Rev. 14 Effective Date <u>1199</u>

INFORMATION ONLY

ANNUNCIATOR RESPONSE

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AR-304

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ESD ANNUNCIATOR RESPONSE

APPROVED BY:

Interpretation Contact

(SIGNATURE ON FILE) 7/7/97

DATE :

INTERPRETATION CONTACT: 9707110254 970707 PDR ADDCK 05000302 PDR

Manager, Nuclear Plant Operations Support

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1 ,	Annunciator	Response	2
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1.0 PURPOSE

- Establish a reference document for each Annunciator Window on the ES (B)-JH1 Lampbox.
- Establish operator actions for valid Annucciator alarms on the ES (B)-JH1 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ES(B)-JH1 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

- 2.1.1 EOP, Emergency Operating Procedure
- 2.1.2 OP-404, Decay Heat Removal System
- 2.1.3 OP-703, Plant Distribution System
- 2.1.4 AP-880, Fire Protection

2.2 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
- 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)-JH1 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ENCLOSURE 1 (Page 1 of 54)

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H	PI
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ACTU	ATION

INDICATE	D CONDITION:
O HPI A	CTUATION "B"
REDUNDAN O RCS P O RCS P O RB PR O MANUA O ES ST	T INDICATION WHICH WILL VERIFY ALARM: RESSURE <1500 PSIG RESSURE <500 PSIG ESSURE >4 PSIG L ACTUATION OF HPI ATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE
OPERATOR o REFER	ACTIONS FOR A VALID ALARM: TO EOP
DISCUSSIC	DN :
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REFERENCE	S: DRAWING 208-028 SHEET ESB-31
SENSING E	LEMENT: 63-Z1A/RC-1,RC-2,/RC-3, ES ACTUATION RELAYS

ENCLOSURE 1 (Page 2 of 54)

ESD ANNUNCIATOR RESPONSE ESD-JH1-01-02

D-01-02

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A	CIUATION B

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o LOADING SEQUENT	CE BLOCK 2 ACTUATION "B"
REDUNDANT INDICATI	ON WHICH WILL VERIFY ALARM:
 ES CHANNEL STATION LOSS OF POWER FAILURE OF AN E ES CHANNEL TEST 	TUS INDICATION TO AN ES ACTUATION CHANNEL CABINET ES CHANNEL SENSING ELEMENT FING IN PROGRESS
OPERATOR ACTIONS F o REFER TO EOP	OR A VALID ALARM:
DISCUSSION: HPI HAS ACTUATED CASCADE ACTUATION OR ONLY ONE OF THE H POWER OR A SENSIN	EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS PI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST G ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING
REFERENCES: DRAWIN	G 208-028 SHEET ESB-25
SENSING ELEMENT: 62	2X1/RC-1, RC-2, RC-3, ES ACTUATION RELAYS

ENCLOSURE 1 (Page 3 of 54)

ESD ANNUNCIATOR RESPONSE

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1045	CEQUENCE
LUAL	SEQUENCE
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ACT	UATION B

INDICATED CONDITION	1:
o LOADING SEQUENC	E BLOCK 3 ACTUATION "B"
REDUNDANT INDICATIC	IN WHICH WILL VERIFY ALARM:
 O ES CHANNEL STATI O LOSS OF POWER TO O FAILURE OF AN ES O ES CHANNEL TEST 	JS INDICATION D AN ES ACTUATION CHANNEL CABINET 5 CHANNEL SENSING ELEMENT ING IN PROGRESS
OPERATOR ACTIONS FO o REFER TO EOP	R A VALID ALARM:
DISCUSSION:	
HPI HAS ACTUATED E CASCADE ACTUATION OR ONLY ONE OF THE HP POWER OR A SENSING	ITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS I ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING
REFERENCES: DRAWINC	208-028 SHEET ESB-25
SENSING ELEMENT: 62	K2B/RC-1, RC-2, RC-3 ES ACTUATION RELAY

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ESD	ANNUNCIATOR	RESPONSE
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LOAD	SEQUENCE
D	OCK A
D	LUCK 4
ACT	UATION B

INDICA	ATED CONDITION:
o LO	ADING SEQUENCE BLOCK 4 ACTUATION "B"
REDUND	DANT INDICATION WHICH WILL VERIFY ALARM:
o ES o LO o FA o ES	CHANNEL STATUS INDICATION SS OF POWER TO AN ES ACTUATION CHANNEL CABINET ILURE OF AN ES CHANNEL SENSING ELEMENT CHANNEL TESTING IN PROGRESS
OPERAT	OR ACTIONS FOR A VALID ALARM:
o REI	FER TO EOP
DISCUS	SION:
HPI H CASCA	AS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE DE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS
ONLY POWER TO RE DEPRE	ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING SET A BLOCK 4 ACTUATION THE HPI SEAL-IN RESET PUSH-BUTTON MUST BE SSED.
REFERE	NCES: DRAWING 208-028 SHEET ESB-25
ENSIN	G ELEMENT: 62X3/RC-1, RC-2, RC-3 ES ACTUATION RELAYS

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ESD ANNUNCIATOR RESPONSE

LOAD	SEQUENCE
BI	LOCK 5
ACT	UATION B

EVENT POINT 0853

INDICATED CONDITION:

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LOADING SEQUENCE BLOCK 5 ACTUATION "B"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP

DISCUSSION:

HPI HAS ACTUATED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS OR ONLY ONE OF THE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST POWER OR A SENSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING

REFERENCES: DRAWING 208-028 SHEET ESB-25

SENSING ELEMENT: 62X4/RC1, 62X4/RC2, 62X4/RC3

ENCLOSURE 1 (Page 6 of 54)

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LOAI	D SEQUENCE
1	BLOCK 6
AC	TUATION B

	ITION:
o LOADING SEQ	QUENCE BLOCK 6 ACTUATION "B"
REDUNDANT INDIC	CATION WHICH WILL VERIFY ALARM:
o ES CHANNEL o LOSS OF POW o FAILURE OF o ES CHANNEL	STATUS INDICATION /ER TO AN ES ACTUATION CHANNEL CABINET AN ES CHANNEL SENSING ELEMENT TESTING IN PROGRESS
OPERATOR ACTION	NS FOR A VALID ALARM:
O REFER TO EO	P
DISCUSSION:	
DISCUSSION: HPI HAS ACTUAT CASCADE ACTUAT	TED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE FION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS
DISCUSSION: HPI HAS ACTUAT CASCADE ACTUAT OR ONLY ONE OF TH POWER OR A SEN TO RESET A BLC DEPRESSED.	TED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE TION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS HE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST VSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING DCK 6 ACTUATION THE HPI SEAL-IN RESET PUSH-BUTTON MUST BE
DISCUSSION: HPI HAS ACTUAT CASCADE ACTUAT OR ONLY ONE OF TH POWER OR A SEN TO RESET A BLC DEPRESSED.	TED EITHER BY 2 OUT OF 3 HPI BI-STABLES TRIPPED OR BY THE TION FROM LPI OR 4# RB PRESSURE AND ES EQUIPMENT STARTS HE HPI ACTUATION RELAYS HAS ACTUATED, AN ES CABINET HAS LOST NSING ELEMENT HAS FAILED AND ES EQUIPMENT IS NOT STARTING DCK 6 ACTUATION THE HPI SEAL-IN RESET PUSH-BUTTON MUST BE

