

DOCUMENT TRANSMITTAL FORM 89763  
FOR DOCUMENTS TRANSMITTED TO (I N P O ) \*

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AR 503		15	29

INSTRUCTIONS TO THE ADDRESSEE

COMPLETE EACH OF THE INSTRUCTIONS BELOW WHICH ARE MARKED WITH AN " X "

- ☒ (1) VERIFY THE DOCUMENTS RECEIVED AGREE WITH THE ABOVE DESCRIPTION
- ☒ (2) INCORPORATE THE TRANSMITTED DOCUMENTS INTO YOUR FILES
- ☒ (3) DESTROY DOCUMENTS OR PORTIONS OF DOCUMENTS SUPERSEDED BY THE ABOVE
- ☒ (4) SIGN AND DATE IN THE SPACES BELOW INDICATING THAT YOU COMPLETED THESE INSTRUCTIONS.
- (5) SIGN BELOW INDICATING THAT YOU HAVE READ AND UNDERSTOOD THE CHANGES AS IDENTIFIED
- (6) RETURN TO DOCUMENT CONTROL, CRYSTAL RIVER UNIT 3, MAC# NA1C  
NR2A SA1G FLORIDA POWER CORP., P.O. BOX 219  
CRYSTAL RIVER FLA. 32623
- (7) QUALITY PROGRAMS PERSONNEL HAVE READ AND UNDERSTOOD THE CHANGES TO THE AFFECTED QAP'S

SIGNATURE OF ADDRESSEE \_\_\_\_\_ DATE \_\_\_\_\_

INDEPENDENT VERIFICATION \_\_\_\_\_ DATE \_\_\_\_\_ (OPS)

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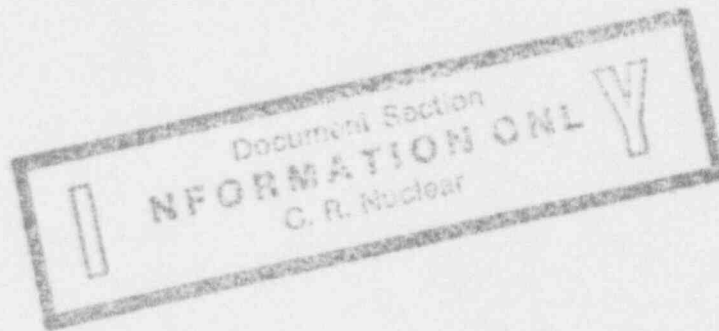
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Rev. 15

04/18/93

Effective Date

4/16/93



ANNUNCIATOR RESPONSE

AR-503

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ICS K ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENT

APPROVED BY: Interpretation Contact

W. Marshall

DATE:

4/16/93

INTERPRETATION CONTACT: Manager, Nuclear Plant  
Operations

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## 1.0 PURPOSE

- 1.1 Establish a reference document for each Annunciator Window on the ICS-CY3 Lampbox.
- 1.2 Establish operator actions for valid Annunciator alarms on the ICS-CY3 Lampbox.
- 1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ICS-CY3 Lampbox.

## 2.0 REFERENCES

### 2.1 IMPLEMENTING REFERENCES

- 2.1.1 AP-580 - Reactor Trip
- 2.1.2 AP-450 - Emergency Feedwater Actuation
- 2.1.3 AP-581 - Loss of NNI-X
- 2.1.4 AP-582 - Loss of NNI-Y
- 2.1.5 OP-501 - Reactor Non Nuclear Instrumentation
- 2.1.6 OP-504 - Integrated Control System
- 2.1.7 OP-605 - Feedwater System
- 2.1.8 AP-545 - Plant Runback
- 2.1.9 OP-608 - OTSG's and Main Steam System

### 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 ICS-CY3 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-01	K-01-01
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NNI X  
POWER  
FAILURE

EVENT POINT 1143

INDICATED CONDITION:

- o NNI-X 24V DC BUS POWER FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-X POWER LIGHT IS OFF, LOCATED ON THE REDUNDANT INSTRUMENT PANEL.
- o NNI-X POWER SUPPLY MONITOR HAS NO INDICATING LIGHTS ON, LOCATED IN NNI CABINET 3.
- o S-1 AND S-2 SWITCHES ARE TRIPPED OFF, LOCATED IN NNI CABINET 2.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-581
- o REFER TO OP-501 FOR REENERGIZING NNI-X DC POWER SUPPLIES.

DISCUSSION:

REDUNDANT POWER SOURCES TO NNI-X DC POWER SUPPLIES IS VBDP-1 BKR 8 AND VBDP-5 BKR.25.

