o NOZZLE DAM AIR FLOW  $\geq 9$  SCFH
- o LOSS OF POWER TO THE CONTROL PANEL

OPERATOR ACTIONS FOR A VALID ALARM:

- o IMMEDIATELY INVESTIGATE SOURCE OF ALARM
- o REFER TO EOP-11

DISCUSSION:

THIS ALARM INDICATES POSSIBLE NOZZLE DAM SEAL DEGRADATION. IF THE SEAL FAILS, A REACTOR COOLANT LEAK WOULD DEVELOP, FLOODING THE PRIMARY SIDE OF THE STEAM GENERATORS WHERE PERSONNEL MAY BE AT WORK.

THIS EVENT POINT IS ONLY IN USE ON A TEMPORARY BASIS WHEN NOZZLE DAMS ARE INSTALLED. THE WINDOW "RB FAN B CONDENSATE HIGH" IS REMOVED FROM THE ANNUNCIATOR PANEL WHEN THIS EVENT POINT IS IN EFFECT.

REFERENCES: MP-110C

SENSING ELEMENT: INTERNAL ALARM CIRCUITS INSIDE NOZZLE DAM CONTROL CONSOLE

ESE ANNUNCIATOR RESPONSE	ESB-JH2-02-06	E-02-06
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[illegible]

ES B  
ACTUATION  
TROUBLE

EVENT POINT 1231

INDICATED CONDITION:

- o "B" ES ACTUATION SIGNAL ON ONE OR MORE ES CHANNELS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- ES STATUS LIGHTS
- ES BISTABLE TRIP INDICATORS

OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO EOP

DISCUSSION:

THIS ALARM INDICATES THAT AT LEAST ONE OF THREE CHANNELS OF "B" ES HAS ACTUATED. ANY HPI OR LPI BISTABLE TRIPPED WITH ES NOT BYPASSED, OR ANY 4 PSIG ES PRESSURE SWITCH ACTUATED WILL GIVE THIS ALARM. PLACING THE RC PRESSURE TEST MODULE IN "TEST" DEFEATS THIS ALARM FROM LPI OR HPI. WHEN THE 4 PSIG TEST SWITCHES ARE IN THE "TEST" POSITION THIS ALARM IS DEFEATED FROM A 4 PSIG ACTUATION.

REFERENCES: DRAWING 208-028 SHEET ES-AB-05

SENSING ELEMENT: VARIOUS ES ACTUATION CONTACTS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-03-01	E-03-01
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REACTOR BLDG  
PRESS  
HIGH (2 PSIG)

EVENT POINT 0067

INDICATED CONDITION:

- REACTOR BUILDING PRESSURE IS  $\geq 2$  PSIG AS SENSED BY BS-93-PS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD RB PRESSURE INDICATORS, BS-17-PI, BS-93-PIR
- RB TEMP INDICATION AH-536-TIR
- COMPUTER POINT P254

OPERATOR ACTIONS FOR A VALID ALARM:

- PROMPTLY TAKE ACTION TO REDUCE REACTOR BUILDING PRESSURE AND PREVENT A 4 PSIG ES ACTUATION. CONSIDER ONE OR MORE OF THE FOLLOWING ACTIONS:
- START SWP-1A AND/OR SWP-1B AND PLACE RB FANS ON SW COOLING
  - START ADDITIONAL RB FANS IN SLOW SPEED AS REQUIRED

DISCUSSION:

POSSIBLE SOURCES OF HIGH RB PRESSURE ARE:

- LOSS OF RB FAN AND/OR COOLING WATER
- STEAM AND/OR FEEDWATER LEAK INSIDE CONTAINMENT
- RCS LEAK INSIDE CONTAINMENT
- COMPRESSED AIR SYSTEM LEAKS INSIDE CONTAINMENT
- INCREASED RB TEMP DUE TO RCS HEATUP, OR HIGH OUTDOOR TEMPS
- HIGH RB FLOOD LEVEL

IT IS RECOMMENDED TO RUN FANS IN SLOW SPEED SO AS TO PRECLUDE MOTOR OVERLOAD IN A DENSE STEAM ATMOSPHERE AND RENDERING THEM UNAVAILABLE. RUNNING SWP-1A AND SWP-1B SIMULTANEOUSLY FOR INCREASED SW FLOW TO FANS IS ACCEPTABLE AND WILL YIELD THE BEST RB COOLING PERFORMANCE.

