Document Transmittal #: 86525

Date: 2/2/98

To: NRC (DC DESK) Destination:

MAC: N/A Lascription:

Desumant			Сору	C	opy to	lais	
Document:	Revision:	Comment:	#	INFO	CNTL	MSTR	
AR0504	16		24	1	0	0	

Instructions to the Addressee:

1

Please verify the document(s) received agrees with the above information.

Operations department must attach old document(s) or portions of document(s) superseded by the above to this transmittal.

The signature indicates acknowledgment of receipt of the above document(s) and that documents have been updated. Return signed and dated transmittal to Document Control within 15 working days of transmittal date to mail code:

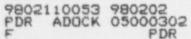
____ NA1C

Florida Power Corporation Document Control, NA1C Crystal River Energy Complex 15760 W. Power Line St. Crystal River, FL 34428-6708

-

٠.

Signature of Addressee:



110036

Date:

INFORMATION ONLY

..

Effective Date 2/2/98

Rev. 16

ANNUNCIATOR RESPONSE AR-504 FLORIDA POWER CORPORATION CRYSTAL RIVER UNIT 3

ICS L ANNUNCIATOR RESPONSE

APPROVED BY: Interpretation Contact (SIGNATURE ON FILE) 2/2/98

DATE :

.

INTERPRETATION CONTACT: Manager, Nuclear Plant Operations Support

CIVILY	T1015 55 51 51 55	
	TABLE OF CONTENTS	
SECTION	e.,	PAGE
1.0 PURPOSE		1
6.1 IPIPLEMENTING REFEREN	ICES	
3.0 PERSONNEL INDOCTRINATION		1
5.0 FOLLOW-UP ACTIONS		1
ENCLUSURES		

1.0 PURPOSE

- 1.1 Establish a reference document for each Annunciator Window on the ICS-CY4 Lampbox.
- 1.2 Establish operator actions for valid Annunciator alarms on the ICS-CY4 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ICS-CY4 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

- 2.1.1 AP-545, "Plant Runback"
- 2.1.2 OP-605, "Feedwater System"
- 2.1.3 EOP, Emergency 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

3.0 PERSONNEL INDOCTRINATION

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

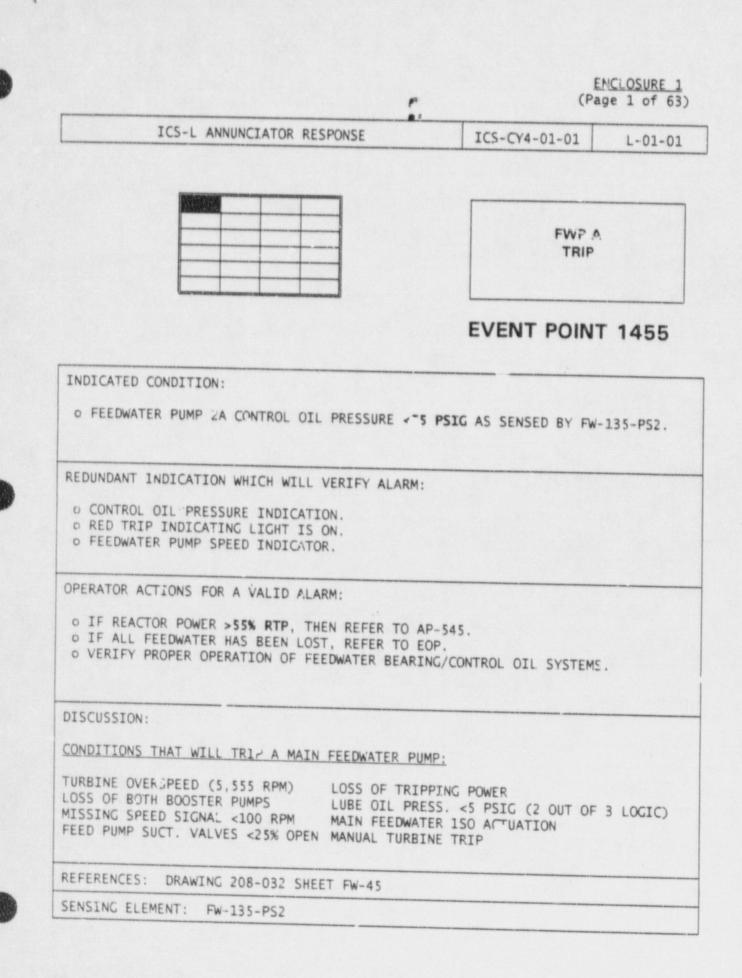
4.0 INSTRUCTIONS

4.1 Respond to alarms on the ICS-CY4 Lampbox as indicated in Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

.



5

4

.

L

.

 $(A \cap W)$

		age 2 of 6
ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-01-01	L-01-01
	FWP A TRIP	
	EVENT POIN	T 1492
TNDICATED CONDITION		
INDICATED CONDITION:		
• FEEDWATER PUMP 2A CONTROL OIL PRESSURE <5 FW-321-PS, FW-322-PS OR FW-323-PS.	5 PSIG AS SENSED BY FW	-320-PS,
REDUNDANT INDICATION WHICH WILL VERIFY ALARM O RPS CHANNEL'A, B, C, OR D FEED PUMP TRIP AU BRIGHT.		
BRIGHT. O RED TRIP INDICATING LIGHT IS ON. O FEEDWATER PUMP SPEED INDICATOR.	A RELAT MEP A INDICA	TION IS
 RED TRIP INDICATING LIGHT IS ON. FEEDWATER PUMP SPEED INDICATOR. 	- ACCAT MEP A INDICA	TION IS
 RED TRIP INDICATING LIGHT IS ON. FEEDWATER PUMP SPEED INDICATOR. 	AP-545.	
 O RED TRIP INDICATING LIGHT IS ON. O FEEDWATER PUMP SPEED INDICATOR. OPERATOR ACTIONS FOR A VALID ALARM: O IF REACTOR POWER >55% RTP, THEN REFER TO A OF ALL FEEDWATER HAS BEEN LOST PROFILE TO TO	AP-545.	
 RED TRIP INDICATING LIGHT IS ON. FEEDWATER PUMP SPEED INDICATOR. OPERATOR ACTIONS FOR A VALID ALARM: IF REACTOR POWER >55% RTP, THEN REFER TO A IF ALL FEEDWATER HAS BEEN LOST, REFER TO A VERIFY PROPER OPERATION OF FEEDWATER BEAR: DISCUSSION: THIS ALARM INDICATES THAT ONE OR MORE RPS CHATIP SIGNAL FROM THE CONTROL OT A PRESENCE OF A PRESENCE	AP-545. EOP. ING/CONTROL OIL SYSTEMS	S. FEED PUMP
 RED TRIP INDICATING LIGHT IS ON. FEEDWATER PUMP SPEED INDICATOR. OPERATOR ACTIONS FOR A VALID ALARM: IF REACTOR POWER >55% RTP, THEN REFER TO A OF ALL FEEDWATER HAS BEEN LOST, REFER TO A OF ALL FEEDWATER OPERATION OF FEEDWATER BEAR. 	AP-545. EOP. ING/CONTROL OIL SYSTEMS	S. FEED PUMP

.

é

4

٠

à

(Page 3 of 63) ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-02 L-01-02 FWP A VIBRATION HIGH **EVENT POINT 1464** INDICATED CONDITION: MAIN FWP 2A INBOARD/OUTBOARD TURBINE BEARING VIBRATION IS EITHER: >2.4 MILS, (ALERT) OR >3.5 MILS (DANGER) AS SENSED BY FW-239-MIS/FW-241-MIS O MAIN FWP 2A INBOARD/OUTBOARD PUMP BEARING VIBRATION IS EITHER: >5.0 MILS (ALERT) OR >5.7 MILS (DANGER) AS SENSED BY FW-267-MIS/FW-269-MIS REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FEEDWATER PUMP VIBRATION MONITORING PANEL INDICATIONS (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL. O VIBRATION IS FELT AT FWP-2A.

OPERATOR ACTIONS FOR A VALID ALARM:

O IF VIBRATION IS IN "ALERT", CONTACT ENGINEERING FOR RECOMMENDATIONS FOR FURTHER PUMP OPERATION.

O IF VIBRATION IS IN "DANGER", THEN CONSIDERATION SHOULD BE GIVEN TO REDUCING FLOW THROUGH THE PUMP UNTIL THE DANGER ALARM CAN BE CLEARED.

DISCUSSION:

9

5

REFER TO OP-605 FOR VIBRATION SETPOINTS.

THIS ALARM MUST BE MANUALLY RESET AT THE FEEDWATER PUMP VIBRATION MONITORING PANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL WHEN THE VIBRATION CONDITION HAS CLEARED.

REFERENCES:	DRAWINC	208-032	SHEET	FW-45				1
SENSING ELEME	NT: FW	-269-MIS,	FW-26	57-MIS,	FW-239-MIS	&	FW-241-MIS	1

	ICS-CY4-01-03	L-01-03
	FWP / OIL PRE LOW	SS
	EVENT POIN	T 1436
○ FEEDWATER PUMP 2A LUBE OIL PRESSURE <18 F	SIG AS SENSED BY FW-18	6-PS.
REDUNDANT INDICATION WHICH WILL VERIFY ALARM	1:	
O FEEDWATER DUMP DA LURE OT DEPENDENT	ATOR FW-203-PI. , FWP-4A.	
 FEEDWATER PUMP 2A LUBE OIL PRESSURE INDIC STANDBY LUBE OIL PUMP AUTO STARTS, FWP-3A 		
OPERATOR ACTIONS FOR A VALID ALARM: OPERATOR ACTIONS FOR A VALID ALARM: OENSURE STANDBY LUBE OIL PUMP AUTO STARTS. ENSURE PROPER FEED PUMP LUBE OIL RESERVOI O ENSURE PROPER FEED PUMP LUBE OIL TEMPERAT	R LEVEL. URE.	
OPERATOR ACTIONS FOR A VALID ALARM: O ENSURE STANDBY LUBE OIL PUMP AUTO STARTS. O ENSURE PROPER FEED PUMP LUBE OIL PESERVOT	R LEVEL. URE.	