A LOSS OF A POSITIVE OR NEGATIVE BUS SHOULD TRIP BOTH S-1 AND S-2.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-01	K-01-01
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NNI X  
POWER  
FAILURE

## EVENT POINT 1144

### INDICATED CONDITION:

- o NNI-X 120V AC BUS FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-X POWER LIGHT IS OFF, LOCATED ON THE REDUNDANT INSTRUMENT PANEL.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-581
- o REFER TO OP-501 FOR REENERGIZING NNI-X AC BUS.

### DISCUSSION:

REDUNDANT POWER SOURCES TO NNI-X AC BUS IS VBDP-1 BKR 11 AND VBDP-5 BKR 7.  
THIS ALARM INDICATES A LOSS OF 120V AC FIELD LOADS HAS OCCURRED.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-03	K-01-03
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TRANSMITTER  
POWER SUPPLY  
ON BACKUP

EVENT POINT 0933

INDICATED CONDITION:

- o TRANSMITTER POWER SUPPLY CABINET "A" PRIMARY POWER SELECTOR SWITCH IS IN "AUTO" AND STANDBY POWER SELECTOR SWITCH IS IN "STANDBY" AND PRIMARY POWER IS LOST.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED STANDBY POWER ON LIGHT ON TRANSMITTER POWER SUPPLY CABINET LOCATED IN THE CRD ROOM IS ON.

OPERATOR ACTIONS FOR A VALID ALARM:

- o STABILIZE ANY PLANT TRANSIENT THAT MAY RESULT FROM A TRANSMITTER POWER FAILURE
- o CONTACT ELECTRIC SHOP.
- o VERIFY VBDP-1 BREAKER 1 IS ON.

DISCUSSION:

THE TRANSMITTER POWER SUPPLY CABINET IN THE CRD ROOM PROVIDES POWER TO OVER 50 NON-VITAL TRANSMITTERS IN THE PLANT. NORMAL POWER SUPPLY TO THE "A" CABINET IS VBDP-1 BKR-1 WITH A BACKUP FROM VBDP-5 BKR-11. A POWER SEEKING ABT IS INSTALLED TO SELECT ONE OF THESE POWER SOURCES. TO RESTORE NORMAL SYSTEM LINEUP AFTER A TRANSFER HAS OCCURRED THE STANDBY POWER SWITCH MUST BE PLACED IN RESET THEN BACK TO AUTO AFTER NORMAL POWER HAS BEEN RECOVERED.

REFERENCES: DRAWING EC-210-586

SENSING ELEMENT: POWER AVAILABLE RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-03	K-01-03
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TRANSMITTER  
POWER SUPPLY  
ON BACKUP

## EVENT POINT 0934

### INDICATED CONDITION:

- o TRANSMITTER POWER SUPPLY CABINET "B" PRIMARY POWER SELECTOR SWITCH IS IN "AUTO" AND STANDBY POWER SELECTOR SWITCH IS IN "STANDBY" AND PRIMARY POWER IS LOST.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED STANDBY POWER ON LIGHT ON TRANSMITTER POWER SUPPLY CABINET LOCATED IN THE CRD ROOM IS ON.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o CONTACT ELECTRIC SHOP.
- o VERIFY VBDP-2 BREAKER 1 IS ON.

### DISCUSSION:

THE TRANSMITTER POWER SUPPLY CABINET IN THE CRD ROOM PROVIDES POWER TO OVER 50 NON-VITAL TRANSMITTERS IN THE PLANT. NORMAL POWER SUPPLY TO THE "B" CABINET IS VBDP-2 BKR-1 WITH A BACKUP FROM VBDP-6 BKR-14. THERE IS A POWER SEEKING ABT INSTALLED TO SELECT A POWER SOURCE FROM THESE SOURCES. TO RESTORE NORMAL SYSTEM LINEUP AFTER A TRANSFER HAS OCCURRED THE STANDBY POWER SWITCH MUST BE PLACED IN RESET THEN BACK TO AUTO AFTER NORMAL POWER HAS BEEN RECOVERED.

REFERENCES: DRAWING EC-210-587

SENSING ELEMENT: POWER AVAILABLE RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-05	K-01-05
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CNTRL TRANSFER  
TO  
REMOTE S/D PNL

## EVENT POINT 2036

### INDICATED CONDITION:

- o "A" REMOTE SHUTDOWN TRANSFER SWITCH IS IN RSP POSITION, LOCATED IN REMOTE SHUTDOWN AUX RELAY CABINET "A".