REFERENCES: DRAWING 208-009 SHEET BS-11

SENSING ELEMENT: BS-93-PS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-03-02	E-03-02
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REACTOR BLDG  
TEMP  
HIGH

EVENT POINT 1700

INDICATED CONDITION:

- REACTOR BUILDING TEMPERATURE IS  $\geq 122^{\circ}$  F AS SENSED BY AH-536-TY4

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RB TEMP INDICATION AH-536-TIR
- THE AVERAGE OF COMPUTER POINTS: S358, S359, S382, S383
- COMPUTER POINT S837

OPERATOR ACTIONS FOR A VALID ALARM:

TO REDUCE THE REACTOR BUILDING TEMPERATURE CONSIDER ONE OF THE FOLLOWING ACTIONS:

- START SWP-1A AND/OR SWP-1B AND PLACE RB FANS ON SW COOLING
- START ADDITIONAL RB FANS - OBSERVE THE FOLLOWING LIMITATIONS:  
RUN TWO FANS IN FAST SPEED AND ONE IN SLOW SPEED  
IF REQUIRED, THEN RUN THREE FANS IN FAST SPEED

DISCUSSION:

POSSIBLE SOURCES OF HIGH RB TEMPERATURE ARE:

- LOSS OF RB FAN AND/OR COOLING WATER
- STEAM AND/OR FEEDWATER LEAK INSIDE CONTAINMENT
- RCS LEAK INSIDE CONTAINMENT
- RCS HEATUP OR HIGH OUTDOOR TEMPS

IT IS RECOMMENDED TO RUN FANS IN SLOW SPEED SO AS TO PRECLUDE MOTOR OVERLOAD IN A DENSE STEAM ATMOSPHERE AND RENDERING THEM UNAVAILABLE.

RUNNING SWP-1A AND SWP-1B SIMULTANEOUSLY FOR INCREASED SW FLOW TO FANS IS ACCEPTABLE AND WILL YIELD THE BEST RB COOLING PERFORMANCE.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-005 SHEET AH-131

SENSING ELEMENT: AH-536-TY4



ESE ANNUNCIATOR RESPONSE	ESB-JH2-04-01	E-04-01
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[illegible]

MAKEUP PP C  
TRIP

EVENT POINT 1047

INDICATED CONDITION:

- o MUP-1C BREAKER IS OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT ON WITH A RED FLAG ON MUP-1C CONTROL STATION
- o AMBER ES STATUS LIGHT

OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO OP-302 FOR RESTORATION OF RCP SERVICES PRIOR TO STARTING ANOTHER MUP
- CONSIDER MINIMIZING LETDOWN FLOW
- INVESTIGATE MUP-1C BREAKER FOR DROPPED RELAY TARGETS
- START ANOTHER MAKE-UP PUMP PER OP-402 IF CAUSE OF THIS TRIP WILL NOT TRIP ANOTHER PUMP

DISCUSSION:

EXERCISE CARE WHEN STARTING ALTERNATE MU PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOWPATH, WHICH MAY HAVE DIRECTLY OR INDIRECTLY CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-04

SENSING ELEMENT: CS/SC, CS/O, 52H/A, 52S/B

ESE ANNUNCIATOR RESPONSE	ESA-JH2-04-02	E-04-02
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MAKEUP PP C  
GEAR OIL PRESS  
LOW

EVENT POINT 1059

INDICATED CONDITION:

- MUP-1C BREAKER CLOSED  $\geq 20$  SECONDS WITH GEAR OIL PRESS  $\leq 7$  PSIG AS SENSED BY MU-90-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- BACK UP GEAR OIL PUMP AUTO STARTS
- COMPUTER POINT X069

OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY MUP-5C DC BACK UP GEAR OIL PUMP STARTED
- MONITOR MUP-1C VIA COMPUTER GROUP 72

DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE UP PUMPS PER OP-402

REFERENCES: DRAWING 208-041 SHEET MU-51

SENSING ELEMENT: 2MUP-5C, MU-90-PS, 52S/A

ESE ANNUNCIATOR RESPONSE	ESB-JH2-04-03	E-04-03
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MAKEUP PP C  
MOTOR  
OVERLOAD

## EVENT POINT 1045

### INDICATED CONDITION:

- MUP-1C MOTOR AMPS  $\geq 115\%$  RATED LOAD

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- HIGH MOTOR AMPS
- MUP-1C TRIP
- HIGH FLOWRATES THROUGH MUP-1C

### OPERATOR ACTIONS FOR A VALID ALARM:

- THROTTLE MAKEUP FLOW TO MAINTAIN  $< 540$  GPM FLOW
- HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS

### DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR 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 208-041 SHEET MU-49

SENSING ELEMENT: 51 RELAY INSIDE BREAKER CUBICLE

ESE ANNUNCIATOR RESPONSE	ESB-JH2-04-04	E-04-04
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MAKEUP PP C  
LUBE OIL PUMP  
TRIP

### EVENT POINT 1050

#### INDICATED CONDITION:

- MUP-2C CONTROL HANDLE IN NORMAL AFTER START POSITION WITH THE MOTOR NOT ENERGIZED.