FEED PUMP TRIPS AT LUBE OIL PRESSURE <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-07

SENSING ELEMENT: FW-186-PS

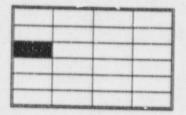
And A Law Market

-

]

2...

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-03 L-01-03



FWP A OIL PRESS LOW

EVENT POINT 1437

INDICATED CONDITION:

-

O FEEDWATER PUMP 2A CONTROL OIL PRESSURE <90 PSIG AS SENSED BY FW-195-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

FEEDWATER PUMP 2A CONTROL OIL PRESSURE INDICATOR FW-205-PI.
 STANDBY LUBE OIL PUMP AUTO STARTS, FWP-3A, FWP-4A.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE STANDBY LUBE OIL PUMP AUTO STARTS.
 O ENSURE PROPER FEED PUMP LUBE OIL RESERVOIR LEVEL.
 O ENSURE PROPER FEED PUMP LUBE OIL TEMPERATURE.

DISCUSSION:

1

æ

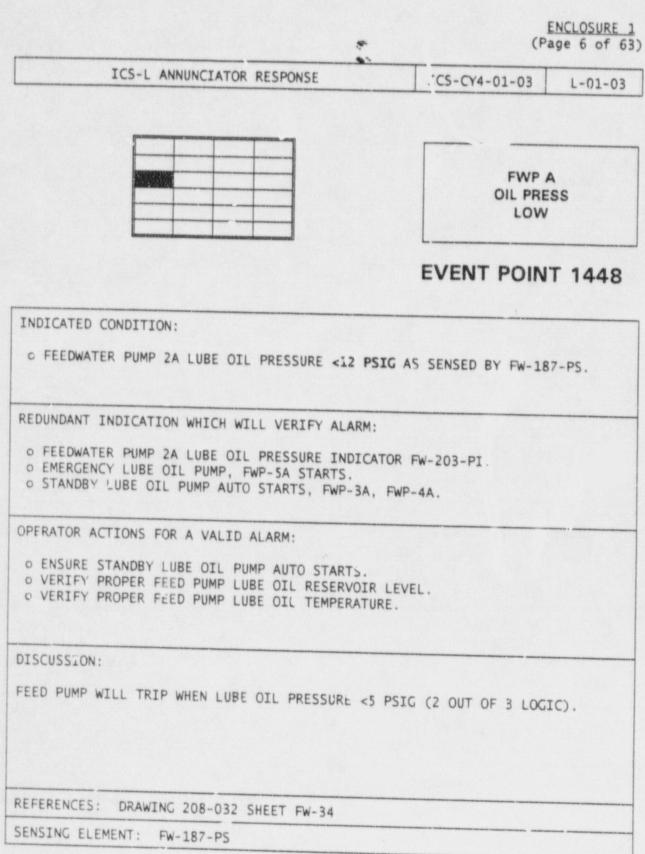
FEED PUMP CONTROL OIL SENDS A TRIP SIGNAL TO RPS WHEN CONTROL OIL PRESSURE IS <55 PSIG.

REFERENCES: DRAWING 208-032 SHEET FW-07

SENSING ELEMENT: FW-195-PS

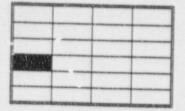
æ

0



a

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-04 L-01-04



FWP A LUBE OIL PUMP TRIP

EVENT POINT 1438

INDICATED CONDITION:

• FWP-3A BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT DICATION WHICH WILL VERIFY ALARM:

GREEN LIGHT IS ON WITH A RED FLAG ON FWP-3A CONTROL STATION.
 STANDBY FEEDWATER LUBE OIL PUMP AUTO STARTS.

OPERATOR ACTIONS FOR A VALID ALARM:

ENSURE FWP-4A, BACKUP FEEDWATER LUBE OIL PUMP, IS RUNNING.
 INVESTIGATE CAUSE OF PUMP TRIP.

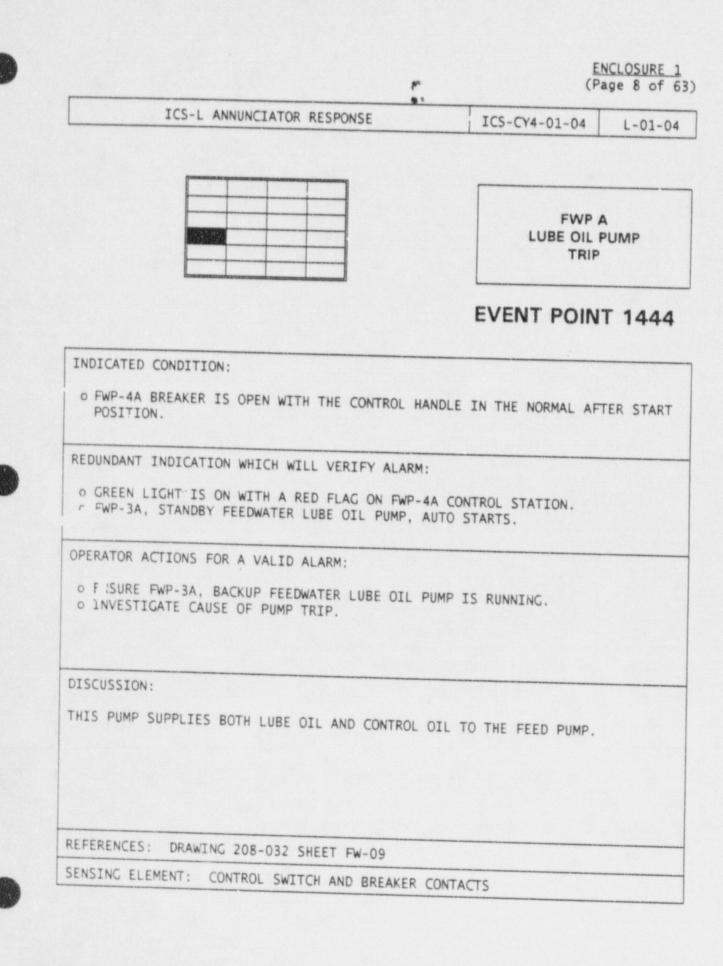
DISCUSSION:

THIS PUMP SUPPLIES BOTH LUBE OIL AND CONTROL OIL TO THE FEED PUMP.

REFERENCES: DRAWING 208-032 SHEET FW-07

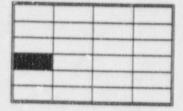
SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

•



Q'

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-04 L-01-04



FWP A LUBE OIL PUMP TRIP

EVENT POINT 1450

INDICATED CONDITION:

O FWP-5A BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GFIEN LIGHT IS ON WITH A RED FLAG ON FWP-5A CONTROL STATION. O FWP-3A, FWP-4A STANDBY FEEDWATER LUBE OIL PUMPS AUTO START.

OPERATOR ACTIONS FOR A VALID ALAR 1:

- ENSURE BACKUP FEEDWATER LUBE OIL PUMP, FWP-3A IS RUNNING.
 IF NO LUBE OIL PUMPS ARE RUNNING, THEN VERIFY THAT FWP-2A IS NOT ROLLING.
- O INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THIS PUMP SUPPLIES ONLY BEARING LUBE OIL TO THE FEED PUMP, NOT CONTROL OIL.

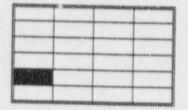
REFERENCES: DRAWING 208-032 SHEET FW-34

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

· . .

è

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-05 L-01-05



FWP A EMERG OIL PP AUTO START

10 - 1

EVENT POINT 1449

IND. CATED CONDITION:

O FWP-5A BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-5A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

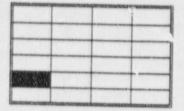
FWP-5A WILL AUTO START WHEN LUBE OIL PRESSURE DROPS TO <12 PSIC.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-034

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS.

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-05 L-01-05



FWP A EMERG OIL PP AUTO START

EVENT POINT 1496

INDICATED CONDITION:

• FWP-3A BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-3A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

.

.

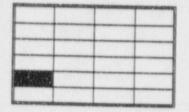
FWP-3A WILL AUTO START WHEN LUBE OIL PRESSURE DROPS TO <18 PSIG OR WHEN CONTROL OIL PRESSURE DROPS TO <90 PSIG.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-007

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS.

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-05 L-01-05



FWP A EMERG OIL PP AUTO START

EVENT POINT 1498

INDICATED CONDITION:

o FWP-4A BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-4A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

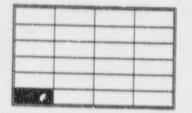
FWP-4A WILL AUTO START WHEN LUBE OIL PRESSURE DROPS TO <18 PSIG OR WHEN CONTROL OIL PRESSURE DROPS TO <90 PSIG.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-009

SENSING ELEMENT: CONTROL SWITCH AND BPEAKER CONTACTS.

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-01-06 L-01-06



FWP A LUBE OIL RESVR LEVEL HIGH/LOW

EVENT POINT 1460

INDICATED CONDITION:

 FEEDWATER PUMP 2A LUBE OIL RESERVOIR LEVEL HIGH AS SENSED BY FW-207-LS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

ON HIGH LEVEL.
LOCAL RESERVOIR SIGHT GLASS INDICATION.
LOCAL RESERVOIR DIPSTICK LEVEL.

OPERATOR ACTIONS FOR A VALID ALARM:

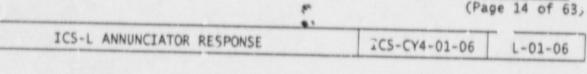
O CHECK LUBE OIL DRAIN FLOWPATH TO THE LUBE OIL PURIFIER.