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED TRANSFER INDICATOR LIGHT IS ON, LOCATED ON THE RSP.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REPOSITION SWITCH AS NECESSARY.

### DISCUSSION:

THIS ALARM INDICATES THAT CONTROL OF "A" SIDE COMPONENTS HAS BEEN REMOVED FROM THE CONTROL ROOM.  
CONTROL SHOULD BE REGAINED FROM THE CONTROL ROOM OR THE REMOTE SHUTDOWN PANEL SHOULD BE MANNED.

REFERENCES: DRAWING 208-082 SHEET RS-17

SENSING ELEMENT: RRR-SPA-1-17



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-05	K-01-05
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CNTRL TRANSFER  
TO  
REMOTE S/D PNL

EVENT POINT 2037

INDICATED CONDITION:

- o "B" REMOTE SHUTDOWN TRANSFER SWITCH IS IN RSP POSITION, LOCATED IN REMOTE SHUTDOWN AUX RELAY CABINET "B".

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED TRANSFER INDICATOR LIGHT IS ON, LOCATED ON THE RSP.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REPOSITION SWITCH AS NECESSARY.

DISCUSSION:

THIS ALARM INDICATES THAT CONTROL OF "B" SIDE COMPONENTS HAS BEEN REMOVED FROM THE CONTROL ROOM.  
CONTROL SHOULD BE REGAINED FROM THE CONTROL ROOM OR THE REMOTE SHUTDOWN PANEL SHOULD BE MANNED.

REFERENCES: DRAWING 208-082 SHEET RS-18

SENSING ELEMENT: RRR-SPB-1-17

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-05	K-01-05
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CNTRL TRANSFER  
TO  
REMOTE S/D PNL

EVENT POINT 2038

INDICATED CONDITION:

- o "AB" REMOTE SHUTDOWN TRANSFER SWITCH IS IN RSP POSITION, LOCATED ON REMOTE SHUTDOWN PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED TRANSFER INDICATOR LIGHT IS ON, LOCATED ON RSP.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REPOSITION SWITCH AS NECESSARY.

DISCUSSION:

THIS ALARM INDICATES THAT CONTROL OF "AB" COMPONENTS HAS BEEN REMOVED FROM THE CONTROL ROOM.  
CONTROL SHOULD BE REGAINED FROM THE CONTROL ROOM OR THE REMOTE SHUTDOWN PANEL SHOULD BE MANNED.

REFERENCES: DRAWING 208-082 SHEET RS-10

SENSING ELEMENT: CS-ISAB

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-01-05	K-01-05
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CNTRL TRANSFER  
TO  
REMOTE S/D PNL

EVENT POINT 2039

INDICATED CONDITION:

- o "NON-VITAL" REMOTE SHUTDOWN TRANSFER SWITCH IS IN RSP POSITION, LOCATED ON REMOTE SHUTDOWN PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED TRANSFER INDICATOR LIGHT IS ON, LOCATED ON RSP.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REPOSITION SWITCH AS NECESSARY.

DISCUSSION:

THIS ALARM INDICATES THAT CONTROL OF "NON-VITAL" COMPONENTS HAS BEEN REMOVED FROM THE CONTROL ROOM.  
CONTROL SHOULD BE REGAINED FROM THE CONTROL ROOM OR THE REMOTE SHUTDOWN PANEL SHOULD BE MANNED.

REFERENCES: DRAWING 208 082 SHEET RS-09

SENSING ELEMENT: CS-1 INS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-01	K-02-01
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NNI Y  
POWER  
FAILURE

EVENT POINT 1145

INDICATED CONDITION:

- o NNI-Y 24V DC BUS POWER FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-Y POWER LIGHT IS OFF, LOCATED ON THE REDUNDANT INSTRUMENT PANEL.
- o NNI-Y POWER SUPPLY MONITOR HAS NO INDICATING LIGHTS ON, LOCATED IN NNI CABINET 7.
- o S-1 AND S-2 SWITCHES ARE TRIPPED OFF, LOCATED IN NNI CABINET 8.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-582  
o REFER TO OP-501 FOR REENERGIZING NNI-Y DC POWER SUPPLIES.

DISCUSSION:

REDUNDANT POWER SOURCES TO NNI-Y DC POWER SUPPLIES ARE VBDP-6 BKR 25 AND VBDP-7 BKR 18.