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- LOW LUBE OIL PRESSURE ALARM
- MUP-3C, BACK-UP LUBE OIL PUMP, AUTO START

#### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3C, BACK-UP LUBE OIL PUMP, STARTED

#### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 72. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-07

SENSING ELEMENT: CS/SC, CS/O, 42B

ESE ANNUNCIATOR RESPONSE	ESB-JH2-04-04	E-04-04
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MAKEUP PP C  
LUBE OIL PUMP  
TRIP

### EVENT POINT 1056

#### INDICATED CONDITION:

- MUP-3C CONTROL HANDLE IN THE NORMAL AFTER START POSITION WITH THE MOTOR NOT ENERGIZED.

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- GREEN LIGHT WITH A RED FLAG ON CONTROL STATION
- MAKEUP PUMP OIL PRESSURE LOW ALARM
- COMPUTER POINT X069

#### OPERATOR ACTIONS FOR A VALID ALARM:

- MONITOR MUP-1C BEARING TEMPS

#### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKEUP PUMP VIA COMPUTER GROUP 72. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKEUP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-32

SENSING ELEMENT: CS/SC, CS/O, CR1

ESE ANNUNCIATOR RESPONSE	ESB-JH2-04-06	E-04-06
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[illegible]

AUX STEAM ISO  
(ASV-196)  
BYPASSED

EVENT POINT 1961

INDICATED CONDITION:

- 0 CONTROL SWITCH FOR ASV-196 AUX STEAM SOLENOID VALVE IS IN THE OPEN/BYPASS POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- 0 ASV-196 SELECTOR SWITCH POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-608

DISCUSSION:

THIS ALARM INDICATES THAT THE AUTOMATIC CLOSURE OF ASV-196 ON HIGH TEMPERATURE OR LOW AUX STEAM PRESSURE IS DISABLED. THIS IS A HIGH ENERGY LINE BREAK CONCERN.

REFERENCES: DRAWING 208-008 SHEET AS-05

SENSING ELEMENT: CS/NC



ESE ANNUNCIATOR RESPONSE	ESB-JH2-05-02	E-05-02
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MAKEUP PP C  
LUBE OIL PRESS  
LOW

## EVENT POINT 1043

### INDICATED CONDITION:

- LUBE OIL PRESS AS SENSED BY MU-48-PS3 IS  $\leq 3$  PSIG.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- MUP-3C, BACK UP LUBE OIL PUMP, AUTO STARTS

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3C HAS STARTED

### DISCUSSION:

THIS ALARM INDICATES INADEQUATE LUBRICATION FOR MUP-1C. IF THE PUMP IS RUNNING, IT SHOULD BE SECURED AND AN ALTERNATE MAKEUP PUMP PLACED IN SERVICE. REFER TO OP-402 FOR DIRECTIONS ON STARTING MAKEUP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-01

SENSING ELEMENT: 43/3C, MU-42-PS3,

ESE ANNUNCIATOR RESPONSE	ESB-JH2-05-03	E-05-03
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MAKEUP PP C  
LUBE OIL PUMP  
AUTO START

## EVENT POINT 1055

### INDICATED CONDITION:

- MUP-3C CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION AND MOTOR IS ENERGIZED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- RED LIGHT ON WITH A GREEN FLAG ON MUP-3C CONTROL STATION
- COMPUTER POINT X069

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3C IS RUNNING

### DISCUSSION:

THIS ALARM IS AN INDICATION OF INADEQUATE LUBRICATION TO THE MAKE-UP PUMP. MONITOR THE MAKE-UP PUMP VIA COMPUTER GROUP 72. CONSIDERATION SHOULD BE GIVEN TO SWAPPING MAKE-UP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-32

SENSING ELEMENT: CS/ST, CS/ST, CS/O, CR1

ESE ANNUNCIATOR RESPONSE	ESB-JH2-05-04	E-05-04
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MAKEUP PP C  
OUT OF SERVICE

### EVENT POINT 1044

#### INDICATED CONDITION:

- MUP-1C BREAKER HAS NO DC CONTROL POWER

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

#### OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY CLOSED DPDP-5B SWITCH 10
- VERIFY DC KNIFE SWITCH FOR MUP-1C BREAKER 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 208-041 SHEET MU-04

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR MUP-1C

ESE ANNUNCIATOR RESPONSE	ESB-JH2-05-04	E-05-04
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MAKEUP PP C  
OUT OF SERVICE

## EVENT POINT 1046

### INDICATED CONDITION:

- MUP-1C BREAKER IS RACKED OUT AND MUP-1C IS SELECTED FOR ES START

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

### DISCUSSION:

TWO PUMPS SHOULD BE SELECTED FOR ES START.  
REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-01

SENSING ELEMENT: 43/3C CUBICLE 3B5, 52H/b CUBICLE 3B5 FOR MUP-1C

ESE ANNUNCIATOR RESPONSE	ESB-JH2-05-06	E-05-06
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[illegible]