DISCUSSION:

THIS ALARM WILL ACTUATE WHEN OIL LEVEL REACHES 15 INCHES BELOW THE TOP OF THE BOTTOM FLANGE OF THE LEVEL SWITCH.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-207-LS



-	 	

FWP A LUBE OIL RESVR LEVEL HIGH/LOW

EVENT POINT 1461

INDICATED CONDITION:

O FEEDWATER PUMP 2A LUBE OIL RESERVOIR LEVEL LOW AS SENSED BY FW-207-LS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

LUBE OIL SYSTEM PRESSURE INDICATION.
 LOCAL RESERVOIR SIGHT GLASS INDICATION.
 LOCAL RESERVOIR DIPSTICK LEVEL

OPERATOR ACTIONS FOR A VALID ALARM:

• CHECK LUBE OIL SYSTEM FOR EVIDENCE OF LEAKS. • ADD OIL TO LUBE OIL RESERVOIR AS NECESSARY.

DISCUSSION:

IF A LARGE LUBE COLLEAK EXISTS, CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE MAIN FEED PUMP. THIS ALARM WILL ACTUATE WHEN OIL LEVEL REACHES 30 INCHES BELOW THE TOP OF THE BOTTOM FLANGE OF THE LEVEL SWITCH.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-207-LS

ENCLOSURE 1 (Page 15 of 63)

ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-02-01	L-02-01
		P 00 04 1

	NUMBER OF	

FWP	

EVENT POINT 1471

INDICATED CONDITION:

O FEEDWATER PUMP 28 CONTROL OIL PRESSURE <55 PSIG AS SENSED BY FW-136-PS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O CUNTROL OIL PRESSURE INDICATION.

O RED TRIP INDICATION.

O FEEDWATER PUMP SPEED INDICATOR.

OPERATOR ACTIONS FOR A VALID ALARM:

O IF REACTOR POWER >55% RTP, THEN REFER TO AP-545. O IF ALL FEED ATER HAS BEEN LOST, REFER TO EOP. O VERIFY PROP. ? OPERATION OF FEEDWATER BEARING/CONTROL OIL SYSTEMS.

DISCUSSION:

CONDITIONS THAT WILL TRIP A MAIN FEEDWATER PUMP:

TURBINE OVERSPEED (5,555 RPM)LOSS OF TRIPPING POWERLOSS OF BOTH BOOSTER PUMPSLUBE OIL PRESS. <5 PSIC</td> MISSING SPEED SIGNAL <100 RPM MAIN FEDWATER ISO ACTUATION FEED PUMP SUCT. VALVES <25% OPEN MANUAL TURBINE TRIP

LUBE OIL PRESS. <5 PSIG (2 OUT OF 3 LOGIC)

RI TERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-136-PS2

ENCLOSURE 1 (Page 16 of 63)

A STATE OF TAXABLE OF TAXABLE AND	61	age 16 of 63
ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-02-01	L-02-01
	FWP	
INDICATED CONDITION:	EVENT POIN	IT 1493
INDICATED CONDITION:		
• FEEDWATER PUMP 2B CONTROL OIL PRESSUR FW-325-PS, FW-326-PS OR FW-32/-PS.	E < 55 PSIG AS SENSED BY FW	V-324-PS,

OPERATOR ACTIONS FOR A VALID ALARM:

O IF REACTOR POWER >55% RTP, THEN REFER TO AP-545. O IF ALL FEEDWATER HAS BEEN LOST, REFER TO EOP.

O VERIFY PROPER OPERATION OF FEEDWATER BEARING/CONTROL OIL SYSTEMS.

DISCUSSION:

THIS ALARM INDICATES THAT ONE OR MORE RPS CHANNELS HAS RECEIVED A FEED PUMP TRIP SIGNAL FROM THE CONTROL OIL PRESSURE SWITCHES ASSOCIATED WITH THAT FEED PUMP. THIS MAY NOT BE INDICATIVE OF AN ACTUAL FEED PUMP TRIP CONDIT. N.

 REFERENCES:
 DRAWING 208-032
 SHEET FW-45

 SENSING ELEMENT:
 FW-324, 325, 326, 327-PS

	(Pa)	ge 17 of (
ICS-L ANNUNCIATOR RESPONSE	IC5-CY4-02-02	L-02-02
	FWP 2 VIBRATI HIGH	ON
	EVENT POIN	T 1480
 MAIN FWP 2B INBOARD OUTBOARD TURBINE BEARI MILS, (ALERT) OR >3.5 MILS (DANGER) AS SEN MAIN FWP 2B INBOARD/OUTBOARD PUMP BEARING >5.0 MILS (A'ERT) OR >5.7 MILS (DANGER) AS FW-268-MIS/FW-270-MIS REDUNDANT INDICATION WHICH WILL VERIFY ALARM: 	SED BY FW-240-MIS/FW-2 VIBRATION IS EITHER: SENSED BY	R: >2.4 42-MIS
• FEEDWATER PUMP VIBRATION MONITORING PANEL : I&C CAL LAB ON 145' LEVEL.	INDICATIONS (VMC-1) LO	CATED IN
O VIBRATION IS FELT AT FWP-28.		
	TTON SHOULD BE CTUCH	-
OPERATOR ACTIONS FOR A VALID ALARM: • IF VIBRATION IS IN "ALERT", CONTACT ENGINER FURTHER PUMP OPERATION. • IF VIBRATION IS IN "DANGER", THEN CONSIDERA REDUCING FLOW THROUGH THE PUMP UNTIL THE DA	TTON SHOULD BE CTUCH	-
OPERATOR ACTIONS FOR A VALID ALARM: • IF VI&RATION IS IN "ALERT", CONTACT ENGINER FURTHER PUMP OPERATION. • IF VIBRATION IS IN "DANGER", THEN CONSIDERA REDUCING FLOW THROUGH THE PUMP UNTIL THE DA DISCUSSION: REFER TO OP-605 FOR VIBRATION SETPOINTS. HIS ALARM MUST BE MANUALLY RESET AT THE FEEDW ANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' L	ATER DUMP VIRPATION	TO ARED.
OPERATOR ACTIONS FOR A VALID ALARM: • IF VIBRATION IS IN "ALERT", CONTACT ENGINER FURTHER PUMP OPERATION. • IF VIBRATION IS IN "DANGER", THEN CONSTORRA	ATER DUMP VIRPATION	TO ARED.

3

•

.

.

	19°	(Pag	NCLOSURE ge 18 of
ICS-L ANNUNCIATOR RESPONSE		ICS-CY4-02-03	L-U2-0
		[
		FWP E OIL PRE	8

EVEN'T POINT 1439

INDICATED CONDITION:

O FEEDWATER PUMP 28 LUBE OIL PRESSURE <18 PSIG AS SENSED BY FW-191-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o FEEDWATER FUMP 2B LUBE OIL PRESSURE INDICATOR FW-204-PI. o STANDBY LUBE OIL PUMP AUTO STARTS, FWP-3B, FWP-4B.

OPERATOR ACTIONS FOR A VALID ALARM:

ENSURE STANDBY LUBE OIL PUMP AUTO STARTS.
 VERIFY PROPER FEED PUMP LUBE OIL RESERVOIR LEVEL.
 VERIFY PROPER FEED PUMP LUBE OIL TEMPERATURE.

DISCUSSION:

FEED PUMP TRIPS AT LUBE OIL PRESSURE <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-08

SENSING ELEMENT: FW-191-PS

ENCLOSURE 1 (Page 19 (f 63)

	ICS !	ANNUNCIATOR RESPONSE	ICS-CY4-02-03	L-02-03
and the second state of the second state state state.	And the owner of the Address		1 2 2 - 2 1 4 - 0 2 - 0 5	L=02=0

	-	
	a de la	
INTERNA MARCONAN	STREET, STREET	

FWP B	
CIL PRESS	
LOW	

EVENT POINT 1440

INDICATED CONDITION:

O FEEDWATER PUMP 28 CONTROL OIL PRESSURE <90 PSIG AS SENSED BY FW-198-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o FEEDWATER PUMP 2B CONTROL OIL PRESSURS INDICATOR FW-206-PI. o STANDBY LUBE OIL PUMP AUTO STARTS, FWP-3B, FWP-4B.

OPERATOR ACTIONS FOR A VALID ALARM:

• ENSURE STANDBY LUBE OIL PUMP AUTO STARTS. • VERIFY PROPER FEED PUMP LUBE OIL RESERVOIR LEVEL. • VERIFY PROPER FEED PUMP LUBE OIL TEMPERATURE.

DISCUSSION:

FEED PUMP CONTROL OIL SENDS A TRIP SIGNAL TO RPS WHEN CONTROL OIL PRESSURE IS <55 PSIG.

REFERENCES: DRAWING 208-032 SHEET FW-08

SENSING ELEMENT: FW-198-PS

ENCLOSURE 1 (Page 20 of 63)

ICS-L	ANNUNCIATOR RESPONSE	ICS-CY4-02-03	L-02-0
-------	----------------------	---------------	--------

-	 	

(PF	RES	S	
	.01		-	

EVENT POINT 1451

INDICATED CONDITION:

O FEEDWATER PUMP 28 LUBE OIL PRESSURE <12 PSIG AS SENSED BY FW-192-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

FEEDWATER PUMP 28 LUBE OIL PRESSURE INDICATOR FW-204-PI.
 EMERGENCY LUBE OIL PUMP, FWP-58 STARTS.
 STANDBY LUBE OIL PUMP AUTO STARTS, FWP-3B, FWP-4B.

OPERATOR ACTIONS FOR A VALID ALARM:

• ENSURE STANDBY LUBE OIL PUMP AUTO STARTS. • VERIFY PROPER FEED PUMP LUBE OIL RESERVOIR LEVEL. • VERIFY PROPER FEED PUMP LUBE OIL TEMPERATURE.

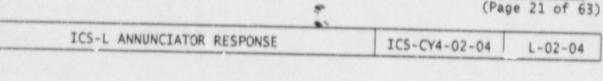
DISCUSSION:

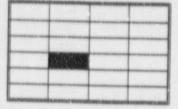
FEED PUMP WILL TRIP WHEN LUBE OIL FRESSURE <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-35

SENSING FLEMENT: FW-192-PS

AR-504





FWP B LUBE OIL PUMP TRIP

EVENT POINT 1441

INDICATED CONDITION:

.