A LOSS OF A POSITIVE OR NEGATIVE BUS SHOULD TRIP BOTH S-1 AND S-2.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-01	K-02-01
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NNI Y  
POWER  
FAILURE

## EVENT POINT 1146

### INDICATED CONDITION:

- o NNI-Y 120V AC BUS FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-Y POWER LIGHT IS OFF, LOCATED ON THE REDUNDANT INSTRUMENT PANEL.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-582
- o REFER TO OP-501 FOR REENERGIZING NNI-Y AC BUS.

### DISCUSSION:

REDUNDANT POWER SOURCES TO NNI-Y AC BUS ARE VBDP-6 BKR 10 AND VBDP-7 BKR 17

THIS ALARM INDICATES A LOSS OF 120V AC FIELD LOADS HAS OCCURRED.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 0773

INDICATED CONDITION:

- o SASS POWER SUPPLY FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED LED INDICATOR IS OFF, LOCATED ON ONE OF THE SASS POWER SUPPLIES.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o NOTIFY I&C SHOP.

DISCUSSION:

THE SASS SYSTEM HAS REDUNDANT FEEDS FROM BOTH NNI-X AND NNI-Y. THESE INPUTS SUPPLY SEPARATE POWER SUPPLIES FOR EACH SASS RACK. POWER IS THEN AUCTIONEERED INSIDE THE RACK TO SUPPLY EACH SASS MODULE, IF ONE OF THESE POWER SUPPLIES FAILS THERE SHOULD BE NO EFFECT ON THE SASS RACK.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 0778

INDICATED CONDITION:

- o POSITIVE 24V NNI-Y POWER SUPPLY FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o POSITIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE NNI-Y POWER SUPPLY MONITOR IN NNI CABINET 7.
- o + 24 V NNI-Y POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO NNI-Y +24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT NNI BUS POWER.

REFERENCES: DRAWING NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 0780

INDICATED CONDITION:

- o NEGATIVE 24V NNI-Y POWER SUPPLY FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NEGATIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE NNI-Y POWER SUPPLY MONITOR IN NNI CABINET 7.
- o - 24 V NNI-Y POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO NNI-Y -24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT NNI BUS POWER.

REFERENCES: DRAWING NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 0960

INDICATED CONDITION:

- o NNI-X 120V AC FIELD LOADS TRANSFERRED FROM VBDP-5 TO VBDP-1.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NORMAL FEEDER TO NNI-X FROM VBDP-5 SWITCH 7 IS OPEN.
- o NNI-X FEEDER RED STATUS LIGHT IS OFF, LOCATED ON VBDP-5 CIRCUIT STATUS PANEL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES AN AUTOMATIC BUS TRANSFER DEVICE HAS ACTUATED THAT SWAPS FROM THE NORMAL POWER SUPPLY TO THE ALTERNATE POWER SUPPLY FOR NNI-X 120V AC FIELD LOADS.  
ONCE NORMAL POWER IS REGAINED THE ABT WILL TRANSFER BACK TO NORMAL SUPPLY AFTER 45 SECONDS.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 0962

### INDICATED CONDITION:

- o ICS 120V AC FIELD LOADS TRANSFERRED FROM VBDP-6 TO VBDP-7.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ICS FEEDER RED STATUS LIGHT IS OFF, LOCATED ON VBDP-4 CIRCUIT STATUS PANEL.
- o NORMAL FEEDER TO ICS FROM VBDP-4 SWITCH 25 IS OPEN.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES AN AUTOMATIC BUS TRANSFER DEVICE HAS ACTUATED THAT SWAPS FROM THE NORMAL POWER SUPPLY TO THE ALTERNATE POWER SUPPLY FOR ICS 120V AC FIELD LOADS.  
ONCE NORMAL POWER IS REGAINED THE ABT WILL TRANSFER BACK TO NORMAL SUPPLY AFTER 45 SECONDS.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 1110

INDICATED CONDITION:

- o ICS CABINET FAN FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ICS CABINET COOLING FANS NOT RUNNING.
- o ICS CABINET FILTERS DIRTY.

OPERATOR ACTIONS FOR A VALID ALARM:

- o HAVE I&C SHOP CHANGE FILTERS.

DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO OPENING BOTH FRONT AND BACK DOORS ON THE ICS CABINETS TO PROVIDE COOLING WHILE FANS ARE NOT OPERABLE. HOWEVER, WITH THE REDUCED SHIELDING OF THE OPEN DOOR, RADIO FREQUENCY INTERFERENCE CAN POTENTIALLY CAUSE UNDESIRABLE AND UNPREDICTABLE EFFECTS ON THE SYSTEM OPERATION.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

EVENT POINT 1111

INDICATED CONDITION:

- o POSITIVE 24V ICS POWER SUPPLY FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o POSITIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE ICS POWER SUPPLY MONITOR IN ICS CABINET 2.
- o + 24 V ICS POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO ICS +24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT ICS POWER.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1113

### INDICATED CONDITION:

- o NEGATIVE 24V ICS POWER SUPPLY FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NEGATIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE ICS POWER SUPPLY MONITOR IN ICS CABINET 2.
- o - 24 V ICS POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO ICS -24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT ICS POWER.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1147

### INDICATED CONDITION:

- o POSITIVE 24V NNI-X POWER SUPPLY FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o POSITIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE NNI-X POWER SUPPLY MONITOR IN NNI CABINET 3.
- o +24 V NNI-X POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o NOTIFY THE I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO NNI-X +24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT NNI BUS POWER.

REFERENCES: DRAWING NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1148

### INDICATED CONDITION:

- o NEGATIVE 24V NNI-X POWER SUPPLY FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NEGATIVE WHITE "SUPPLY" INDICATOR LIGHT IS OFF, LOCATED ON THE NNI-X POWER SUPPLY MONITOR IN NNI-X CABINET 3.
- o - 24 V NNI-X POWER SUPPLY INDICATES NO AMPS OR VOLTAGE.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES ONE OF TWO REDUNDANT POWER SUPPLIES TO NNI-X -24V BUS HAS BEEN LOST. THIS CONDITION SHOULD NOT EFFECT NNI BUS POWER.

REFERENCES: DRAWING NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1149

### INDICATED CONDITION:

- o NNI-X CABINET FAN FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-X CABINET COOLING FANS NOT RUNNING.
- o NNI-X CABINET FILTERS DIRTY.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o HAVE I&C SHOP CHANGE FILTERS.

### DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO OPENING BOTH FRONT AND BACK DOORS ON THE NNI CABINETS TO PROVIDE COOLING WHILE FANS ARE NOT OPERABLE. HOWEVER, WITH THE REDUCED SHIELDING OF THE OPEN DOOR, RADIO FREQUENCY INTERFERENCE CAN POTENTIALLY CAUSE UNDESIRABLE AND UNPREDICTABLE EFFECTS ON THE SYSTEM OPERATION.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1150

### INDICATED CONDITION:

- o NNI-Y CABINET FAN FAILURE.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NNI-Y CABINET COOLING FANS NOT RUNNING.
- o NNI-Y CABINET FILTERS DIRTY.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o HAVE I&C SHOP CHANGE FILTERS.

### DISCUSSION:

CONSIDERATION SHOULD BE GIVEN TO OPENING BOTH FRONT AND BACK DOORS ON THE NNI CABINETS TO PROVIDE COOLING WHILE FANS ARE NOT OPERABLE. HOWEVER, WITH THE REDUCED SHIELDING OF THE OPEN DOOR, RADIO FREQUENCY INTERFERENCE CAN POTENTIALLY CAUSE UNDESIRABLE AND UNPREDICTABLE EFFECTS ON THE SYSTEM OPERATION.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-02	K-02-02
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ICS  
NNI  
TROUBLE

## EVENT POINT 1744

### INDICATED CONDITION:

- o NNI-Y 120V AC FIELD LOADS TRANSFERRED FROM VBDP-6 TO VBDP-7.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NORMAL FEEDER TO NNI-Y FROM VBDP-6 SWITCH 10 IS OPEN.
- o NNI-Y FEEDER RED STATUS LIGHT IS OFF, LOCATED ON VBDP-6 CIRCUIT STATUS PANEL.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES AN AUTOMATIC BUS TRANSFER DEVICE HAS ACTUATED THAT SWAPS FROM THE NORMAL POWER SUPPLY TO THE ALTERNATE POWER SUPPLY FOR NNI-Y 120V AC FIELD LOADS.  
ONCE NORMAL POWER IS REGAINED THE ABT WILL TRANSFER BACK TO NORMAL SUPPLY AFTER 45 SECONDS.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: VARIOUS NNI CONTACTS.