AUX STEAM ISO  
(ASV-198)  
AUTO CLOSED

EVENT POINT 1817

INDICATED CONDITION:

- CONTROL SWITCH FOR ASV-196 AUX STEAM SOLENOID VALVE IS IN THE AUTO POSITION AND THE VALVE IS CLOSED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ASV-196 SELECTOR SWITCH IN AUTO
- o GREEN INDICATOR LIGHT ON SELECTOR SWITCH

OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO OP-608

DISCUSSION:

THIS ALARM INDICATES THAT THE AUTOMATIC CLOSURE OF ASV-196 ON EITHER LOW AUX STEAM PRESSURE OR HIGH AUX STEAM PRESSURE HAS OCCURRED. A LOW PRESSURE ACTUATION OCCURS AT <100 PSIG AND A HIGH PRESSURE ISOLATION OCCURS AT >250 PSIG AUX STEAM HEADER PRESSURE IN THE AUX BUILDING.

REFERENCES: DRAWING 208-008 SHEET AS-05

SENSING ELEMENT: 3ASV-196-SV1, 33C/ASV-196-SV, AS-36-PS1, AS-36-PS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-06-01	E-06-01
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[illegible]

MAKEUP PP B  
TRIP

EVENT POINT 1101

INDICATED CONDITION:

- o MUP-1B BREAKER OPEN WITH CONTROL HANDLE IN NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GREEN LIGHT ON WITH A RED FLAG ON MUP-1B CONTROL STATION.
- o AMBER ES STATUS LIGHT.

OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO OP-302 FOR RESTORATION OF RCP SERVICES PRIOR TO STARTING ANOTHER MUP
- CONSIDER MINIMIZING LETDOWN FLOW
- INVESTIGATE MUP-1B BREAKER FOR DROPPED TARGETS
- START ANOTHER MAKE-UP PUMP PER OP-402 IF CAUSE OF THIS TRIP WILL NOT TRIP ANOTHER PUMP

### DISCUSSION:

EXERCISE CARE WHEN STARTING ALTERNATE MU PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOWPATH, WHICH MAY HAVE DIRECTLY OR INDIRECTLY CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-13

SENSING ELEMENT: CS/SC, CS/O, 52H/A, 52S/B



ESE ANNUNCIATOR RESPONSE	ESB-JH2-06-02	E-06-02
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MAKEUP PP B  
LUBE OIL PRESS  
LOW

### EVENT POINT 1097

#### INDICATED CONDITION:

- LUBE OIL PRESSURE AS SENSED BY MU-45-PS3 IS  $\leq 3$  PSIG.

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- MUP-3B BACK UP LUBE OIL PUMP AUTO STARTS

#### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE MUP-3B HAS STARTED

#### DISCUSSION:

THIS ALARM INDICATES INADEQUATE LUBRICATION FOR MUP-1B. IF THE PUMP IS RUNNING, IT SHOULD BE SECURED AND AN ALTERNATE MAKEUP PUMP PLACED IN SERVICE. REFER TO OP-402 FOR DIRECTIONS ON STARTING MAKEUP PUMPS.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: 43CS/3B7-3B, MU-45-PS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-06-03	E-06-03
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MAKEUP PP B  
MOTOR  
OVERLOAD

## EVENT POINT 1099

### INDICATED CONDITION:

- MUP-1B MOTOR AMPS  $\geq 115\%$  RATED LOAD.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- HIGH MOTOR AMPS
- MUP-1B TRIP
- HIGH FLOWRATES THROUGH MUP-1B

### OPERATOR ACTIONS FOR A VALID ALARM:

- THROTTLE MAKEUP FLOW TO MAINTAIN  $< 540$  GPM FLOW
- HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS

### DISCUSSION:

THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR 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 208-041 SHEET MU-13

SENSING ELEMENT: 51 RELAY INSIDE BREAKER CUBICLE

ESE ANNUNCIATOR RESPONSE	ESB-JH2-06-04	E-06-04
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[illegible]

MAKEUP PP B  
OUT OF SERVICE

EVENT POINT 1098

INDICATED CONDITION:

- o MUP-1B BREAKER HAS NO DC CONTROL POWER

## REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY CLOSED DPDP-5B SWITCH 10
- VERIFY DC KNIFE SWITCH FOR MUP-1B BREAKER CLOSED

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-02

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR MUP-1B

ESE ANNUNCIATOR RESPONSE	ESB-JH2-06-04	E-06-04
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[illegible]

MAKEUP PP B  
OUT OF SERVICE

EVENT POINT 1100

INDICATED CONDITION:

- o MUP-1B BREAKER IS RACKED OUT AND MUP-1B IS SELECTED FOR ES START.