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

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

○ GREEN LIGHT IS ON WITH A RED FLAG ON FWP-3B CONTROL STATION.
○ STANDBY FEEDWATER LUBE OIL PUMP FW: 2R, FWP-4B, AUTO STARTS.

OPERATOR ACTIONS FOR A VALID ALARM:

ENSURE BACKUP FEFDWATER LUBE OIL PUMP, FWP-4B IS RUNNING.
 INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THIS PUMP SUPPLIES BOTH LUBE OIL AND CONTROL OIL TO THE FEED PUMP.

REFERENCES: DRAWING 208-032 SHEET FW-08

F

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

 ENCLOSURE 1 (Page 22 of 63)

 ICS-L ANNUNCTATOR RESPONSE
 ICS-CY4-02-04
 L-02-04

 ICS-CY4-02-04
 L-02-04
 L-02-04

INDICATED CONDITION:

.

O FWP-48 BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT IS ON WITH A RED FLAG ON FWP-4B CONTROL STATION. O STANDBY FEEDWATER LUBE OIL PUMP FWP-3B, FWP-4B AUTO STARTS.

OPERATOR ACTIONS FOR A VALID ALARM:

ENSURE BACKUP FEEDWATER LUBE OIL PUMP, FWP-3B IS RUNNING.
 INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THIS PUMP SUPPLIES BUTH LUBE OIL AND CONTROL OIL TO THE FEED PUMP.

REFERENCES: DRAWING 208-032 SHEET FW-10

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

.

ENCLOSURE 1 (Page 23 of 63)

	THE R OF THE PARTY OF THE PARTY.	
ICS-L ANNUNCIATOR RESPONSE	ICS-(Y4-02-04	L-02-04

 COMPSH	

FWP B	
LUBE OIL PUMP	
TRIP	

EVENT POINT 1453

INDICATED CONDITION:

O FWP-58 BREAKER IS OPEN WITH THE CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT- IS ON WITH A RED FLAG ON FWP-5B CONTROL STATION. O STANDBY FEEDWATER LUBE OIL PUMP FWP-3B, FWP-4B AUTO STARTS.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE BACKUP FEEDWATER LUBE OIL PUMP, FWP-38 IS RUNNING.

- O IF NO LUBE OIL PUMPS ARE RUNNING, THEN VERIFY THAT FWP-28 IS NOT ROLLING.
- O INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

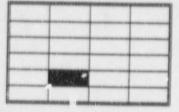
THIS PUMP SUPPLIES ONLY BEARING LUBE OIL TO THE FEED PUMP AND NOT CONTROL OIL

REFERENCES: DRAWING 208-032 SHEET FW-35

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

ENCLOSUPE 1 (Page 24 of 63)

and the second	and spectrum and a second s	
ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-02-05	L-02-05
		1. VE VD



	NPB
EMER	G OIL PP
AUTO	START

EVENT POINT 1452

INDICATED CONDITION:

O FWP-58 BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-58 CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

FWP-58 WILL AUTO START WHEN LUBE OIL PRESSURE DROPS TO <12 PSIG.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOGIC).

REFERENCES: DRAWING 208-032 SHEET FW-035

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS.

 ENCLOSURE 1 (Page 25 of 63)

 ICS-L ANNUNCIATOR RESPONSE
 ICS-CY4-02-05
 L-02-05

 ICS-CY4-02-05
 L-02-05
 L-02-05

 FWP B
 EMERG OIL PP
 AUTO START

 EVENT POINT 1497
 EVENT POINT 1497

INDICATED CONDITION:

.

O FWP-38 BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-3B CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

FWP-3B WILL AUTO START WHEN LUBE OIL PRESSURE DROPS TO <18 PSIG OR WHEN CONTROL OIL PRESSURE DROPS TO <90 PSIG.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOCIC).

REFERENCES: LRAWING 208-032 SHEET FW-008

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS.

ENCLOSURE 1 (Page 26 of 63)

ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-02-05	L-02-05
	and a supervision of the supervi	

17

	Terrandom - 7

FWP B	
EMERG OIL PP	
AUTO START	

EVENT POINT 1499

INDICATED CONDITION:

O F.P-48 BREAKER CLOSED WITH THE CONTROL HANDLE IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON FWP-4B CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

INVESTIGATE CAUSE OF AUTO START.
 VERIFY PROPER LUBE OIL SYSTEM OPERATION.

DISCUSSION:

FWP-48 WILL AUTO START WHEN LUBF OIL PRESSURE DROPS TO <18 PSIG OR WHEN CONTROL OIL P'ESSURE DROPS TO <90 PSIG.

FEED PUMP WILL TRIP WHEN LUBE OIL PRESSURE DROPS TO <5 PSIG (2 OUT OF 3 LOGIC)

REFERENCES: DRAWING 208-032 SHEET FW-010

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS.

ENCLOSURE 1 (Page 27 of 63)

	an include provide a state of the second s	
ICS-L ANNUNCTATOR RESPONSE	1CS-CY4-02-06	L-02-06
		L-02-00

FWP	B LUBE OU
RES	SVR LEVEL
HI	GH/LOW

EVENT POINT 1476

INDICATED CONDITION:

o FEEDWATER PUMP 28 LUBE OIL PESERVOIR LEVEL HIGH AS SENSED BY FW-208-LS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

ON HIGH LEVEL.
 O LOCAL RESERVOIR SIGHT GLASS INDICATION.
 O LOCAL RESERVOIR DIPSTICK LEVEL

OPERATOR ACTIONS FOR A VALID ALARM:

O CHECK LUBE OIL DRAIN FLOWPATH TO THE LUBE OIL PURIFIER.

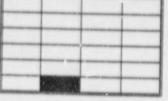
DISCUSSION:

THIS ALARM WILL ACTUATE WHEN OIL LEVEL REACHES 15 INCHES BELOW THE TOP OF THE BOTTOM FLANGE OF THE LEVEL SWITCH.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-208-LS

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-02-06 L-02-06



FWP B LUBE OIL RESVR LEVEL HIGH/LOW

EVEN' POINT 1477

INDICATED CONDITION:

O FEEDWATER PUMP 28 I.UBE OIL RESERVOIR LEVEL LOW SENSED BY FW-208-LS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O LOCAL RESERVOIR SIGHT GLASS INDICATION.
 O LUBE OIL SYSTEM PRESSURE INDICATION.
 O LOCAL RESERVOIR DIPSTICK LEVEL.

OPERATOR ACTIONS FOR A VALID ALARM:

CHECK LUBE OIL SYSTEM FOR EVIDENCE OF LEAKS.
 ADD OIL TO LUBE OIL RESERVOIR AS NECESSARY.

DISCUSSION:

IF A LARGE LUBE OIL LEAK EXISTS, CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE MAIN FEED PUMP. THIS ALARM WILL ACTUATE WHEN OIL LEVEL REACHES 30 INCHES BELOW THE TOP OF THE BOTTOM FLANGE OF THE LEVEL SWITCH.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-208-LS



۲

-

ENCLOSURE 1 (Page 29 of 63)

 	Contraction of the second s	and descent devices a second or a second	a an and the second	
ICS-	ANNUNCIATOR	RESPONSE	ICS-CY4-03-01	L-03-01
 162-1	. ANNUNCIATOR	RESPONSE	1CS-CY4-03-0	1

50

	1	PERSONAL STATE

	TRI		

EVENT POINT 1424

INDICATED CONDITION:

O FWP-1A BREAKER OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT IS ON WITH A RED FLAG ON FWP-1A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

IF PLANT IS >55% POWER, THEN REFER TO AP-545.
 INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THE FOLLOWING ARE BOOSTER PUMP TRIPS:

LUBE OIL PRESSURE <4 PSIC DEAERATOR LEVEL <2'10" ELECTRICAL FAULTS

REFERENCES: DRAWING 208-032 SHEET FW-01

SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS



ENCLOSURE 1 (Page 30 of 63)

Photosofield (all the second		Advertisian and a second	
ICS-L ANNUNCIA	TOR RESPONSE	ICS-CY4-03-03	L-03-03

-	 	
	 	-

FWP	
TROUBLE	

EVENT POINT 1434

INDICATED CONDITION:

O FEEDWATER PUMP 2A AT ZERO SPEED AND TURNING GEAR NOT ENGAGED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FWP-2A SHAFT NOT TURNING. GREEN "NOT ENGAGED LIGHT" ON.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENGAGE FEED PUMP TURNING GEAR.

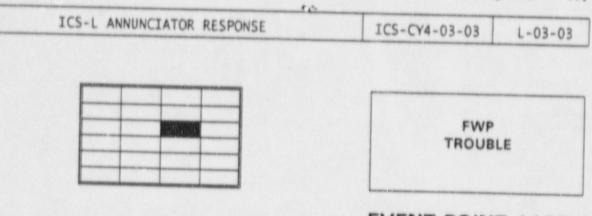
DISCUSSION:

FWP-2A HAS NO AUTOMATIC ENGAGING FOR THE TURNING GEAR. THE TURNING GEAR MUST BE MANUALLY ENGAGED LOCALLY AT THE FEED PU/AP. ADMITTING GLAND STEAM TO A MAIN FEEDWATER PUMP TURBINE ROTOR WHILE IT IS STATIONARY MAY CAUSE BOWING OF THE SHAFT DUE TO UNEVEN HEATING.

REFERENCES: DRAWING 208-032 SHEET FW-05

SENSING ELEMENT: TURNING GEAR ENGAGED SWITCH

ENCLOSURE 1 (Page 31 of 63)



10

EVENT POINT 1435

INDICATED CONDITION:

O FEEDWATER PUMP 28 AT ZERO SPEED AND TURNING GEAR NOT ENGAGED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FWP-28 SHAFT NOT TURNING. O GREEN "NOT ENGAGED LIGHT" IS ON.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE THE FEED PUMP TURNING GEAR IS ENGAGED.