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

## EVENT POINT 1107

### INDICATED CONDITION:

- o ICS FUSE BLOWN, LOCATED IN ICS CABINET 1 FUSE PANEL.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN ICS CABINET 1 AMBER FUSE BLOWN INDICATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-504 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS ICS COMPONENTS.  
OP-504 WILL HELP DETERMINE EQUIPMENT EFFECTED.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

## EVENT POINT 1108

### INDICATED CONDITION:

- o ICS FUSE BLOWN, LOCATED IN ICS CABINET 3 FUSE PANEL.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN ICS CABINET 3 AMBER FUSE BLOWN INDICATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-504 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS ICS COMPONENTS.  
OP-504 WILL HELP DETERMINE EQUIPMENT EFFECTED.

### REFERENCES: NNI DRAWINGS

### SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

## EVENT POINT 1109

### INDICATED CONDITION:

- o ICS FUSE BLOWN, LOCATED IN ICS CABINET 4 FUSE PANEL.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN ICS CABINET 4 AMBER FUSE BLOWN INDICATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-504 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS ICS COMPONENTS.  
OP-504 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

## EVENT POINT 1136

### INDICATED CONDITION:

- o NNI-X FUSE IS BLOWN, LOCATED IN NNI CABINET 1 FUSE PANEL.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE BACK OF NNI CABINET 1 AMBER FUSE BLOWN INDICATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

### DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-X COMPONENTS. OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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A large rectangular area containing a grid of small squares, intended for drawing a picture related to the story. The grid is approximately 10 units wide by 6 units high.

ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1137

INDICATED CONDITION:

- o NNI-X FUSE IS BLOWN, LOCATED IN NNI CABINET 2 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE BACK OF NNI CABINET 2 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-X COMPONENTS.  
OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1138

INDICATED CONDITION:

- o NNI-X FUSE IS BLOWN, LOCATED IN NNI CABINET 4 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE BACK OF NNI CABINET 4 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-X COMPONENTS. OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1139

INDICATED CONDITION:

- o NNI-X FUSE IS BLOWN, LOCATED IN NNI CABINET 1 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE FRONT OF NNI CABINET 1 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-X COMPONENTS.  
OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1140

INDICATED CONDITION:

- o NNI-Y FUSE IS BLOWN, LOCATED IN NNI CABINET 6 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE BACK OF NNI CABINET 6 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-Y COMPONENTS. OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1141

INDICATED CONDITION:

- o NNI-Y FUSE IS BLOWN, LOCATED IN NNI CABINET 6 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE FRONT OF NNI CABINET 6 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-Y COMPONENTS. OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-02-03	K-02-03
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ICS/NNI  
FUSE  
BLOWN

EVENT POINT 1142

INDICATED CONDITION:

- o NNI-Y FUSE IS BLOWN, LOCATED IN NNI CABINET 8 FUSE PANEL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FUSE PANEL LOCATED IN THE BACK OF NNI CABINET 8 AMBER FUSE BLOWN INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM.

- o ENSURE PLANT STABLE.
- o REFER TO OP-501 FOR FUSE INFORMATION.
- o CONTACT I&C SHOP.

DISCUSSION:

THIS ALARM INDICATES A FUSE IS BLOWN THAT FEEDS NNI-Y COMPONENTS.  
OP-501 WILL HELP DETERMINE EQUIPMENT EFFECTED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: FUSE INDICATION RELAY

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-01	K-03-01
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[illegible]

ICS POWER  
FAILURE

EVENT POINT 1115

INDICATED CONDITION:

- o ICS 24V DC BUS POWER FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ICS POWER LIGHT IS OFF, LOCATED ON THE REDUNDANT INSTRUMENT PANEL.
- o ICS POWER SUPPLY MONITOR, LOCATED IN ICS CABINET 2, HAS NO INDICATING LIGHTS ON.
- o S-1 AND S-2 SWITCHES ARE TRIPPED OFF, LOCATED IN ICS CABINET 2.

OPERATOR ACTIONS FOR A VALID ALARM:

- o TRIP BOTH MAIN FEED PUMPS.
- o REFER TO AP-580
- o REFER TO OP-504 FOR REENERGIZING NNI POWER SUPPLIES.

DISCUSSION:

POWER SUPPLY TO ICS DC BUSES IS, VBDP-4 BKR.23 AND VBDP-2 BKR.3.  
A LOSS OF A POSITIVE OR NEGATIVE BUSS SHOULD TRIP BOTH S-1 AND S-2.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-01	K-03-01
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ICS POWER  
FAILURE

EVENT POINT 1117

INDICATED CONDITION:

- o ICS 120V AC BUS POWER FAILURE.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ICS POWER LIGHT IS OFF, LOCATED ON REDUNDANT INSTRUMENT PANEL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o TRIP BOTH MAIN FEED PUMPS.
- o REFER TO AP-580

DISCUSSION:

POWER SUPPLY TO ICS AC BUS IS, VBDP-4 BKR 25 AND VBDP-2 BKR 4.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS.