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ESD ANNUNCIATOR RESPONSE

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CI	ONT	AIN	MEN	T
1	SOLA	ATIC	N B	8

EVENT POINT 1114

INDICATED CONDITION:

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O PARTIAL CONTAINMENT ISOLATION "B"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O AUTOMATIC ACTUATION HPI "B"

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP

DISCUSSION:

THIS ALARM INDICATES A PARTIAL CONTAINMENT ISOLATION HAS OCCURRED. THE FOLLOWING VALVES SHOULD CLOSE:

	LRV-71 CFV-26 MSV-148	LRV-73 CFV-27 WDV-4	CAV-2 CFV-28 WDV-61	CAV-6 CFV-29 WDV-62	CAV-7 CFV-42 WDV-405	CAV-431 MUV-49 DWV-160	CFV-25 MSV-130 MUV-27	
RE	FERENCES:	DRAWING	208-028 S	HEET ESB-55	;			
SE	NSING ELE	MENT: 632	-4B ES ACT	UATION REL	AY	and which there exercise interior designs the second		

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-02-02	D-02-02
	HPI B FLOW HIGH/LO	ŚW
alian: yonapananduan upanantord: -yananan anadonar-ranner-arfanantananyan di manomenenandi any an-rantali	EVENT POIN	т 1069
ICATED CONDITION: LOOP B1 HPI FLOW IS >263 GPM AS SENSED	BY MU-23-FS1	
UNDANT INDICATION WHICH WILL VERIFY ALAF	:M :	
RATOR ACTIONS FOR A VALID ALARM:		
REFER TO EOP-13 FOR HPI THROTTLING REQU THROTTLE MUV-25 AS REQUIRED	[REMENTS	
CUSSION:		
NOUT CONDITIONS FOR A MAKEUP PUMP MAY BE MP CURRENT INDICATION FOR FLUCTUATIONS. RING HIGH FLOW CONDITIONS. IF ANY OF THE ERATING MAKE UP PUMPS CONSIDERATION SHOU KE UP PUMP.	VERIFIED BY OBSERVING ALSO FLOW OSCILLATIONS SE SYMPTOMS ARE EVIDENT LD BE GIVEN TO SHUTTING	MAKE UP MAY OCCUR ON DOWN THE
RENCES: DRAWING 208-041 SHEET MU-047	a der första bild bilder de samer der ander a	
RENCES: DRAWING 208-041 SHEET MU-047 ING ELEMENT: MU-23-FS1		

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	HPI B FLOW	
	HIGH/LO	W
	EVENT POINT	r 1070
NDICATED CONDITION:		
O LOOP B2 HPI FLOW IS >263 GPM AS SENSED BY	MU-23-FS3	
EDUNDANT INDICATION WUTCH WITCH WEDTEN ALLOW		
A HEL WIDE DANCE FLOW METER WILL VERIFY ALARM:		
6 HPI WIDE RANGE FLOW METER, MU-23-FI3		
PERATOR ACTIONS FOR A VALID ALARM:		
O REFER TO EOP-13 FOR HPI THROTTLING REQUIR	EMENTS	
O THROTTEL HOV-20 AS REQUIRED		
ISCUSSION:		
RUNDUT CONDITIONS FOR A MAKEUR DUMP MAY DE		
PUMP CURRENT INDICATION FOR A MAREUP PUMP MAY BE V DURING HIGH FLOW CONDITIONS. IF ANY OF THESE OPERATING MAKE UP PUMPS CONSIDERATION SHOULD MAKE UP PUMP.	ERIFIED BY OBSERVING M SO FLOW OSCILLATIONS MU SYMPTOMS ARE EVIDENT (BE GIVEN TO SHUTTING I	AKE UP AY OCCUR ON DOWN THE
FEFENCES: DRAWING 208-041 SHEET MU-047		
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ESD-JH1-02-02

	HPI B FLOW HIGH/LOW
	EVENT POINT 1073
INDICATED CONDITION:	
 LOOP B1 HPI FLOW IS <75 GPM AS SENSED BY ACTUATION SIGNAL 	MU-23-FS1 COINCIDENT WITH A HPI
REDUNDANT INDICATION WHICH WILL VERIFY ALARM: • HPI LOW RANGE FLOW METER, MU-23-FI5-1	
OPERATOR ACTIONS FOR A VALID ALARM: • REFER TO EOP-13 FOR HPI THROTTLING REQUIR • VERIFY PROPER MAKE UP PUMP OPERATION • ENSURE EITHER, >200 GPM TOTAL HPI FLOW PER MAKE UP PUMP RECIRC VALVES, MUV-53 AND MUY	EMENTS R RUNNING MAKEUP PUMP OR BOTH V-257 ARE OPEN.
DISCUSSION:	
LOW FLOW CONDITIONS FOR AN OPERATING MAKE UP PUMP DAMAGE. DURING PERIODS OF LOW FLOW THE MUST BE OPEN.	P PUMP CAN RESULT IN MAKE UP MAKE UP PUMP RECIRC VALVES
REFERENCES: DRAWING 208-041 SHEET MU-047	

ESD ANNUNCIATOR RESPONSE

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HPI B	
FLOW	
HIGH/LOW	

EVENT POINT 1074

INDICATED CONDITION:

 LOOP B2 HPI FLOW IS <75 GPM AS SENSED BY MU-23-FS3 COINCIDENT WITH A HPI ACTUATION SIGNAL

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O HPI LOW RANGE FLOW METER, MU-23-FI7-1

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP-13 FOR HPI THROTTLING REQUIREMENTS

- O VERIFY PROPER MAKE UP PUMP OPERATION
- O ENSURE EITHER, >200 GPM TOTAL HPI FLOW PER RUNNING MAKEUP PUMP OR BOTH MAKE UP PUMP RECIRC VALVES, MUV-53 AND MUV-257 ARE OPEN.

DISCUSSION:

LOW FLOW CONDITIONS FOR AN OPERATING MAKE UP PUMP CAN RESULT IN MAKE UP PUMP DAMAGE. DURING PERIODS OF LOW FLOW THE MAKE UP PUMP RECIRC VALVES MUST BE OPEN.