DISCUSSION:

: : . ADMITTING GLAND STEAM TO A MAIN FEEDWATER PUMP TURBINE ROTOR WHILE IT IS STATIONARY MAY CAUSE BOWING OF THE SHAFT DUE TO UNEVEN HEATING.

REFERENCES: DRAWING 208-032 SHEET FW-06

.

SENSING ELEMENT: TURNING GEAR ENGAGED SWITCH

.

ENCLOSURE 1 (Page 32 of 63)

IC	S-L ANNUNCIATOR RESPONSE	ICS-CY4-03-03	L-03-03
----	--------------------------	---------------	---------

-		
		-
-	-	

EVENT POINT 1443

INDICATED CONDITION:

O FEEDWATER PUMP 28 TURNING GEAR MOTOR AMPS >115% RATED LOAD.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FWP-2B TURNING CEAR MOTOR RUNNING HOT.

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY FWP-2B NOT RUBBING.
 CONTACT ELECTRIC SHOP.

DISCUSSION:

ADMITTING GLAND STEAM TO A MAIN FEEDWATER PUMP TURBINE ROTOR WHILE IT IS STATIONARY MAY CAUSE BOWING OF THE SHAFT DUE TO UNEVEN HEATING.

REFERENCES: DRAWING 208-032 SHEET FW-06

SENSING ELFMAN : TURNING GEAR OVERLOAD CONTACT, 49

ENCLOSURE 1 (Page 33 of 63)

		and the second se	and manual an entropy of the supervision of statements where a supervision statement and the supervision of the	
ICS-L	ANNUNCIATOR	RESPONSE	ICS-CY4-03-03	L-03-03

in	001	BLE	

EVENT POINT 1446

INDICATED CONDITION:

O FEEDWATER PUMP 2A TURNING GEAR MOTOR AMPS >115% RATED LOAD.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FWP-2A TURNING GEAR MOTOR HOT.

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY FWP-2A NOT RUBBING.
 CONTACT ELECTRIC SHOP.

DISCUSSION:

ADMITTING GLAND STEAM TO A MAIN FEEDWATER PUMP TURBINE ROTOR THAT IS STATIONARY MAY CAUSE BOWING OF THE SHAFT DUE TO UNEVEN HEATING.

REFERENCES: DRAWING 208-032 SHEET FW-05

SENSING ELEMENT: TURNING GEAR OVERLOAD CONTACT, 49

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-03 L-03-03

EVENT POINT 1462

INJICATED CONDITION:

- A. -

O FEEDWATER PUMP 2A T "RBINE SPEED ≥5,555 RPM.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

FWP-2A SPEED INDICATION.
 FWP-2A LOCAL SPEED INDICATOR ON FEED PUMP CONTROL CONSOLE.

OPERATOR ALTIONS FOR A VALID ALARM:

O TRIP THE FEED PUMP MANUALLY.

DISCUSSION:

.

OVERSPEED TRIP OF THE FEED PUMP TURBINE SHOULD OCCUR AT 5,555 RPM.

REFERENCES: DRAWING 208-032 SHEET FN-045

SENSING ELEMENT: FW-163-ST1, FW-163-ST2

ENCLOSURE 1 (Page 35 of 63)

where the state of			
ICS-L	ANNUNCIATOR RESPONSE	ICS-CY4-03-03	L-03-03

		Concession and the search
-		
	CONTRACT MILLION	

=1	-1	N	P				
0	0	U	B	L	E		

EVENT POINT 1463

INDICATED CONDITION:

O FEEDWATER PUMP 2A TURBINE SPEED <100 RPM.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O FWP-2A SPEED INDICATION.

O FWP-24. TRIP

O FWP-2A LOCAL SPEED INDICATOR ON FEED PUMP CONTROL CONSOLE.

OPERATOR ACTIONS FOR A VALID ALARM:

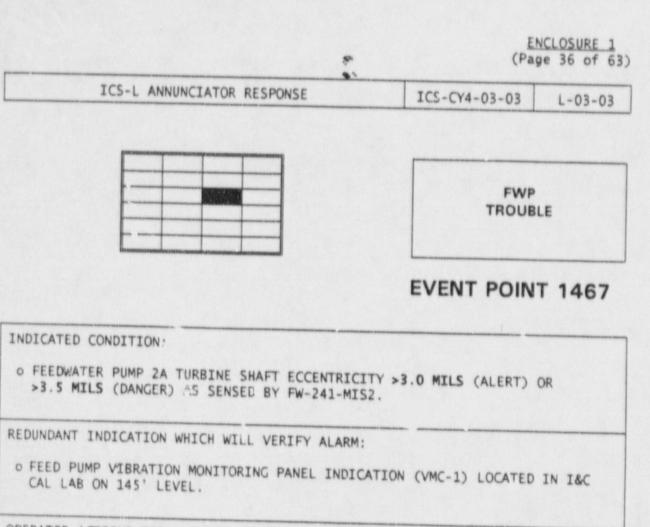
O INCREASE TURBINE SPEED PRIOR TO RELEASING MISSING SPEED SIGNAL BYPASS START PUSHBUTION.

DISCUSSION:

THE FEED PUMP WILL TRIP IF TURBINE SPEED DROPS TO LESS THAN 100 RPM.

REFERENCES: DRAWING 208-032 SHEET FW-045

SENSING ELEMENT: FW-163-ST1, FW-163-ST2



OPERATOR ACTIONS FOR A VALID ALARM:

- O IF IN ALERT, THEN CONTACT ENGINEERING FOR RECOMMENDATIONS FOR FURTHER PUMP OPERATION.
- O IF IN DANGER, THEN REDUCE TURBINE LOAD UNTIL ALARM CLEARS. IF ALARM WILL NOT CLEAR, THEN CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE PUMP.
- O MONITOR FEED PUMP BEARING TEMPERATURES ON PLANT COMPUTER.

DISCUSSION:

SHAFT ECCENTRICITY IS THE RADIAL MOVEMENT OF THE TURBINE SHAFT CENTERLINE. LARGE MOVEMENTS CAN CAUSE TURBINE BEARING DAMAGE DUE TO METAL TO METAL CONTACT BETWEEN THE TURBINE SHAFT AND THE BEARING SURFACE.

THIS ALARM MUST BE MANUALLY RESET AT THE FWP VIBRATION MONITORING PANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL WHEN THE VIBRATION CONDITION HAS CLEARED.

REFERENCES: DRAWING 208-032 SHEET FW-045

.

SENSING ELEMENT: FW-241-MIS2

10

ENCLOSURE 1 (Page 37 of 63)

L-03-03



FWP TROUBLE

ICS-CY4-03-03

EVENT POINT 1468

INDICATED CONDITION:	INDI	CAT	ED	CONDI	TION:
----------------------	------	-----	----	-------	-------

ICS-L ANNUNCIATOR RESPONSE

o FEEDWATER PUMP 2A TURBINE THRUST BEARING POSITION >10 MILS (ALERT) OR >20 MILS (DANGER) AS SENSED BY FW-237-KIS.

P ...

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o FEED PUMP VIBRATION MONITORING PANEL INDICATION (VMC-1) LOCATED IN 1&C CAL LAB ON 145' LEVEL.

OPERATOR ACTIONS FOR A VALID ALARM:

O IF IN ALERT, THEN CONTACT ENGINEERING FOR REL. PATIONS FOR FURTHER PUMP OPERATION.

O IF IN DANGER, THEN REDUCE TURBINE LOAD UNTIL ALARM CLEARS. IF ALARM WILL NOT CLEAR, THEN CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE PUMP.

O MONITOR FEED PUMP BEARING TEMPERATURES ON THE PLANT COMPUTER.

DISCUSSION:

AR-504

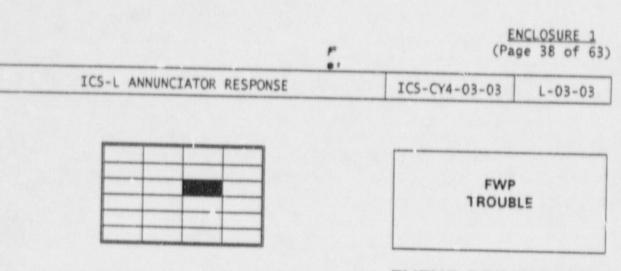
LARGE THRUST BEARING DISPLACEMENT READINGS CAN CAUSE THRUST BEARING DAMAGE.

THIS ALARM MUST BE MANUALLY RESET AT THE FWP VIBRATION MONITORING PANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL WHEN THE VIBRATION CONDITION HAS CLEARED.

REFERENCES: DRAWING 208-032 SHEET FW-045

SENSING ELEMENT: FW-237-KIS

-



EVENT POINT 1478

INDICATED CONDITION:

o FEEDWATER PUMP 28 TURBINE SPEED ≥5,555 RPM.

REDUNDAN. INDICATION WHICH WILL VERIFY ALARM:

FWP-2B SPEED INDICATION.
 FWP-2B LOCAL SPEED INDICATOR ON FEED PUMP CONTROL CONSOLE.

OPERATOR ACTIONS FOR A VALID ALARM:

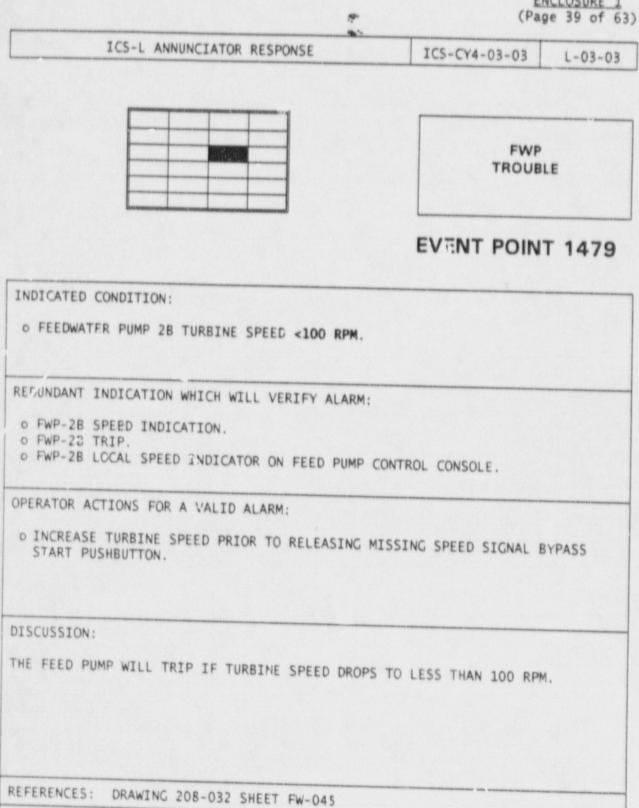
O TRIP THE FEED PUMP MANUALLY.