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0084

INDICATED CONDITION:

- o RCS LOOP "A" Th INPUTS TO SASS MISMATCHED BY >3° F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o Th TEMPERATURE INDICATOR, RC-4A-TI1
- o Th COMPUTER POINT, R-212

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR Th LOOP "A" IS THE SELECTED TRANSMITTER ON RC-4A-MS.

RCS Th SELECTOR SWITCH, RC-4A-MS WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0088

INDICATED CONDITION:

- o RCS LOOP "A" Tc INPUTS TO SASS MISMATCHED BY >18° F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "A" Tc INDICATOR, RC-5A-T13.
- o Tc COMPUTER POINT, R-214.
- o Tc COMPUTER POINT, R-212.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR Tc LOOP "A" IS THE TRANSMITTER SELECTED ON RC-5A-MS1.

THE COMPUTER POINTS FOR LOOP "A" Tc ARE HARD WIRED AND ARE VALID REGARDLESS OF THE POSITION OF THE SELECTOR SWITCH, RC-5A-MS1. THE CONTROL BOARD INDICATOR, RC-5A-T13 WILL INDICATE WHATEVER IS SELECTED ON RC-5A-MS1.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0195

INDICATED CONDITION:

- o STEAM GENERATOR "A" STARTUP LEVEL INPUTS TO SASS MISMATCHED BY  $>7.5''$ .

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "A" S/U LEVEL INDICATOR, SP-1A-LI2.
- o OTSG "A" S/U LEVEL COMPUTER POINT, S-287.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR S/U LEVEL OTSG "A" IS THE TRANSMITTER SELECTED ON SP-1A-MS2.

OTSG "A" S/U LEVEL SELECTOR SWITCH, SP-1A-MS2 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0258

INDICATED CONDITION:

- o STEAM GENERATOR "A" OPERATE LEVEL INPUTS TO SASS MISMATCHED BY >8.8".

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "A" OPERATE LEVEL INDICATOR, SP-1A-LIR1
- o OTSG "A" OPERATE LEVEL COMPUTER POINT, S-284.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR OTSG "A" OPERATE LEVEL IS THE TRANSMITTER SELECTED ON SP-1A-MS1.

OTSG "A" OPERATE LEVEL SELECTOR SWITCH, SP-1A-MS1 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0260

INDICATED CONDITION:

- o LOOP "A" FEEDWATER TEMPERATURE INPUTS TO SASS MISMATCHED BY >15° F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "A" FEEDWATER TEMPERATURE INDICATOR, SP-5A-TI.
- o LOOP "A" FEEDWATER TEMPERATURE COMPUTER POINT, S-290.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "A" FEEDWATER TEMPERATURE IS THE TRANSMITTER SELECTED ON SP-5A-SEL.

LOOP "A" FEEDWATER TEMPERATURE SELECTOR SWITCH, SP-5A-SE WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0262

INDICATED CONDITION:

- o LOOP "A" FEEDWATER FLOW INPUTS TO SASS MISMATCHED BY >1.8 MILLION LBM/HR.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "A" FEEDWATER FLOW INDICATOR, SP-8A-FIR1.
- o LOOP "A" FEEDWATER FLOW COMPUTER POINT, S-301.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "A" FEEDWATER FLOW IS THE SELECTED TRANSMITTER ON SP-8A-MS.

LOOP "A" FEEDWATER FLOW SELECTOR SWITCH, SP-8A WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0761

INDICATED CONDITION:

- o Tave INPUTS TO SASS MISMATCHED BY  $>3^{\circ}$  F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o Tave DIGITAL INDICATOR RC-12-TaI.
- o Tave INDICATOR RC-7B-TaI.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE SASS SIGNAL SOURCE FOR Tave IS THE SELECTED LOOP ON RC-12-TAS.