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 THE BREAKER BEING RACKED OUT

DISCUSSION:

TWO PUMPS SHOULD BE SELECTED FOR ES START.  
REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-041 SHEET MU-13

SENSING ELEMENT: 43/3B ON CUBICLE 3B5, 52H/B IN CUBICLE 3B4

ESE ANNUNCIATOR RESPONSE	ESB-JH2-07-06	E-07-06
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H2 SAMPLING  
PANEL B  
TROUBLE

EVENT POINT 0256

INDICATED CONDITION:

- PASS RB H2 ANALYZER "B" MALFUNCTION
- HIGH RB H2 CONCENTRATION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- LOSS OF POWER TO PANEL
- OVERPRESSURE TO PANEL AT  $\geq 4$  PSIG
- LOW FLOW TO PANEL AT  $\leq 1$  SCFH
- THERMO ELECTRIC COOLER  $\leq 0.1$  AMPS
- RB H<sub>2</sub> CONCENTRATION  $> 3\%$

OPERATOR ACTIONS FOR A VALID ALARM:

- NOTIFY SSOD AND EC OF HYDROGEN CONCENTRATION
- VERIFY PROPER VALVE LINEUP PER OP-417
- NOTIFY I&C SUPERVISION OF H2 ANALYZER MALFUNCTION

### DISCUSSION:

THIS ALARM INDICATES EITHER THE POST ACCIDENT H2 CONCENTRATION INSIDE THE RB IS HIGH, OR THE PASS H2 ANALYZER IS MALFUNCTIONING.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-062 SHEET WS-06

SENSING ELEMENT: VARIOUS FLOW/PRESSURE/CURRENT SWITCHES INSIDE THE SAMPLER

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-01	E-08-01
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**DIESEL GEN B  
FAILED  
TO START**

## EVENT POINT 1208

### INDICATED CONDITION:

- "B" EGDG HAS A START COMMAND AND LUBE OIL PRESSURE AS SENSED BY DL-10-PS IS  $\leq 6$  PSIG AFTER 7 SECONDS OR
- "B" EGDG HAS A START COMMAND AND ENGINE SPEED AS SENSED BY EG-20-SS IS  $\leq 250$  RPM AFTER 7 SECONDS

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- EGDG-1B TRIPS
- CONTROL BOARD "CRANK" LIGHT GOES OUT AND WHITE "READY" LIGHT DOES NOT COME ON
- EGDG-1B STARTING AIR PRESSURE LOW ALARM ANNUNCIATES

### OPERATOR ACTIONS FOR A VALID ALARM:

- INSPECT EGDG-1B FOR CAUSE OF FAILURE TO START
- RESET PUSHBUTTON MUST BE DEPRESSED ON EGDG GAUGE BOARD PRIOR TO EGDG RESTART.

### DISCUSSION:

THIS ALARM INDICATES THE DIESEL TRIED TO START AND DID NOT. SOME POSSIBLE CAUSES OF THIS ARE: PROBLEMS WITH DIESEL FUEL SYSTEM, LUBE OIL SYSTEM PROBLEMS OR DIESEL SPEED SENSOR PROBLEMS. THIS ALARM IS STILL ACTIVE WITH AN ES SIGNAL PRESENT BUT WILL NOT DE-ENERGIZE THE STARTING AIR SOLENOIDS, SO THE DIESEL WILL CRANK UNTIL IT EITHER STARTS OR RUNS OUT OF AIR.

REFERENCES: DRAWING 208-027 SHEET EG-16, EG-02, EG-04, EG-06

SENSING ELEMENT: DL-10-PS, DL-20-SS, START FAIL <sup>DELAY</sup>



ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-01	E-08-01
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**DIESEL GEN B  
FAILED  
TO START**

## EVENT POINT 1215

### INDICATED CONDITION:

- o "B" EGDG HAS TRIPPED IT'S PHASE DIFFERENTIAL CURRENT RELAY
- o "B" EGDG TRIPS AND BREAKER 3210 OPENS
- o "B" EGDG 86 LOCKOUT RELAY HAS ACTUATED

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o "B" ES 4160V BUS DE-ENERGIZES
- o CONTROL BOARD "RUN" LIGHT GOES OUT

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-770
- o INSPECT EGDG-1B FOR CAUSE OF DIFFERENTIAL CURRENT CONDITION
- o LOCKOUT RELAY MUST BE MANUALLY RESET ONCE PROBLEM IS RESOLVED.