DISCUSSION:

OVERSPEED TRIP OF THE FEED PUMP TURBINE SHOULD OCCUR AT 5,555 RPM.

REFERENCES: DRAWING 208-032 SHEET FW-045

SENSING ELEMENT: FW-169-ST1, FW-169-ST2



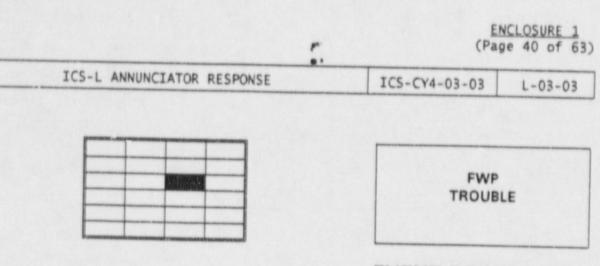
.

1

•

SENSING ELEMENT: FW-169-ST1, FW-169-ST2

-



EVENT POINT 1483

1

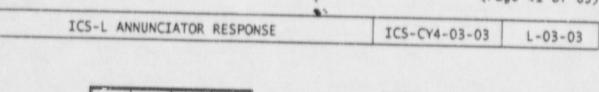
INDICATED CONDITION:
<pre>o FEEDWATER PUMP 2B TURBINE SHAFT ECCENTRICITY >3.0 MILS (ALERT) OR >3.5 MILS (DANGER) AS SENSED BY FW-242-MIS2.</pre>
REDUNDANT INDICATION WHICH WILL VERIFY ALARM:
• FEED PUMP VIBRATION MONITORING PANEL INDICATION (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL.
OPERATOR ACTIONS FOR A VALID ALARM:
 IF IN ALERT, THEN CONTACT ENGINEERING FOR RECOMMENDATIONS FOR FURTHER PUMP OPERATION. IF IN DANGER, THEN REDUCE TURDINE LOAD UNTIL ALARM CLEARS. IF ALARM WILL NOT CLEAR, THEN CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE PUMP. MONITOR FEED PUMP BEARING TEMPERATURES ON THE PLANT COMPUTER.
DISCUSSION:
SHAFT ECCENTRICITY IS THE RADIAL MOVEMENT OF THE TURBINE SHAFT CENTERLINE. LARGE MOVEMENTS CAN CAUSE TURBINE BEARING DAMAGE DUE TO METAL TO METAL CONTACT BETWEEN THE TURBINE SHAFT AND THE BEARING SURFACE.
THIS ALARM MUST BE MANUALLY RESET AT THE FWP VIBRATION MONITORING PANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL WHEN THE VIBRATION CONDITION HAS CLEARED.
REFERENCES: DRAWING 208-032 SHEET FW-045
SENSING ELEMENT: FW-242-MIS2

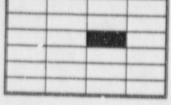
-

.

.....

ENCLOSURE 1 (Page 41 of 63)





	FW	P		
-				
11	100	BLE		
	TF		FWP	FWP

EVENT POINT 1484

INDICAT	ED CON	DITION:
---------	--------	---------

o FEEDWATER PUMP 2B TURBINE THRUST BEARING POSITION >10 MILS (ALERT) OR >20 MILS (DANGER) AS SENSED BY FW-238-KIS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o FEED PUMP VIBRATION MONITORING PANEL INDICATION (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL.

OPERATOR ACTIONS FOR A VALID ALARM:

• IF IN ALERT, THEN CONTACT ENGINEERING FOR RECOMMENDATIONS FOR FURTHER PUMP OPERATION.

• IF IN DANGER, THEN REDUCE TURBINE LOAD UNTIL ALARM CLEARS. IF ALARM WILL NOT CLEAR, THEN CONSIDERATION SHOULD BE GIVEN TO SHUTTING DOWN THE PUMP.

O MONITOR FEED PUMP BEARING TEMPERATURES IN PLANT COMPUTER.

DISCUSSION:

LARGE THRUST BEARING DISPLACEMENT READINGS CAN CAUSE THRUST BEARING DAMAGE.

THIS ALARM MUST BE MANUALLY RESET AT THE FWP VIBRATION MONITORING PANEL (VMC-1) LOCATED IN I&C CAL LAB ON 145' LEVEL WHEN THE VIBRATION CONDITION HAS CLEARED.

REFERENCES: DRAWING 208-032 SHEET FW-045

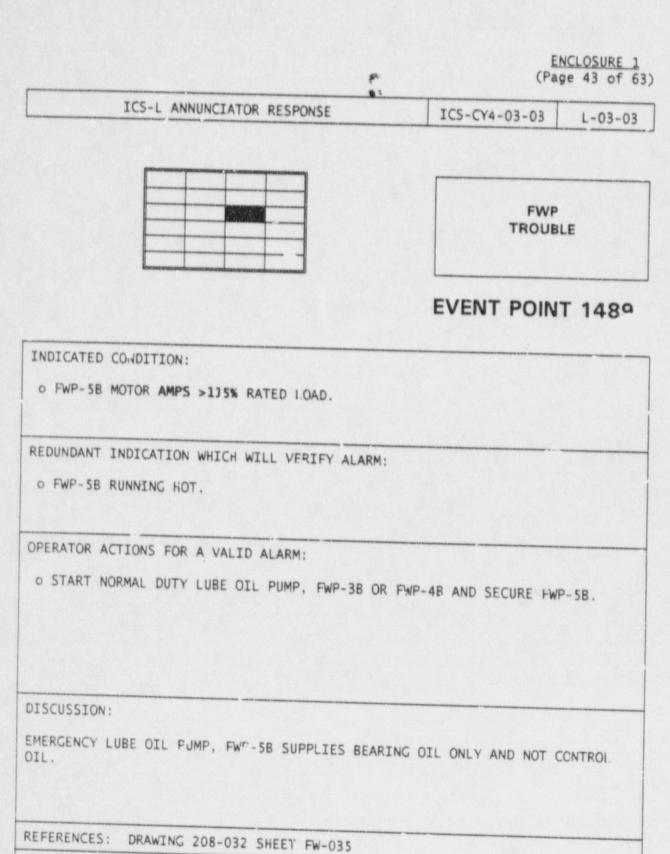
SENSING ELEMENT: FW-238-KIS

.8

.

ENCLOSURE 1 (Page 42 of 63) 19-ICS-L ANNUNCIATOR RESPONCE ICS-CY4-03-03 L-03-03 FWP -TROUBLE EVENT POINT 148 INDICATED CONDITION: O FWP-SA MOTOR AMPS >115% RATED LOAD. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O FY2-SA RUNNING HOT OPERATOR ACTIONS FOR A VALID ALARM: O START NORMAL DUTY LUBE OIL PUMP, FWP-3A OR FWP-4A, AND SECURE FWP-5A. DISCUSSION: EMERGENCY LUBE OIL PUMP, FWP-SA SUPPLIES BEARING LUSS OIL ONLY AND NOT REFERENCES: DRAWING 208-032 SHEET FW-034

SENSING ELEMENT: FWP-5A OVERLOAD RELAY, 49



SENSING ELEMENT: FWP-58 OVERLOAD RELAY, 49

(Page 44 of 63) 5 ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-03 L-03-03 FWP TROUBLE EVENT POINT 1490 INDICATED CONDITION: O FEEDWATER PUMP 2A TACHUNSTER SELECT AND TEST SWITCH NOT IN NORMAL REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O WHITE TRIP "BLOCK" LIGHT IS ON, LOCATED ON THE FWP-2A LOCAL CONTROL PANEL ON. OPERATOR ACTIONS FOR A VALID ALARM: O VERIFY FEEDWATER PUMP TESTING IS IN PROGRESS. O PLACE "TACHOMETER SELECT AND TEST" SWITCH BACK TO ,ORMAL. DISCUSSION: THIS ALARM INDICATES THAT THE FEED PUMP TEST SWITCH IS IN THE TEST POSITION.

THIS BLOCKS ALL TRIPS TO THE MAIN FEED PUMP.

REFERENCES: DRAWING 208-032 SHEET FW-045 SENSING ELEMENT: FW-139-PS AND FW-141-PS

1

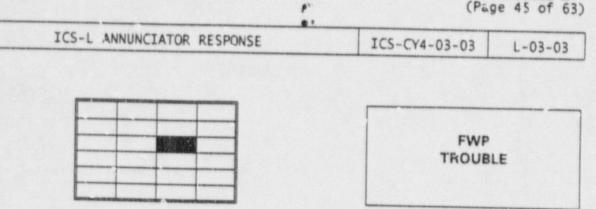
Ó

٩,-

0,

ia i

ENCLOSULE 1 (Page 45 of 63)



.