REFERENCES: DRAWING 208-041 SHEET MU-047

SENSING ELEMENT: MU-23-FS3

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	PI		
(DH	IV-E	5)	
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	(DH OI	LPI (DHV-E OPEN	LPI (DHV-6) OPEN

	NDITION:
o DHV-6 NOT	FULL CLOSED AND RCS PRESSURE >200 PSIG AS SENSED BY RC-3A-PS4
REDUNDANT IN	DICATION WHICH WILL VERIFY ALARM:
o DHV-6 IND o RCS PRESS	UCATION URE INDICATION
OPERATOR ACT	IONS FOR A VALID ALARM:
 REFER TO IF ON DEC REFER TO 	EOP-08 IF ON LPI. AY HEAT REMOVAL THEN ENSURE PROPER DH FLOW PATH. OP-404 FOR MINIMUM FLOW LIMITATIONS.
DISCUSSION:	
DISCUSSION: THIS ALARM M IF THIS IS (CARE SHOULD WHILE ON LP OPERATING DE	MAY INDICATE THE ACI SETPOINT IS BEING APPROACHED (ABOUT 250#) DCCURRING THEN THE OPERATOR SHOULD REDUCE RCS PRESSURE. BE TAKEN AS TO NOT OVERPRESSURIZE THE DECAY HEAT SYSTEM. I THIS ALARM WOULD INDICATE A LOW FLOW CONDITION ON THE ECAY HEAT PUMP.
DISCUSSION: THIS ALARM M IF THIS IS (CARE SHOULD WHILE ON LP OPERATING DE	MAY INDICATE THE ACI SETPOINT IS BEING APPROACHED (ABOUT 250#) DCCURRING THEN THE OPERATOR SHOULD REDUCE RCS PRESSURE. BE TAKEN AS TO NOT OVERPRESSURIZE THE DECAY HEAT SYSTEM. I THIS ALARM WOULD INDICATE A LOW FLOW CONDITION ON THE ECAY HEAT PUMP. DRAWING 208-021 SHEET DH-06

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ESD ANNUNCIATOR	RESPONSE
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ESD-JH1-02-04 D-02-04

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LPI B	
FLOW	
HIGH/LOW	

EVENT POINT 0228

INDICATED CONDITION:

O DHP-1A FLOW >3750 GPM AS SENSED BY DH-1-FS2

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O DECAY HEAT FLOW INDICATOR, DH-1-FI-2 INDICATES HIGH FLOW

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO OP-404 FOR MAXIMUM DECAY HEAT FLOW LIMITATIONS

VERIFY PROPER OPERATION OF DHV-111, "B" DECAY HEAT CONTROL VALVE.
 REDUCE FLOW BY EITHER THROTTLING DHV-111 OR DHV-6. CLOSED.

DISCUSSION:

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

REFERENCES: DRAWING 208-021 SHEET DH-24

SENSING ELEMENT: DH-1-FS2

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ESD ANNUNCIATOR RESPONSE

ESD-JH1-02-04 D-02-04

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F	LOW	
HIG	H/LO	W

EVENT POINT 0230

INDICATED CONDITION:

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o DHP-1B FLOW <2800 GPM AS SENSED BY DH-1-FS2 FOR >5 SEC COINCIDENT WITH LPI ACTUATION "B"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O DECAY HEAT FLOW INDICATOR, DH-1-FI2 INDICATES LOW FLOW

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP

- VERIFY PROPER OPERATION OF DHP-18
- · VERIFY PROPER OPERATION OF DHV-111, "B" DECAY HEAT CONTROL VALVE.
- O INCREASE FLOW BY EITHER THROTTLING DHV-111 OR DHV-6, OPEN.

DISCUSSION:

REFERENCES: DRAWING 208-021 SHEET DH-24

SENSING ELEMENT: DH-1-FS2

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EVENT POINT 0930

INDICATED CONDITION:

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RCS PRESSURE <1640 PSIG AND HPI NOT BYPASSED
 RCS PRESSURE <750 PSIG AND LPI NOT BYPASSED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

RCS PRESSURE INDICATION
 ES STATUS LIGHTS INDICATE ES NOT BYPASSED

OPERATOR ACTIONS FOR A VALID ALARM:

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

DISCUSSION:

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

REFERENCES: DRAWING 208-028 SHEET ESAB-06

SENSING ELEMENT: 62-B ES ACTUATION RELAY

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ESD ANNUNCIATOR RESPONSE

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ES B	
ACTUATION	
NOT RESET	

EVENT POINT 0928

INDICATED CONDITION:

o RCS PRESSURE >1640 PSIG AND HPI NOT RESET o RCS PRESSURE >750 PSIG AND LPI NOT RESET

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

RCS PRESSURE INDICATION
 ES STATUS LIGHTS INDICATE ES NOT RESET

OPERATOR ACTIONS FOR A VALID ALARM:

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

DISCUSSION:

THIS ALARM INDICATES THE ES SYSTEMS ARE STILL BYPASSED AND RCS PRESSURE IS INCREASING. IF HPI/LPI RC PRESSURE BI-STABLES ARE NOT RESET PRIOR TO EXCEEDING 1750 PSIG (HPI) OR 900 PSIG (LPI), HPI AND LPI WILL ACTUATE WHEN THE ACTUATION CIRCUIT BYPASS BI-STABLE AUTOMATICALLY RESETS AND REMOVES THE CHANNEL FROM BYPASS.

REFERENCES: DRAWING 208-028 SHEET ESAB-06

SENSING ELEMENT: RC-3A-PS5, RC-3A-PS6

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LPI	
ES B	
ACTUATION	

EVENT POINT 0924

INDICATED CONDITION:

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o RCS PRESSURE IS <500 PSIG</p>

- o REACTOR BUILDING PRESSURE >4 PSIG
- O MANUAL ACTUATION OF LPI "B"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o RCS PRESSURE INDICATION

O RB PRESSURE INDICATION

O ES STATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP

DISCUSSION:

THIS ALARM INDICATES LPI HAS ACTUATED OR SHOULD HAVE ACTUATED BY EITHER 2 OUT OF 3 LPI BI-STABLES TRIPPED OR BY THE CASCADE ACTUATION FROM 4 PSIG REACTOR BUILDING PRESSURE OR THAT A MANUAL LPI ACTUATION HAS OCCURRED.

REFERENCES: DRAWING 208-028 SHEET ESB-42

SENSING ELEMENT: 63Z3 ES ACTUATION RELAY

ENCLOSURE 1 (Page 18 of 54)

ESD ANNUNCIATOR RESPONSE

			Contract of Addressing of

DH PUMP B	

EVENT POINT 0220

INDICATED CONDITION:

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O DHP-18 BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN INDICATOR LIGHT IS ON WITH A RED FLAG ON DHP-1B CONTROL STATION O AMBER ES STATUS LIGHT FOR DHP-18

OPERATOR ACTIONS FOR A VALID ALARM:

REFER TO EOP-11, LOSS OF DECAY HEAT REMOVAL
 PLACE "A" DECAY HEAT TRAIN IN SERVICE PER OP-404

O INVESTIGATE CAUSE OF PUMP TRIP

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-021 SHEET ESB-42

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

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ESD ANNUNCIATOR RESPONSE

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EVENT POINT 0224

INDICATED CONDITION:

O DHP-18 MOTOR AMPS >115% RATED LOAD

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O DHP-18 HIGH MOTOR AMPS

o DHP-1B TRIPS

OPERATOR ACTIONS FOR A VALID ALARM:

O REDUCE DHP-1B LOAD BY THROTTLING DHV-111 OR DHV-6

- IF LOAD REMAINS HIGH ON DHP-18 CONSIDER ALTERNATING DECAY HEAT TRAINS PER OP-404
- 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 208-021 SHEET DH-02

SENSING ELEMENT: DHP-1B OVERCURRENT DEVICES (51 IOC OR 51 TOC)

ENCLOSURE 1 (Page 20 of 54)

ESD ANNUNCIATOR RESPONSE

OUT OF SERVICE

EVENT POINT 0222

INDICATED CONDITION:

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O DHP-18 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:

O INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

DISCUSSION:

ADDRESS TS REQUIREMENTS CONCERNING THIS CONDITION

REFERENCES: DRAWING 208-021 SHEET DH-02

SENSING ELEMENT: DHP-18 BREAKER RELAY (52 H)

ENCLOSURE 1 (Page 21 of 54)

ESD ANNUNCIATOR RESPONSE

DH PUMP B OUT OF SERVICE	

EVENT POINT 0243

INDICATED CONDITION:

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O DHP-1B BREAKER HAS NO DC CONTROL POWER.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON DHP-1B CONTROL STATION
 O ES STATUS LIGHTS INDICATE BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

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

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-021 SHEET DH-02

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

ENCLOSURE 1 (Page 22 of 54)

ESD ANNUNCIATOR RESPONSE

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DH PUMP B	
SUCT TEMP	
HIGH	

INDICATED CONDITION:
○ DHP-1B SUCTION TEMP IS >280°F AS SENSED BY DH-6-TS2
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
O DHP-18 SUCTION TEMP. INDICATOR, DH-6-TI2 INDICATES HIGH
OPERATOR ACTIONS FOR A VALID ALARM:
 VERIFY PROPER "B" DC SYSTEM OPERATION BY CHECKING DC SURGE TANK LEVEL, DC PUMP RUNNING AND DC CONTROL VALVES SETPOINT NORMAL. VERIFY PROPER DC RAW WATER OPERATION BY CHECKING RWP-3B RUNNING, RWP-3B DISCHARGE PRESSURE GOOD AND DC RAW WATER TEMP NORMAL INCREASE DC COOLING TO THE DC HEAT EXCHANGER BY INCREASING SETPOINT IF RCS TEMPERA; URE CONTINUES TO RISE CONSIDER ALTERNATING DECAY HEAT TRAINS PER OP-404.
DISCUSSION:
THIS ALARM INDICATES A LOSS OF COOLING TO THE RCS IS OCCURRING. CORE COOLING MUST BE REGAINED AS SOON AS POSSIBLE.
REFERENCES: DRAWING 208-021 SHEET DH-24
SENSING ELEMENT: DH-6-TS2

ENCLOSURE 1 (Page 23 of 54)

ESD ANNUNCIATOR RESPONSE

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EVENT POINT 0226

INDICATED CONDITION: O DHP-1B FLOW RATE <1500 GPM AS SENSED BY DH-1-FS4 WITH THE DHP-1B CONTROL HANDLE IN NORMAL AFTER START. OR DHP-18 RUNNING AND MOTOR AMPERAGE IS BELOW THE OPERATOR ADJUSTED SETPOINT. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: o DECAY HEAT FLOW INDICATOR, DH-1-FI2 INDICATES LOW FLOW O DHP-18 CONTROL STATION AMP METER OPERATOR ACTIONS FOR A VALID ALARM: O INCREASE DHP-18 FLOW BY THROTTLING OPEN DHV-111 OR DHV-6 O REFER TO OP-404 CONCERNING DECAY HEAT PUMP LOW FLOW OPERATION. O READJUST DHP-18 AMP MONITOR, DH-57-IR, LOCATED INSIDE MCB ON HVC SECTION, IF NECESSARY PER OP-404 O IF DH FLOW CANNOT BE RECOVERED THEN CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404. DISCUSSION: OPERATION AT LOW FLOW RATES MAY REDUCE DH PUMP LIFE, AND SHOULD BE AVOIDED. DHP-18 AMP MONITOR CAN BE ADJUSTED TO ALARM AT SLIGHTLY LESS THAN DHP STEADY STATE OPERATION. REFERENCES: DRAWING 208-021 SHEET DH-02 SENSING ELEMENT: DH-1-FS4, DHP-1B CONTROL HANDLE CONTACTS AND DH-57-IR

ENCLOSURE 1 (Page 24 of 54)

ESD ANNUNCIATOR	RESPONSE	ESD-JH1-04-02	D-04-02

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DC	PUMP	В	
	TRIP		

EVENT POINT 0203

INDICATED CONDITION:

O DCP-18 BREAKER OPEN AND CONTROL HANDLE IN NORMAL AFTER START

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN INDICATOR LIGHT WITH A RED FLAG ON DCP-18 CONTROL STATION

OPERATOR ACTIONS FOR A VALID ALARM:

 IF DH SYSTEM IS OPERATING, CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404
 INVESTIGATE DECAY HEAT TRAINS PER OP-404

O INVESTIGATE DCP-18 PUMP, MOTOR, AND BREAKER

DISCUSSION:

DCP-18 TRIP REMOVES COOLING FOR THE DH PUMP, BS PUMP, DC RW PUMP AND THE DC COOLED MAKE UP PUMP. ANY OF THESE PUMPS RUNNING WHEN THE DC PUMP TRIPS SHOULD BE SECURED AS SOON AS POSSIBLE. WITH THE EXCEPTION OF THE MAKE UP PUMP WHICH SHOULD BE SWAPPED OVER TO SW COOLING, PER OP-408.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-019 SHEET DC-02

SENSING ELEMENT: CS/SC, CS/O, R/B (CONTROL STATION CONTACTS)

ENCLOSURE 1 (Page 25 of 54)

ESD ANNUNCIATOR RESPONSE

DC	PUMP B
ov	ERLOAD

EVENT POINT 0201

INDICATED CONDITION:

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O DCP-18 MOTOR AMPS >115% RATED LOAD

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O DCP-18 HIGH MOTOR AMPS

OPERATOR ACTIONS FOR A VALID ALARM:

 INSPECT PUMP AND MOTOR FOR PROPER OPERATION
 IF INSPECTION REVEALS MOTOR OR PUMP MALFUNCTION CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DH TRAINS PER OP-404

DISCUSSION:

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

REFERENCES: DRAWING 208-019 SHEET DC-02

SENSING ELEMENT: 49X RELAY IN BREAKER CUBICLE

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ENCLOSURE 1 (Page 26 of 54)

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EVENT POINT 0211

INDICATED CONDITION:

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O DCP-18 BREAKER IS RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON DCP-1B CONTROL STATION
 NO ES STATUS INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

O INVESTIGATE THE CAUSE FOR DCP-1B BREAKER BEING RACKED OUT

DISCUSSION:

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

REFERENCES: DRAWING 208-019 SHEET DC-02

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

ENCLOSURE 1 (Page 27 of 54)

ESD ANNUNCIATOR RESPONSE

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EVENT POINT 0213

INDICATED CONDITION:

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O DCP-18 BREAKER HAS NO DC CONTROL POWER

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON DCP-18 CONTROL STATION
 ES STATUS LIGHTS INDICATE BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY CLOSED DPDP-5B SWITCH 9
 VERIFY DC CONTROL POWER TOGGLE SWITCH ON DCP-1B BREAKER IS "ON"

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 208-019 SHEET DC-02

SENSING ELEMENT: 27C RELAY IN BREAKER CUBICLE

ENCLOSURE 1 (Page 28 of 54)

ESD ANNUNCIATOR RESPONSE.