### DISCUSSION:

THIS ALARM INDICATES THE DIESEL GENERATOR HAS EITHER, A PHASE TO PHASE SHORT OR A PHASE TO GROUND SHORT. THIS CONDITION WILL TRIP THE DIESEL AND PREVENT IT FROM STARTING. THE CAUSE OF THIS PROBLEM MUST BE RESOLVED PRIOR TO ANY ATTEMPT BEING MADE TO RESTART AND RELOAD THE DIESEL GENERATOR.

REFERENCES: DRAWING 208-027 SHEET EG-16

SENSING ELEMENT: 86-DG-3B, 87A, 87B, 87C DIFFERENTIAL CURRENT RELAYS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-02	E-08-02
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DIESEL GEN B  
TROUBLE

## EVENT POINT 1203

### INDICATED CONDITION:

- "B" EGDG LUBE OIL TEMP AS SENSED BY DL-12-TS IS  $\leq 110^{\circ}\text{F}$  OR
- "B" EGDG JACKET COOLANT TEMP AS SENSED BY DJ-29-TS  $\leq 115^{\circ}\text{F}$

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- LOCAL TEMP INDICATION FOR LUBE OIL OR JACKET COOLANT TEMPS LOW
- DIESEL GENERATOR ALARM PANEL DROP TARGET FOR LOW LUBE OIL/JACKET COOLANT TEMP.

### OPERATOR ACTIONS FOR A VALID ALARM:

- ENSURE PROPER OPERATION OF LUBE OIL HEATERS DLHE-4
- ENSURE PROPER OPERATION OF JACKET COOLANT HEATER DJHE-2
- REFER TO OP-707

### DISCUSSION:

EGDG LUBE OIL TEMP MUST BE MAINTAINED  $>110^{\circ}\text{F}$  FOR OPERABILITY REQUIREMENTS.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-08

SENSING ELEMENT: DL-12-TS DJ-29-TS

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-02	E-08-02
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DIESEL GEN B  
TROUBLE

## EVENT POINT 1209

### INDICATED CONDITION:

- "B" EGDG LOCAL ALARM PANEL HAS A DROPPED TARGET

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- INFORMED BY THE AUX BUILDING OPERATOR OF EGDG-1B LOCAL ALARM PANEL DROP TARGET.

### OPERATOR ACTIONS FOR A VALID ALARM:

- REFER TO AR-902

### DISCUSSION:

THIS ALARM INDICATES A DIESEL GENERATOR LOCAL ANNUNCIATOR DROP TARGET HAS DROPPED. IMMEDIATE INVESTIGATION OF ALARM CAUSE SHOULD BE INITIATED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-18

SENSING ELEMENT: VARIOUS SENSORS ASSOCIATED WITH LOCAL ALARM PANEL

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-03	E-08-03
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**DIESEL GEN B  
OUT OF SERVICE**

### EVENT POINT 1197

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o "B" EGDG HAS HAD A LOSS OF DC CONTROL POWER</li> </ul>
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o EGDG-1B STARTS WITH NO AUTO START SIGNAL</li> <li>o EGDG-1B CONTROL CIRCUIT INDICATOR LIGHTS ON MAIN CONTROL BOARD OR INSIDE THE DIESEL GENERATOR ROOM ARE OFF</li> </ul>
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o VERIFY DPDP-6B SWITCHES 12 AND 14 ARE CLOSED</li> <li>o CHECK EGDG-1B CONTROL POWER FUSES</li> <li>o REFER TO OP-707</li> </ul>
<p>DISCUSSION:</p> <p>A LOSS OF DC CONTROL POWER WILL AFFECT THE DIESEL DIFFERENTLY DEPENDING ON WHICH CIRCUIT LOSES POWER. IF ALL DC POWER IS LOST THE DIESEL WILL START AND YOU WILL ONLY BE ABLE TO SHUT IT DOWN LOCALLY BY TRIPPING THE FUEL RACKS. IF OTHER FUSES ARE BLOWN THE EFFECT WILL VARY FROM LOSS OF GOVERNOR CONTROL TO A LOSS OF PROTECTIVE RELAYING ASSOCIATED WITH THE DIESEL. THE CAUSE OF THIS ALARM SHOULD BE INVESTIGATED IMMEDIATELY.</p> <p>REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.</p>
<p>REFERENCES: DRAWING 208-027 SHEET EG-18, EG-04, EG-10, EG-06, EG-16</p>
<p>SENSING ELEMENT: A,B,C,D,E, LOSS OF POWER RELAYS</p>

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-03	E-08-03
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DIESEL GEN B  
OUT OF SERVICE

## EVENT POINT 1210

### INDICATED CONDITION:

- "B" EGDG START AIR AS SENSED BY EG-12-PS IS  $\leq 225$  PSIG

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

### OPERATOR ACTIONS FOR A VALID ALARM:

- INVESTIGATE CAUSE OF LOW AIR PRESSURE ALARM.
- VERIFY EGDG-1B AIR COMPRESSOR, EGP-1B RUNNING
- CHECK EGDG-1B FOR AIR LEAKS