EVENT POINT 1491

INDICATED CONDITION:	
O FEEDWATER PUMP 2B TACHOMETER SELECT AND TEST SWITCH NOT IN NORMAL	
REDUNDANT INDICATION WHICH WIL! VERIFY ALARM:	
O WHITE TRIP "BLOCK" LIGHT IS ON, LOCATED ON THE FWP-2B LOCAL CONTROL PANEL ON.	
OPERATOR ACTIONS FOR A VALID ALARM:	
 VERIFY FEEDWATER PUMP TESTING IS IN PROGRESS. PLACE "TACHOMETER SELECT AND TEST" SWITCH BACK TO NORMAL. 	
DISCUSSION:	
HIS ALARM INDICATES THAT THE FEED PUMP TEST SWITCH IS IN THE TEST POSITI HIS BLOCKS ALL TRIPS TO THE MAIN FEED PUMP.	CN.
EFERENCES: DRAWING 208-032 SHEET FW-C45	

.

1

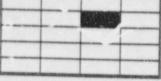
D

8

2.3

-

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-03 L-03-03



FWP TROUBLE

EVENT POINT 1494

INDICATED CONDITION:

• FEEDWATER PUMP 2A LUBE OIL FILTER DIFFERENT (PRESSURE >20 PSID AS SENSED BY FW-201-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

LOCAL DIFFERENTIA' PRESSURE INDICATOR.
 LUBE OIL PRESSURE LOW.

OPERATOR ACTIONS FOR A VALID ALARM:

O SWAP FWP-2A LUBE OIL FILTERS.

DISCUSSION:

MAXIMUM DIFFERENTIAL PRESSURE ACROSS FEEDWATER PUMP LUBE OIL FILTER IS 20 PSID. THIS IS TO PROTECT THE FILTERS FROM MECHANICAL DAMAGE DUE TO HIGH DIFFERENTIAL PRESSURES. INTERNAL RELIEF VALVE LIFTS AT 20 PSID.

REFERENCES: DRAWING 208-032 SHEET FW-045

SENSING ELEMENT: FW-201-PS

ENCLOSURE 1 (Page 47 of 63) ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-03 L-03-03 FWP TROUBLE **EVENT POINT 1495** INDICATED CONDITION: O FEEDWATER PUMP 28 LUBE OIL FILTER DIFFERENTIAL PRESSURE >20 PSID AS SENSED BY FW-202-PS. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O LOCAL DIFFERENTIAL PRESSURE INDICATOR. O LUBE OIL PRESSURE LOW. OPERATOR ACTIONS FOR A VALID ALARM: O SWAP FWP-28 _"BE OIL FILTERS. DISCUSSION: MAXIMUM DIFFERENTIAL PRESSURE ACROSS FEEDWATER PUMP LUBE OIL FILTER IS 20 PSID. THIS IS TO PROTECT THE FILTERS FROM MECHANICAL DAMAGE DUE TO HIGH DIFFERENTIAL PRESSURES. INTERNAL RELIEF VALVE LIFTS AT 20 PSID.

REFERENCES: DRAWING 208-032 SHEET FW-045

SENSING ELEMENT: FW-202-PS

•

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-04 L-03-04

FWP BRG OIL
DRAIN TEMP
HIGH

EVENT POINT 1456

INDICATED CONDITION:

-4

• FEEDWATER PUMP 2A TURBINE BEARING #1 LUBE OIL DRAIN TEMPERATURE >170° F. AS SENSED BY FW-143-TS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

○ LOCAL FEEDWATER PUMP BEARING TEMPERATURE INDICATORS.
 ○ FEED ATER PUMP 2A COMPUTER GROUP 89.

OPERATOR ACTIONS FOR A VALID AL! M:

O VERIFY PROPER COOLING WATER FLOW.

CONTACT ENGINEERING CONCERNINC CONTINUED FEEDWATER PUMP OPERATION.
 CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

MAXIMUM BEARING TEMPERATURE IS 200° F.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-143-TS

r

L-03-04

(Page 49 of 63)

ICS-L ANNUNCIATOR RESPONSE

FWP BRG OIL DRAIN TEMP HIGH

ICS-CY4-03-04

EVENT POINT 1457

INDICATED CONDITION:

o FEEDWATER PUMP 2A TURBINE BEARING #2 LUBE OIL DRAIN TEMPERATURE >170° F. AS SENSED BY FW-144-TS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

LOCAL FEEDWATER PUMP BEARING TEMPERATURE INDICATORS.
 FEEDWATER PUMP 2A COMPUTER GROUP 89.

OPER TOR ACTIONS FOR A VALID ALARM:

ENSURE PROPER COOLING WATER FLOW.
 CONTACT ENGINEERING CONCERNING CONTINUED FEEDWATER PUMP OPERATION.
 CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

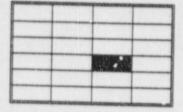
MAXIMUM BEARING TEMPERATURE IS 200° F.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-144-TS

AR-504

(Page 50 of 63) -ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-04 L-03-04



FWP BRG OIL DRAIN TEMP HIGH

EVENT POINT 1472

INDICATED CONDITION:

O FEEDWATER PUMP 28 TURBINE BEARING #1 LUBE OIL DRAIN TEMPERATURE >170° F. AS SENSED BY FW-145-TS.

REDUNDART INDICATION WHICH WILL VERIFY ALARM:

O LOCAL FEEDWATER PUMP BEARING TEMPEPATURE INDICATORS. O FEEDWATER PUMP 28 COMPUTER GROUP 90.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE PROPER COOLING WATER FLOW.

· CONTACT ENGINEERING CONCERNING CONTINUED FEEDWATER PUMP OPERATION. O CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

MAXIMUM BEARING TEMPERATURE IS 200° F.

REFERENCES: DRAWING 208-032 SHE T FW-45

SENSING ELEMENT: FW-145-TS



.

.

ENCLOSURE 1 (Page 51 of 63)

and the second se	of the second	
ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-03-04	L-03-04

		COLOR OF COLOR OF COLOR
PROPERTY AND INCOME.	 	

FWP BRG OIL
DRAIN TEMP
HIGH

EVENT POINT 1473

INDICATED CONDITION:

• FEEDWATER PUMP 28 TURBINE BEARING #2 LUBE OIL DRAIN TEMPERATURE >170° F. AS SENSED BY FW-146-TS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

LOCAL FEEDWATER PUMP BEARING TEMPERATURE INDICATORS.
 FEEDWATER PUMP 2B COMPUTER GROUP 90.

OPERATOR ACTIONS FOR A VALID ALARM:

O VERIFY PROPER COOLING WATER FLOW.

- O CONTACT ENGINEERING CONCERNING CONTINUED FEL WATER PUMP OPERATION.
- O CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

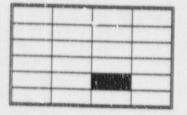
MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

MAXIMUM BEARING TEMPERATURE IS 200° F.

REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-146-TS

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-05 L-03-05



FWP OIL CLR OUTLET TEMP HIGH

EVENT POINT 1459

INDICATED CONDITION:

O FEEDWATER PUMP 2A LUBE OIL COOLER OUTLET TEMPERATURE >140° F. AS SENSED BY FW-211-TS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

LOCAL FEEDWATER PUMP LUBE OIL COOLER OUTLET TEMPERATURE INDICATORS.
 FEEDWATER PUMP 2A COMPUTER GROUP 89.

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY PROPER COOLING WATER FLOW.
 CONTACT ENGINEERING CONCERNING CONTINUED FEEDWATER PUMP OPERATION.
 CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

MAXIMUM BEARING TEMPERATURE IS 200° F.

REFERENCES: DRAWING 208-032 SHEET FW-45

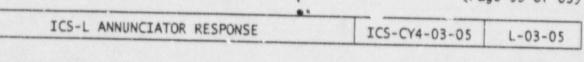
a

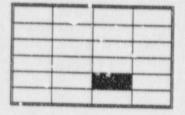
SENSING ELEMENT: FW-211-TS

-

•

ENCLOSURE 1 (Page 53 of 63)





FWP O'L CLR OUTLL, TEMP HIGH

EVENT POINT 1475

INDICATED CONDITION:

.

(3

• FEEDWATER PUMP 28 LUBE OIL COOLER TILET TEMPERATURE >140° F. AS SENSED BY FW-212-TS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

o LOCAL FEEDWATER PUMP LUBE OIL COOLER OUTLET TEMPERATURE INDICATORS. o FEEDWATER PUMP 2B COMPUTER GROUP 90.

GPERATOR ACTIONS FOR A VALID ALARM:

O VERIFY PROPER COOLING WATER FLOW.

• CONTACT ENGINEERING CONCERNING CONTINUED FEEDWATER PUMP OFERATION. • CONSIDERATION SHOULD BE GIVEN TO REDUCING FEEDWATER PUMP LOAD.

DISCUSSION:

MAXIMUM BEARING OIL OUTLET TEMPERATURE IS 175° F TO PREVENT BREAKDOWN IN LUBE OIL VISCOSITY THAT COULD LEAD TO BEARING DAMAGE.

MAXIMUM BEARING TEMPERATURE IS 200° F.

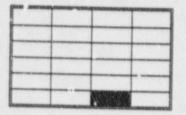
REFERENCES: DRAWING 208-032 SHEET FW-45

SENSING ELEMENT: FW-212-TS

1.2

• 4 · · · · · ·

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-06 L-03-06



(MSV-53/ MSV-54) NOT FULL OPEN

EVENT POINT 0941

INDICATED CONDITION:

O TURBINE BYPASS ISOLATION VALVE MSV-53, NOT FULL OPEN.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

MSV-53 POSITION INDICATION.
 LOCAL POSITION.

OPERATOR ACTIONS FOR A VALID ALARM:

U DETERMINE REQUIREMENT FOR MSV-53 NOT BEING FULL OPEN. O OPEN MSV-53.

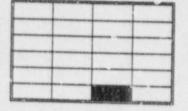
DISCUSSION:

MSV-53 ISOLATES STEAM GENERATOR "A" TURBINE BYPASS VALVES (MSV-9, MSV-10) AND THE FWP-2A HP STEAM SUPPLY.

REFERENCES: DRAWING 208-039 SHEET MS-01

SENSING ELEMENT: 33 O VALVE OPEN CONTACT

ICS-L ANNUNCIATOR RESPONSE ICS-CY4-03-06 L-03-06



(MSV-53/ MSV-54) NOT FULL CPEN

EVENT POINT 0942

INDICATED CONDITION:

.