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EVENT POINT 0202

INDICATED CONDITION:

 DCP-1B DISCHARGE PRESSURE IS <30 PSIG FOR > 5 SEC. AS SENSED BY DC-56-PS, WITH DCP-1B BREAKER CLOSED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

DCP-1B DISCHARGE PRESSURE INDICATOR, DC-6-PI
 DCP-1B CURRENT INDICATION

OPERATOR ACTIONS FOR A VALID ALARM:

- VERIFY DC SURGE TANK IS >8.5 FEET, IF NOT, NOTIFY AUX BLDG OPERATOR TO MANUALLY FILL DCT-18
- IF DISCHARCE PRESSURE CANNOT BE RECOVERED THEN CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404

DISCUSSION:

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

REFERENCES: DRAWING 208-019 SHEET DC-02

SENSING ELEMENT: DC-56-PS

ENCLOSURE 1 (Page 29 of 54)

ESD ANNUNCIATOR RESPONSE

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DC TANK B	
LEVEL	
HIGH/LOW	

EVENT POINT 0207

INDICATED CONDITION: O "B" DC SURGE TANK LEVEL IS >11'4" AS SENSED BY DC-52-LS REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O DC SURGE TANK LEVEL INDICATION, DC-54-LI O LOCAL SURGE TANK LEVEL INDICATION O DECREASING RCS LEVEL WHILE ON DECAY HEAT OPERATOR ACTIONS FOR A VALID ALARM: O VERIFY AUTOMATIC DC SURGE TANK FILL VALVE, DCV-12 IS CLOSED IF NOT THEN MANUALLY ISOLATE DCV-12 BY CLOSING DCV-60 O VERIFY "B"DC SYSTEM RADIATION MONITOR, RML-6 READING IS NORMAL O IF ON DECAY HEAT REFER TO EOP-11 O CONSIDERATION SHOULD BE GIVEN TO ALTERNATE DH TRAINS FER OP-404 DISCUSSION: IF THE HIGH SURGE TANK LEVEL IS DUE TO A DH TO DC LEAK THEN THE DC SURGE TANK MAY CONTINUE TO FILL. THE DC SURGE TANK VENTS TO THE AUX BLDG VENT HEADER SO CONSIDERATION SHOULD BE GIVEN TO DRAINING DC TO THE AUX BLDG SUMP TO PREVENT OVERFLOWING THE TANK TO THE VENT DUCT AND ALIGNING THE DC SURGE TANK VENT TO THE WASTE GAS SYSTEM. DC SURGE TANK FILL VALVE, DCV-12 SHOULD OPEN AT 8'6" AND CLOSE AT 11'3" REFERENCES: DRAWING 208-019 SHEET DC-02 SENSING ELEMENT: DC-52-LS

ENCLOSURE 1 (Page 30 of 54)

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ESD ANNUNCIATOR	RESPONSE	ESD-	JH1-04-06	D-04-06

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EVENT POINT 0208

INDICATED CONDITION:

O "B" DC SURGE TANK LEVEL IS <8'6" AS SENSED BY DC-52-LS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

DC SURGE TANK LEVEL INDICATION, DC-54-LI
 LOCAL SURGE TANK LEVEL INDICITION

O OSCILLATING CURRENT INDICATIONS ON DCP-18

OPERATOR ACTIONS FOR A VALID ALARM:

O VERIFY AUTOMATIC DC SURGE TANK FILL VALVE, DCV-12 IS OPEN

- O HAVE AUX BLDG OPERATOR FILL DC SURGE TANK LOCALLY
- O CONSIDERATION SHOULD BE GIVEN TO ALTERNATE DH TRAINS PER OP-404

DISCUSSION:

FILL SOURCE FOR DC SURGE TANK IS UNIT 1/2 DEMIN WATER

DC SURGE TANK FILL VALVE, DCV-12 SHOULD OPEN AT 8'6" AND CLOSE AT 11'3"

REFERENCES: DRAWING 208-019 SHEET DC-02

SENSING ELEMENT: DC-52-LS

ENCLOSURE 1 (Page 31 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-1H1-05-01	D-05-01
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RC LOOP B	
VENT VLVS	
OPEN	

EVENT POINT 1877

INDICATED CONDITION:

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O BOTH "B" LOOP VENT VALVES, RCV-163 AND RCV-164 ARE ENERGIZED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O LOOP VENT VALVE POSITION INDICATION IS OPEN ON MCB

LOOP VENT VALVE FLOW WHITE INDICATING LIGHT IS ON
 RCS PRESSURE DECREASING

O KCS PRESSURE DECREASING

OPERATOR ACTIONS FOR A VALID ALARM:

O CLOSE THE OPEN VENT VALVE IF NECESSARY

DISCUSSION:

THE LOOP VENT VALVES ARE MOUNTED IN SERIES SO OPENING ONE VALVE SHOULD NOT CAUSE AN RCS LEAK.

REFERENCES: DRAWING 208-047 SHEET RC-33

SENSING ELEMENT: POSITION SWITCH ON VALVES (33)

ENCLOSURE 1 (Page 32 of 54)

ESD ANNUNCTATOR RESPONSE	ECD 141 05 02	0.05.00
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EVENT POINT 0398

INDICATED CONDITION:

• AHF-15B BREAKER OPEN AND CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

START AHF-15A
 INVESTIGATE CAUSE OF AIR HANDLING FAN TRIP.

DISCUSSION:

AHF-15B IS THE COOLING FAN FOR DCP-1A AND DCP-1B. THE PUMPS NORMALLY OPERATE WITHOUT EITHER AIR HANDLING FAN IN OPERATION BUT ARE REQUIRED DURING ACCIDENT SCENARIOS WHEN HEAT LOAD IN THE SEA WATER ROOM IS HIGH.

REFERENCES: DRAWING 208-005 SHEET AH-43

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

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ENCLOSURE 1 (Page 33 of 54)

ESD ANN	UNCIATOR	RESPONSE
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AH	FAN	15B	
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EVENT POINT 0399

INDICATED CONDITION:

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O AHF-15B AIR FLOW IS <0.058" WATER AS SENSED BY AH-408-DPS AND THE CONTROL HANDLE IS IN NORMAL AFTER START.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

OPERATOR ACTIONS FOR A VALID ALARM:

- O START AHF-15A
- O INVESTIGATE CAUSE OF LOW AIR FLOW.

DISCUSSION:

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

REFERENCES: DRAWING 208-005 SHEET AH-43

SENSING ELEMENT: CS/SC, CS/O, AH-408-DPS

ENCLOSURE 1 (Page 34 of 54)

ESD ANNUNCIATOR RESPONSE

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EVENT POINT 0400

INDICATED CONDITION:

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○ AHF-15B DISCHARGE DUCT TEMPERATURE IS >135°F AS SENSED BY AH-410-TS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O AHF-15B TRIPS

O AHF-15B WHITE PERMISSIVE LIGHT ON CONTROL STATION IS OFF

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF HIGH DUCT TEMPERATURE
 DO NOT ATTEMPT A START OF AH-15A UNTIL CAUSE OF HIGH TEMP IS DETERMINED

DISCUSSION:

THIS CONDITION MAY INDICATE A FIRE IN THE EXHAUST DUCTWORK OF AHF-15B. IF A FIRE CONDITION DOES EXIST REFER TO AP-880 FOR FURTHER GUIDANCE.