### DISCUSSION:

A LOSS OF STARTING AIR WILL EVENTUALLY CAUSE THE DIESEL TO START WHEN PRESSURE IS NO LONGER HIGH ENOUGH TO HOLD THE AUTO START VALVES CLOSED. IF EGP-1B IS OUT OF SERVICE THEN CONSIDERATION SHOULD BE GIVEN TO CROSS CONNECTING THE DIESEL START AIR SYSTEMS BY OPENING EGV-25 AND EGV-26.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-18, EG-08

SENSING ELEMENT: EG-12-PS



ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-03	E-08-03
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**DIESEL GEN B  
OUT OF SERVICE**

## EVENT POINT 1211

### INDICATED CONDITION:

- ANY "B" EGDG AUTO/MANUAL CONTROL SWITCH NOT IN THE AUTO POSITION

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- NOTIFIED BY PRIMARY PLANT OPERATOR EGDG-1B CONTROL SWITCH NOT IN AUTO

### OPERATOR ACTIONS FOR A VALID ALARM:

- NOTIFY PRIMARY PLANT OPERATOR TO RETURN CONTROL SWITCH TO AUTO

### DISCUSSION:

THE FOLLOWING SWITCHES NOT IN AUTO WILL GIVE YOU THIS ALARM:

JACKET COOLING PUMP	JACKET COOLANT HEATER	STANDBY LUBE OIL PUMP
DC FUEL OIL PUMP	DC FUEL OIL XFER PUMP	AC FUEL OIL XFER PUMP
AC AIR COMPRESSOR	DIESEL AUTO/MAN (MCB)	

NORMAL/AT ENGINE SWITCH ON DIESEL GAUGE BOARD IN "AT ENGINE"

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-027 SHEET EG-18, EG-08

SENSING ELEMENT: VARIOUS EGDG-1B CONTROL SWITCH CONTACTS



ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	E-08-04
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CF TANK B  
LEVEL  
HIGH/LOW

### EVENT POINT 0117

#### INDICATED CONDITION:

- CFT-1B LEVEL AS SENSED BY CF-2-LS3 IS  $\geq 13'4"$

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- COMPUTER POINT P201

#### OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- REFER TO OP-401 FOR THIS CONDITION

#### DISCUSSION:

A HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD ADDITION VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	E-08-04
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[illegible]

CF TANK B  
LEVEL  
HIGH/LOW

EVENT POINT 0118

INDICATED CONDITION:

- Ø CFT-1B LEVEL AS SENSED BY CF-2-LS4 IS  $\geq 13'4"$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- COMPUTER POINT P201

OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

A HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD ADDITION VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS4

ESE AND INDICATOR RESPONSE	ESB-JH2-08-04	E-08-04
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CF TANK B  
LEVEL  
HIGH/LOW

## EVENT POINT 0119

### INDICATED CONDITION:

- CFT-1B LEVEL AS SENSED BY CF-2-LS3 IS  $\leq 12'3"$

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- COMPUTER POINT P201

### OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- REFER TO OP-401 FOR THIS CONDITION

### DISCUSSION:

A LOW CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD ISOLATION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD SAMPLE VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	F-08-04
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CF TANK B  
LEVEL  
HIGH/LOW

### EVENT POINT 0117

#### INDICATED CONDITION:

- o CFT-1B LEVEL AS SENSED BY CF-2-LS3 IS  $\geq 13'4"$

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- o COMPUTER POINT P201

#### OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- o REFER TO OP-401 FOR THIS CONDITION

#### DISCUSSION:

A HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD ADDITION VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	E-08-04
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CF TANK B  
LEVEL  
HIGH/LOW

## EVENT POINT 0118

### INDICATED CONDITION:

- o CFT-1B LEVEL AS SENSED BY CF-2-LS4 IS  $\geq 13'4"$

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- o COMPUTER POINT P201

### OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- o REFER TO OP-401 FOR THIS CONDITION

### DISCUSSION:

A HIGH CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD CHECK VALVES LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD ADDITION VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS4

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	E-08-04
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CF TANK B  
LEVEL  
HIGH/LOW

## EVENT POINT 0119

### INDICATED CONDITION:

- CFT-1B LEVEL AS SENSED BY CF-2-LS3 IS  $\leq 12'3"$

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- COMPUTER POINT P201

### OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- REFER TO OP-401 FOR THIS CONDITION

### DISCUSSION:

A LOW CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD ISOLATION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD SAMPLE VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS3



ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-04	E-08-04
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[illegible]

CF TANK B  
LEVEL  
HIGH/LOW

EVENT POINT 0120

INDICATED CONDITION:

- o CFT-1B LEVEL AS SENSED BY CF-2-LS4 IS  $\leq 12'3''$

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-2-LI3 OR CF-2-LI4
- o COMPUTER POINT P201

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL LEVEL
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

A LOW CORE FLOOD TANK LEVEL MAY INDICATE CORE FLOOD ISOLATION VALVES ARE LEAKING BY. OBSERVE MAKEUP TANK LEVEL AND PRESSURIZER LEVEL TO VERIFY. ALSO CORE FLOOD SAMPLE VALVES MAY BE LEAKING BY.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-2-LS4

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-05	E-08-05
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CF TANK B  
PRESS  
HIGH/LOW

## EVENT POINT 0113

### INDICATED CONDITION:

- CFT-1B PRESSURE AS SENSED BY CF-1-PS3 IS  $\geq 615$  PSIG

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-1-PI3 OR CF-1-PI4

### OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- REFER TO OP-401 FOR THIS CONDITION

### DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES, OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-05	E-08-05
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[illegible]

CF TANK B  
PRESS  
HIGH/LOW

EVENT POINT 0114

INDICATED CONDITION:

- 0 CFT-1B PRESSURE AS SENSED BY CF-1-PS4 IS >615 PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATORS CF-1-PI3 OR CF-1-PI4

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- o REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

INCREASING REACTOR BUILDING TEMPERATURES, NITROGEN VALVE LEAKBY FROM N2 BOTTLES, OR INCREASING CFT WATER LEVEL MAY CAUSE CORE FLOOD TANK PRESSURES TO RISE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS4

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-05	E-08-05
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CF TANK B  
PRESS  
HIGH/LOW

### EVENT POINT 0115

#### INDICATED CONDITION:

- CFT-1B PRESSURE AS SENSED BY CF-1-PS3 IS  $\leq 585$  PSIG

#### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-1-PI3 OR CF-1-PI4

#### OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- REFER TO OP-401 FOR THIS CONDITION

#### DISCUSSION:

DECREASING REACTOR BUILDING TEMPERATURES OR DECREASING CORE FLOOD TANK LEVELS MAY CAUSE CORE FLOOD TANK PRESSURE TO DECREASE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS3

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-05	E-08-05
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[illegible]

CF TANK B  
PRESS  
HIGH/LOW

EVENT POINT 0116

INDICATED CONDITION:

- CFT-1B PRESSURE AS SENSED BY CF-1-PS4 IS  $\leq 585$  PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATORS CF-1-PI3 OR CF-1-PI4

OPERATOR ACTIONS FOR A VALID ALARM:

- DETERMINE CAUSE AND RETURN CORE FLOOD TANK TO NORMAL PRESSURE
- REFER TO OP-401 FOR THIS CONDITION

DISCUSSION:

DECREASING REACTOR BUILDING TEMPERATURES OR DECREASING CORE FLOOD TANK LEVELS MAY CAUSE CORE FLOOD TANK PRESSURE TO DECREASE.

PRESSURE LIMITS ARE ESTABLISHED PER TS, REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: CF-1-PS4

ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-06	F-08-06
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[illegible]

CF TANK B  
DISCH VALVE  
OPEN/CLOSED

EVENT POINT 0103

INDICATED CONDITION:

- 0 RCS PRESSURE AS SENSED BY RC-3A-PS3 IS 690 PSIG AND CFV-6 IS NOT FULL  
CLOSED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-6 POSITION INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o CLOSE CFV-6 OR STOP RCS PRESSURE DECREASE

DISCUSSION:

CFV-6 IS A NORMALLY DE-ENERGIZED VALVE. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: RC-3A-PS3, 33C VALVE CLOSED CONTACT



ESE ANNUNCIATOR RESPONSE	ESB-JH2-08-06	E-08-06
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CF TANK B  
DISCH VALVE  
OPEN/CLOSED

## EVENT POINT 0104

### INDICATED CONDITION:

- RCS PRESSURE AS SENSED BY RC-3A-PS3 IS  $\geq 702.5$  PSIG AND CFV-6 IS NOT FULL OPEN

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- CONTROL BOARD INDICATOR RC-158-PI2 AND CFV-6 POSITION INDICATION

### OPERATOR ACTIONS FOR A VALID ALARM:

- OPEN CFV-6 OR STOP RCS PRESSURE INCREASE

### DISCUSSION:

CFV-6 IS A NORMALLY DE-ENERGIZED VALVE. THE BREAKER WILL HAVE TO BE CLOSED AT ES MCC 3AB PRIOR TO VALVE OPERATION.

REFERENCES: DRAWING 208-013 SHEET CF-13

SENSING ELEMENT: RC-3A-PS3, 33 VALVE OPEN CONTACT