0

O TURCINE BYPASS ISOLATION VALVE MSV-54, NOT FULL OPEN.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

MSV-54 POSITION INDICATION.
 LOCAL POSITION.

OPERATOR ACTIONS FOR A VALID ALARM:

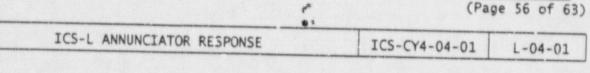
O DETERMINE REQUIREMENT FOR MSV-54 NOT BEING FULL OPEN. O OPEN MSV-54.

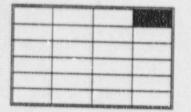
DISCUSSION:

MSV-54 ISOLATES STEAM GENERATOR "B" TURBINE BYPASS VALVES (MSV-11, MSV-14) AND THE FWP-28 HP STEAM JPPLY.

REFERENCES: DRAWING 208-039 SHEET MS-02

SENSING ELEMENT: 3: O VALVE OPEN CONTACT





FWBP B TRIP

EVENT POINT 1425

INDICATED CONDITION:

• FWP-1B BREAKER OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT IS ON WITH A RED FLAG ON FWP-18 CONTROL STATION. O FEEDWATER FLOW INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

O IF REACTOR POWER IS >55% RTP, THEN REFER TO AP-545.
 O INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THE FOLLOWING ARE BOOSTER PUMP TRIPS:

LUBE OIL PRESSURE <4 PSIG DEAERATOR LEVEL <2'10" ELECTRICAL FAULTS

REFERENCES: DRAWING 208-032 SHEET FV-02

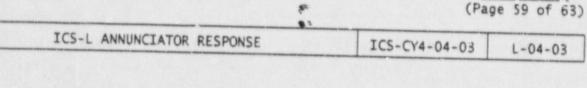
SENSING ELEMENT: CONTROL SWITCH AND BREAKER CONTACTS

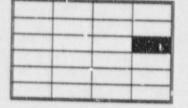
ENCLOSURE 1 (Page 57 of 63) ICS-L ANNUNCIATOR RESPONSE ICS-CY4-04-02 L-04-02 FWBP MOTOR OVERLOAD **EVENT POINT 1486** INDICATED CONDITION: O FWP-1A MOTOR AMPS >115% RATED LOAD. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O FWP-1A CURRENT INDICATOR. O FEEDWATER FLOW INDICATION. o FWP-1A TRIPS. OPERATOR ACTIONS FOR A VALID ALARM: O REDUCE FEEDWATER FLOW. O HAVE BREAKER CHECKED FOR DROPPED TARGETS. DISCUSSION: THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OF THE INSTANTANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER. IT IS POSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP. REFERENCES: DRAWING 208-032 SHEET FW-01 SENSING ELEMENT: BREAKER OVER CURRENT RELAYS

ENCLOSURE 1 (Page 58 of 63) ICS-L ANNUNCIATOR RESPONSE ICS-CY4-04-02 L-04-02 FWBP MOTOR OVERLOAD EVENT POINT 1487 INDICATED CONDITION: O FWP-18 MOTOR AMPS >115% RATED LOAD. REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O FWP-18 CURRENT INDICATOR. O FEEDWATER FLOW INDICATION. o FWP-18 TRIPS. OPERATUR ACTIONS FOR A VALID ALARM: O REDUCE FEEDWATER FLOW. O HAVE BREAKER CHECKED FOR DROPPED TARGETS. DISCUSSION: THIS ALARM INDICATES THAT EITHER THE TIMED OVERCURRENT OR THE INSTANTANEOUS OVERCURRENT PROTECTIVE DEVICES HAVE ACTUATED. INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY ACTUATION WILL TRIP THE BREAKER. IT IS POSSIBLE TO HAVE THIS ALARM PRIOR TO THE BREAKER TRIP. REFERENCES: DRAWING 208-032 SHEET FW-02 SENSING ELEMENT: BREAKER OVER CURRENT RELAYS

- EM

.





FWBP LUBE OIL PUMP TRIP

EVENT POINT 1426

INDICATED CONDITION:

O FWP-6A BREAKER OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT IS ON WITH A RED FLAG ON FWP-6A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE FWP-1A LUBE OIL PRESSURE NORMAL.
 O INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION .

THE ROOSTER PUMP HAS A SHAFT DRIVEN LUBE OIL PUMP THAT SUPPLIES OIL PRESSURE WHILE THE BOOSTER PUMP IS RUNNING.

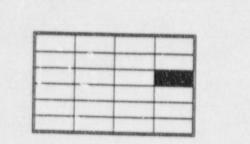
REFERENCES: DRAWING 208-032 SHEET FW-03

SENSING ELEMENT: BREAKER AND CONTROL SWITCH CONTACTS.

L-04-03

(Page 60 of 63) ICS-L ANNUNCIATOR RESPONSE

ICS-CY4-04-03



.

FWBP LUBE OIL PUMP TRIP

EVENT POINT 1427

INTICATED CONDITION:

O FWP-6B BREAKER OPEN WITH CONTROL HANDLE IN THE NORMAL AFTER START POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O GREEN LIGHT IS ON WITH A RED FLAG ON FWP-68 CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

O ENSURE FWP-18 LUBE OIL PRESSURE NOPMAL. O INVESTIGATE CAUSE OF PUMP TRIP.

DISCUSSION:

THE BOOSTER PUMP HAS A SHAFT DRIVEN LUBE OIL PUMP THAT SUPPLIES OIL PRESSURE WHILE THE BOOSTER PUMP IS RUNNING.

REFERENCES: DRAWING 208-032 SHEET FW-04

SENSING ELEMENT: BREAKER AND CONTROL SWITCH CONTACTS.

ENCLOSURE 1 (Page 61 of 63)

	the second s	
ICS-L ANNUNCIATOR RESPONSE	ICS-CY4-04-04	L-04-04

		Parts IV Becaute
		G
IN TRACEROLOGIC		

FWBP
LUBE OIL PUMP
AUTO START

EVENT POINT 1428

INDICATED CONDITION:

• FWP-6A BREAKER CLOSED WITH THE CONTROL STATION IN THE NORMAL AFTER STOP POSITION.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

O RED LIGHT IS ON WITH A GREEN FLAG ON THE FWP-6A CONTROL STATION.

OPERATOR ACTIONS FOR A VALID ALARM:

VERIFY PROPER FEEDWATER BOOSTER PUMP OIL PRESSURE.
 VERIFY PROPER FEEDWATER BOOSTER PUMP LUBE OIL RESERVOIR LEVEL.

DISCUSSION:

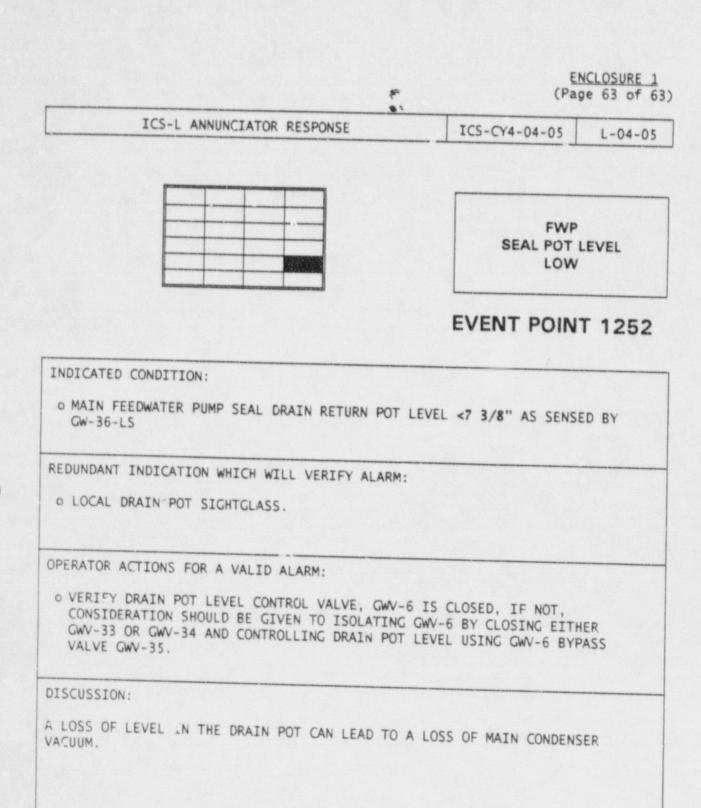
FWP-6A WILL AUTO START IF FWP-1A LUBE OIL PRESSURE DROPS TO <5 PSIG.

REFERENCES DRAWING 208-032 HEET FW-03

SENSING ELEMENT: CONTROL STATION AND BREAKER CONTACTS

ENCLOSURE 1 (Page 62 of 63) p ICS-L ANNUNCIATOR RESPONSE ICS-CY4-04-04 L-04-04 FWBP LUBE OIL PUMP AUTO START **EVENT POINT 1429** INDICATED CONDITION: O FWP-6B BREAKER CLOSED WITH THE CONTROL STATION IN THE NORMAL AFTER STOP REDUNDANT INDICATION WHICH WILL VERIFY ALARM: O RED LIGHT IS ON WITH A GREEN FLAG ON THE FWP-68 CONTROL STATION. OPERATOR ACTIONS FOR A VALID ALARM: O VERIFY PROPER FEEDWATER BOOSTER PUMP OIL PRESSURE. O VERIFY PROPER FEEDWATER BOOSTER PUMP LUBE OIL RESERVOIR LEVEL. DISCUSSION: FWP-68 WILL AUTO START IF FWP-18 LUBE OIL PRESSURE DROPS TO <5 PSIG. REFERENCES: DRAWING 208-032 SHEET FW-04 SENSING ELEMENT: CONTROL STATION AND BREAKER CONTACTS

.



REFERENCES: DRAWING 208-034 SHEET GW-04

SENSING ELEMENT: GW-36-LS

. 63

4

[. .