REFERENCES: DRAWING 208-005 SHEET AH-43

SENSING ELEMENT: AH-410-TS

ENCLOSURE 1 (Page 35 of 54)

ESD ANNUNCIATOR RESPONSE

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 	 	Mile Root			
 	 	AND DECEMBER			

DC PUMP B
SUCT TEMP
HIGH

EVENT POINT 0209

INDICATED CONDITION: ○ DCP-1B SUCTION TEMPERATURE IS >105°F AS SENSED BY DC-58-TS REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O DCP-18 SUCTION TEMP INDICATION, DC-39-TI O DC RAW WATER TEMPERATURE INDICATOR RW-12-TI OR RW-32-TI O DH COOLER TEMPERATURE INDICATORS DH-2-TI2 OR DH-6-TI2 OPERATOR ACTIONS FOR A VALID ALARM: O ENSURE RWP-3B RUNNING O VERIFY RAW WATER DELTA TEMP FOR DHCCC HEAT EXCHANGER IS <10° O IF "B" DC TRAIN TEMPERATURE CANNOT BE REDUCED THEN CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404. DISCUSSION: THIS CONDITION MAY INDICATE A FOULED DC HEAT EXCHANGER. INDICATIONS ARE: HIGH RWP-3B DISCHARGE PRESSURE, HIGH RW DIFFERENTIAL TEMP OR LOW DC DIFFERENTIAL TEMP ACROSS THE DC HEAT EXCHANGER. ALSO VENTING THE DC HEAT EXCHANGER SHOULD BE CONSIDERED. IF DC PUMP HAS TO BE TRIPPED AFTER AN ES ACTUATION, HPI SEAL-IN RESET MUST BE DEPRESSED BEFORE THE PUMP CAN BE SECURED. REFERENCES: DRAWING 208-019 SHEET DC-03 SENSING ELEMENT: DC-58-TS

ENCLOSURE 1 Page 36 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-JH1-05-06	D-05-06
	BS/DH PU	MPB
	DC FLO LOW	W
	EVENT POIN	T 1221
INDICATED CONDITION .		
NDICATED CONDITION:		
O DECAY HEAT PUMP 18 DC FLOW IS <30 GPM	AS SENSED BY DC-68-FIS	WITH DHP-1
BKR CLOSED		
	n ale an ann an an an an an an an ann an ann an a	
REDUNDANT INDICATION WHICH WILL VERIFY ALA	RM:	
REDUNDANT INDICATION WHICH WILL VERIFY ALA	RM:	
 DHP-1B LOCAL DC FLOW INDICATOR INDICATOR OMPUTER POINT X323 WHICH MONITORS DHP 	RM: ES LOW FLOW	
 DHP-1B LOCAL DC FLOW INDICATOR INDICATOR O DHP-1B LOCAL DC FLOW INDICATOR INDICATOR O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
 REDUNDANT INDICATION WHICH WILL VERIFY ALA DHP-1B LOCAL DC FLOW INDICATOR INDICATOR COMPUTER POINT X323 WHICH MONITORS DHP- COMPUTER GROUP 74 	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATO O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATO O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATO O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 OPERATOR ACTIONS FOR A VALID ALARM:	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
 REDUNDANT INDICATION WHICH WILL VERIFY ALA DHP-1B LOCAL DC FLOW INDICATOR INDICATION COMPUTER POINT X323 WHICH MONITORS DHP- COMPUTER GROUP 74 OPERATOR ACTIONS FOR A VALID ALARM: ENSURE DCP-1B RUNNING 	RM: ES LOW FLOW -1B MOTOR STATOR TEMP	
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATO O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING O INCREASE FLOW TO DHP-1B BY THROTTLING E	RM: ES LOW FLOW -1B MOTOR STATOR TEMP DCV-36 OR DCV-119 AS RE	QUIRED
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATOR O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING O INCREASE FLOW TO DHP-1B BY THROTTLING E	RM: ES LOW FLOW -1B MOTOR STATOR TEMP DCV-36 OR DCV-119 AS RE	QUIRED
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REDUNDANT INDICATION WHICH WILL VERIFY ALA o DHP-1B LOCAL DC FLOW INDICATOR INDICATOR O COMPUTER POINT X323 WHICH MONITORS DHP- o COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING o INCREASE FLOW TO DHP-1B BY THROTTLING D DISCUSSION:	RM: ES LOW FLOW -1B MOTOR STATOR TEMP OCV-36 OR DCV-119 AS RE	QUIRED
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATOR O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING O INCREASE FLOW TO DHP-1B BY THROTTLING D DISCUSSION: THE MAXIMUM ALLOWABLE DH PUMP STATOR TEMP COMPUTER POINT X323). CONSIDERATION SHOU	RM: ES LOW FLOW -1B MOTOR STATOR TEMP DCV-36 OR DCV-119 AS RE IS 265° F (129.4°C, AS LD BE MADE IN SHUTTING	QUIRED READ ON DOWN THE
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATI O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING O INCREASE FLOW TO DHP-1B BY THROTTLING E DISCUSSION: THE MAXIMUM ALLOWABLE DH PUMP STATOR TEMP COMPUTER POINT X323). CONSIDERATION SHOU PUMP IF THIS TEMP IS REACHED.	RM: ES LOW FLOW -1B MOTOR STATOR TEMP DCV-36 OR DCV-119 AS RE IS 265° F (129.4°C, AS LD BE MADE IN SHUTTING	QUIRED READ ON DOWN THE
REDUNDANT INDICATION WHICH WILL VERIFY ALA O DHP-1B LOCAL DC FLOW INDICATOR INDICATI O COMPUTER POINT X323 WHICH MONITORS DHP- O COMPUTER GROUP 74 DPERATOR ACTIONS FOR A VALID ALARM: O ENSURE DCP-1B RUNNING O INCREASE FLOW TO DHP-1B BY THROTTLING D DISCUSSION: THE MAXIMUM ALLOWABLE DH PUMP STATOR TEMP COMPUTER POINT X323). CONSIDERATION SHOU PUMP IF THIS TEMP IS REACHED. DCV-36 AND DCV-119 ARE SEALED THROTTLED V THEIR POSITION ADMINISTRATIVE MEASURES AND	RM: ES LOW FLOW -1B MOTOR STATOR TEMP DCV-36 OR DCV-119 AS RE IS 265° F (129.4°C, AS LD BE MADE IN SHUTTING ALVES, IF CHANGES ARE M	QUIRED READ ON DOWN THE MADE TO
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ENCLOSURE 1 (Page 37 of 54)

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-05-06	D-05-06
	BS/DH PUI DC FLO LOW	MP B W
	EVENT POIN	T 1223
INDICATED CONDITION:		
 BUILDING SPRAY PUMP 1B DC FLOW IS <25 G BSP-1B BREAKER CLOSED 	PM AS SENSED BY DC-74-	FIS WITH
O BSP-18 LOCAL DC FLOW INDICATOR INDICATE	M: S LOW FLOW	
0 BSP-1B LOCAL DC FLOW INDICATOR INDICATE 0 COMPUTER POINT X314 WHICH MONITORS BSP- 0 COMPUTER POINTS X312 AND X313 WHICH MON 0 COMPUTER GROUP 82	M: S LOW FLOW 1B MOTOR STATOR TEMP TTOR BSP-1B PUMP TEMPS	
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ENCLOSURE 1 (Page 38 of 54)

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ESD ANNUNCIATOR	RESPONSE	ESD-3H1-06-02	D-06-02

DH	RW	PUMP	в
	TF	RIP	

EVENT POINT 0018

INDICATED CONDITION:

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O RWP-3B BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

GREEN LIGHT WITH RED FLAG ON RWP-3B CONTROL STATION
 AMBER ES STATUS LIGHT

OPERATOR ACTIONS FOR A VALID ALARM:

 CONSIDERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER OP-404

DISCUSSION:

THE AMOUNT OF DECAY HEAT LOAD AND THE INITIAL TEMPERATURE OF SYSTEM WILL DETERMINE HOW FAST THE DECAY HEAT TRAINS SHOULD BE TRANSFERRED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-05

SENSING ELEMENT: 525/E, 52H/A, CS/SC, CS/O

ENCLOSURE 1 (Page 39 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-JH1-06-03	D-06-03
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INDICATE	D CONDITION
o RWP-3	B MOTOR AMPS ≥115% RATED LOAD.
REDUNDAN	T INDICATION WHICH WILL VERIFY ALARM:
o HIGH o RWP-3	RWP-3B MOTOR AMPS B TRIPS
OPERATOR	ACTIONS FOR A VALID ALARM:
o HAVE o CONSI OP-40	BREAKER CUBICLE CHECKED FOR DROPPED TARGETS DERATION SHOULD BE GIVEN TO ALTERNATING DECAY HEAT TRAINS PER
DISCUSSIC	N :
DISCUSSIC THIS ALA INSTANTA OVERCURF	ON: ARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE INEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS RENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER.
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ENCLOSURE 1

(Page 40 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-JH1-06-04	D-06-04

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EVENT POINT 0016

INDICATED CONDITION:

O RWP-3B 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 RWP-3B BREAKER CLOSED

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-05

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

ENCLOSURE 1 (Page 41 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-JH1-06-04	A-06-04
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DH RW PUMP B OUT OF SERVICE

EVENT POINT 0019

INDICATED CONDITION:

O RWP-38 BREAKER IS RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON RWP-3B CONTROL STATION
 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. THIS IS AN EXPECTED ALARM FOR BREAKER TAGGING OPERATIONS

REFERENCES: DRAWING 208-050 SHEET RW-05

SENSING ELEMENT: CONTACT 52H/b IN BREAKER CUBICLE FOR RWP-3B

ENCLOSURE 1 (Page 42 of 54)

ESD ANNUNCIATOR RESPONSE	ESD-1H1-06-05	D=06=05
		0-00-03

DH RW PUMP B
DISCH PRESS
LOW

EVENT POINT 0021

INDICATED CONDITION:

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O RWP-3B DISCHARGE PRESS <15 PSIG AS SENSED BY RW-61-PS WITH PUMP BREAKER CLOSED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RWP-3B DISCHARGE PRESSURE INDICATOR, RW-8-PI

OPERATOR ACTIONS FOR A VALID ALARM:

MONITOR PUMP CONTROL STATION CURRENT METER
 SECURE PUMP IF SIGNS OF CAVITATION ARE EVIDENT

DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO PLACING THE ALTERNATE DECAY HEAT TRAIN IN SERVICE PER OP-404.

REFERENCES: DRAWING 208-050 SHEET RW-05

SENSING ELEMENT: CONTACT 525/a, RW-61-PS

ENCLOSURE 1 (Page 43 of 54)

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-07-01	D-07-01

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	ES B
A	CTUATION

EVENT POINT 0932

INDICATED CONDITION:

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o RB ISOLATION ACTUATION "B"

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o RB PRESSURE >4 PSIG

MANUAL ACTUATION OF RB ISOLATION AND COOLING
 ES STATUS LIGHTS FOR AFFECTED CHANNELS CHANGE STATE

OPERATOR ACTIONS FOR A VALID ALARM:

O REFER TO EOP

DISCUSSION:

THIS INDICATES THAT RB ISOLATION "B" HAS OCCURRED ON TWO OUT OF THREE CHANNELS, MANUAL RB ISOLATION ACTUATION HAS BEEN INITIATED.

REFERENCES: DRAWING 208-029 SHEET ESB-57

SENSING ELEMENT: 63Z1/RB1, 63Z1/RB2, 63Z/RB3, OR 1X1F/RBB

ENCLOSURE 1 (Page 44 of 54)

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-07-02	D-07-02

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	SI	sw	SW PI	SW PUN TRIP	SW PUMP

EVENT POINT 1828

INDICATED CONDITION:

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

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

ENSURE AUTO START OF SWP-1A
 HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
 REFER TO AP-330

DISCUSSION: EXERCISE CARE WHEN STARTING ALTERNATE SW PUMPS. ENSURE ANY FAILURES SUCH AS IMPROPER FLOW PATH OR SURGE TANK VOLUME, WHICH MAY HAVE DIRECTLY OR INDIRECTLY HAVE CAUSED THIS PUMP TO TRIP DO NOT CAUSE ALTERNATE PUMPS TO TRIP AFTER THEY ARE STARTED.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-056 SHEET SW-03

SENSING ELEMENT: 525/B, 52H/A, CS/SC, CS/O

ENCLOSURE 1 (Page 45 of 54)

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ESD ANNUNCIATOR	RESPONSE	ESD-JH1-07-03	D-07-03

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SW	PUMP	B
M	OTOR	
OVI	ERLOAD	D

INDICAT	D CONDITION
o SWP-	LB MOTOR AMPS >115% RATED LOAD
REDUNDAN	T INDICATION WHICH WILL VERIFY ALARM:
o HIGH o SWP-	MOTOR AMPS ON SWP-1B B TRIP
OPERATOR	ACTIONS FOR A VALID ALARM:
o STAR	SWP-1A
o have	BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
o HAVE	DN:
o HAVE DISCUSSI THIS AL INSTANT INSTANT BREAKER	ON: ARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE ANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. ANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE
o HAVE DISCUSSI THIS AL INSTANT INSTANT BREAKER IT IS P	ON: ARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE ANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. ANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE OSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP.
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ENCLOSURE 1 (Page 46 of 54)

ESB ANNUNCIATOR RESPONSE	ESD-JH1-07-04	D-07-04

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 	 	 	8.00	

SW PUMP B	
OUT OF SERVICE	E

EVENT POINT 1820

INDICATED CONDITION:

o SWP-1B BREAKER RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON SWP-1B CONTROL STATION
 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 208-050 SHEET SW-03

SENSING ELEMENT: CONTACT 52H/b IN BREAKER CUBICLE

ENCLOSURE 1 (Page 47 of 54)

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(SW PUMP B OUT OF SERVICE

INDICATED	CONDITION:
o SWP-1B	BREAKER HAS NO DC CONTROL POWER.
REDUNDANT	INDICATION WHICH WILL VERIFY ALARM:
o NO IND o ES STA	ICATING LIGHTS ON SWP-1B CONTROL STATION TUS LIGHTS INDICATE BREAKER POSITION
OPERATOR A	CTIONS FOR A VALID ALARM:
o VERIFY	DC KNIFE SWITCH FOR SWP-1B BREAKER CLOSED.
	CLUSED DFDF-3B SWITCH IU.
DISCUSSION	:
DISCUSSION THIS COND REFER TO EXPECTED	ITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION. THIS IS AN ALARM FOR BREAKER TAGGING OPERATIONS.
DISCUSSION THIS COND REFER TO EXPECTED REFER TO	: ITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION. THIS IS AN ALARM FOR BREAKER TAGGING OPERATIONS. TS FOR ADMINISTRATIVE REQUIREMENTS.
DISCUSSION THIS COND REFER TO EXPECTED REFER TO REFERENCES	: ITION DISABLES REMOTE BREAKER OPERATION AND PROTECTIVE RELAYING. OP-703 FOR INSTRUCTIONS ON LOCAL BREAKER OPERATION. THIS IS AN ALARM FOR BREAKER TAGGING OPERATIONS. TS FOR ADMINISTRATIVE REQUIREMENTS. : DRAWING 208-050 SHEET SW-03

ENCLOSURE 1 (Page 48 of 54)

ESD	ANNUNCIATOR	RESPONSE	ESD-JH1-07-05	D-07-05
50	ANNUNCIATUR	RESPUNSE	ESD-JH1-07-05	

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EVENT POINT 1829

INDICATED CONDITION:

O SWP-18 BREAKER CLOSED WITH THE CONTROL HANDLE IN NORMAL AFTER STOP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT WITH A GREEN FLAG ON SWP-18 CONTROL STATION

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY ADEQUATE SW PUMP DISCHARGE PRESSURE SW-2-PI
 INVESTIGATE TH': CAUSE OF SWP-1B AUTO START

DISCUSSION:

ANY AUTO START OF SWP-1B GIVES THIS ALARM (e.g., ES OR LOW SW SUPPLY HEADER PRESSURE).

REFERENCES: DRAWING 208-056 SHEET SW-03

SENSING ELEMENT: 525/a, CS/ST, CS/O

ENCLOSURE 1 (Page 49 of 54)

ESD ANNUNCIATOR RESPONSE

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ESD-JH1-08-02 D-08-02

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EVENT POINT 0010

INDICATED CONDITION:

O RWP-2B 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 RWP-2B CONTROL STATION
- O AMBER ES STATUS LIGHT
- O LOW SW RW SYSTEM PRESSURE RW-23-PI, IF NO OTHER PUMP RUNNING

OPERATOR ACTIONS FOR A VALID ALARM:

START RWP-2A
 HAVE BREAKER CUBICLE CHECKED FOR DROPPED TARGETS

DISCUSSION:

ENSURE ANY FAILURE THAT IS COMMON TO RWP-2A IS CORRECTED PRIOR TO STARTING RWP-2A TO PRECLUDE RENDERING IT UNAVAILABLE/INOPERABLE.

ENSURE A PROPER FLOW PATH IS AVAILABLE PRIOR TO STARTING RWP-2A.

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-03

SENSING ELEMENT: 525/B, 52H/A, CS/SC, CS/O

ENCLOSURE 1 (Page 50 of 54)

ESD	ANNUNCIATOR	RESPONSE	
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SW	RW	PUM	IP B
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INDICATE	D CONDITION
o RWP-;	28 MOTOR AMPS >115% RATED LOAD
REDUNDAN	T INDICATION WHICH WILL VERIFY ALARM:
o HIGH o RWP-2	MOTOR AMPS ON RWP-78 CONTROL STATION 28 TRIP
OPERATOR	ACTIONS FOR A VALID ALARM:
o START o HAVE	RWP-2A BREAKER CUBICLE CHECKED FOR DROPPED TARGETS
DISCUSSIO THIS AL	ON: ARM INDICATES THAT EITHER THE TIMED OVERCURRENT OF THE
DISCUSSI THIS AL INSTANT OVERCUR	ON: ARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE ANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS RENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER.
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ENCLOSURE 1 (Page 51 of 54)

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ESD ANNUNCIATOR	RESPONSE	ESD-JH1-08-04	D-08-04

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SW RW	SERVICE

EVENT POINT 0008

INDICATED CONDITION:

O RWP-2B BREAKER HAS NO DC CONTROL POWER

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

NO INDICATING LIGHTS ON RWP-2B CONTROL STATION
 O ES STATUS LIGHTS INDICATE BREAKER POSITION

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY CLOSED DPDP-5B SWITCH 10
 VERIFY DC KNIFE SWITCH IS CLOSED FOR RWP-2B BREAKER

DISCUSSION:

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

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-03

SENSING ELEMENT: RELAY 27C LOCATED INSIDE BREAKER CUBICLE FOR RWP-2B

ENCLOSURE 1 (Page 52 of 54)

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-08-04	D-08-04

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EVENT POINT 0023

INDICATED CONDITION:

O BREAKER FOR RWP-28 BREAKER IS RACKED OUT

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

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

OPERATOR ACTIONS FOR A VALID ALARM:

O INVESTIGATE THE CAUSE FOR BREAKER BEING RACKED OUT

DISCUSSION:

REFER TO TS FOR ADMINISTRATIVE REQUIREMENTS.

REFERENCES: DRAWING 208-050 SHEET RW-03

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

ENCLOSURE 1 (Page 53 of 54)

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ESD ANNUNCIATOR RESPONSE	ESD-JH1-08-05	D-08-05

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 	 				和大学的研究

SW RW PUMP B
AUTO START

EVENT POINT 0011

INDICATED CONDITION:

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 RWP-2B BREAKER CLOSED WITH CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RWP-2B RED INDICATING LIGHT WITH A GREEN FLAG ON THE CONTROL STATION

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY RW PUMP DISCHARGE PRESSURE RW-23-PI
 INVESTIGATE THE CAUSE OF RWP-28 AUTO START

DISCUSSION:

ANY AUTO START OF RWP-2B GIVES THIS ALARM (e.g., ES OR LOW RW SUPPLY HEADER PRESSURE).

REFERENCES: DRAWING 208-050 SHEET RW-03

SENSING ELEMENT: 525/a, CS/ST, CS/O

ENCLOSURE 1 (Page 54 of 54)

ESD	ANNUNCIATOR	RESPONSE	ESD-JH1-08-06	D-08-06
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TEST	BYPAS	SS

EVENT POINT 0770

INDICATED CONDITION: O ANY ES "B" TEST SELECTOR SWITCH NOT IN THE "OFF PUSHED IN" POSITION. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O RED 'MONTHLY TEST' OR RED 'REFUELING TEST' LIGHT ILLUMINATED ON ONE OR MORE OF THE FOLLOWING SWITCHES: HPI AUTO TEST SELECT SWITCH "B" LPI AUTO TEST SELECT SWITCH "B" RB ISO AUTO TEST SELECT SWITCH "B" OPERATOR ACTIONS FOR A VALID ALARM: O REFER TO SP-358A, SP-358B, OR SP-358C AS APPLICABLE, TO RESTORE AFFECTED SWITCH DISCUSSION: THIS ALARM INDICATES THAT ES SYSTEMS MAY NOT FUNCTION PROPERLY ON AN AUTOMATIC OR MANUAL ES ACTUATION. REFERENCES: DRAWING 208-028 SHEET ESAB-06 SENSING ELEMENT: TS4/RCB, SS4/RCA, SS4/RBB