THE Tave AUTO/MANUAL TRANSFER SWITCH, RC-12-TAS SELECTS THE INPUT TO THE DIGITAL CONTROL BOARD INDICATOR, RC-12-TAI. THE NON-SELECTED INPUT GOES TO THE CONTROL BOARD EDGEWISE INDICATOR, SP-7B-TAI.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0762

INDICATED CONDITION:

- o LOOP "A" FEEDWATER Δ P INPUTS TO SASS MISMATCHED BY >3 PSID.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "A" FEEDWATER Δ P COMPUTER POINT A-302.
- o LOOP "A" FEEDWATER Δ P COMPUTER POINT A-303.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "A" FEEDWATER Δ P IS THE SELECTED TRANSMITTER IN NNI CABINET 3.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0771

INDICATED CONDITION:

- o TURBINE HEADER PRESSURE "A" INPUTS TO SASS MISMATCHED BY >18 PSIG.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o TURBINE HEADER PRESSURE "A" INDICATOR SP-10A-PIR1
- o TURBINE HEADER PRESSURE "A" COMPUTER POINT T-228.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR "A" TURBINE HEADER PRESSURE IS THE TRANSMITTER SELECTED IN NNI CABINET 3.

TURBINE HEADER PRESSURE SELECTOR LOCATED IN NNI CABINET 3 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0783

INDICATED CONDITION:

- o  $\Delta T_c$  INPUTS TO SASS MISMATCHED BY  $>0.6^\circ F$ .

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o  $\Delta T_c$  INDICATOR RC-8-DT1.
- o DIFFERENCE BETWEEN RC-5A-TI2 AND RC-5B-TI2.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR  $\Delta T_c$  IS NNI-X OR NNI-Y SELECTED IN NNI CABINET 5.

THE  $\Delta T_c$  CONTROL BOARD INDICATOR, RC-8-DT1 INDICATES THE INPUT SELECTED IN THE NNI CABINET.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0784

INDICATED CONDITION:

- o RCS NARROW RANGE PRESSURE INPUTS TO SASS MISMATCHED BY >24 PSIG.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RCS PRESSURE RECORDER, RC-3A-PIR2.
- o RCS PRESSURE RECORDER, RC-3B PIR2.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR RCS PRESSURE IS, RPS-A OR RPS-B SELECTED IN NNI CABINET 3.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0785

INDICATED CONDITION:

- o PRESSURIZER LEVEL INPUTS TO SASS MISMATCHED BY >9.6".

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o PRESSURIZER LEVEL INDICATION, RC-1-LI3.
- o PRESSURIZER LEVEL INDICATION, RC-1-LI4.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR PRESSURIZER LEVEL IS THE TRANSMITTER SELECTED ON RC-1-MS.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0786

INDICATED CONDITION:

- o RCS LOOP "B" Th INPUTS TO SASS MISMATCHED BY  $>3^{\circ}$  F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o Th TEMPERATURE INDICATOR, RC-4B-TI1
- o Th COMPUTER POINT, R-213

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR Th LOOP "B" IS THE TRANSMITTER SELECTED ON RC-4B-MS.

RCS Th SELECTOR SWITCH, RC-4B-MS WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0788

INDICATED CONDITION:

- o RCS LOOP "B" Tc INPUTS TO SASS MISMATCHED BY >18° F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o Tc LOOP "B" INDICATOR, RC-5B-TI3.
- o Tc COMPUTER POINT, R-216.
- o Tc COMPUTER POINT, R-217.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR Tc LOOP "B" IS THE TRANSMITTER SELECTED ON RC-5B-MS1.

THE COMPUTER POINTS FOR LOOP "B" Tc ARE HARD WIRED AND ARE VALID REGARDLESS OF THE POSITION OF THE SELECTOR SWITCH, RC-5B-MS1. THE CONTROL BOARD INDICATOR, RC-5B-TI3 WILL INDICATE WHATEVER IS SELECTED ON RC-5B-MS1.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0793

INDICATED CONDITION:

- o STEAM GENERATOR "B" STARTUP LEVEL INPUTS TO SASS MISMATCHED BY >7.5".

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "B" S/U LEVEL INDICATOR, SP-1B-LI2.
- o OTSG "B" S/U LEVEL COMPUTER POINT, S-293.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR S/U LEVEL OTSG "B" IS THE TRANSMITTER SELECTED ON SP-1B-MS2.

OTSG "B" S/U LEVEL SELECTOR SWITCH, SP-1B-MS2 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0796

INDICATED CONDITION:

- o STEAM GENERATOR "B" OPERATE LEVEL INPUTS TO SASS MISMATCHED BY >8.8".

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "B" OPERATE LEVEL INDICATOR, SP-1B-LIR1
- o OTSG "B" OPERATE LEVEL COMPUTER POINT, S-291.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR OTSG "B" OPERATE LEVEL IS THE TRANSMITTER SELECTED ON SP-1B-MS1.

OTSG "B" OPERATE LEVEL SELECTOR SWITCH, SP-1B-MS1 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0802

INDICATED CONDITION:

- o LOOP "B" FEEDWATER TEMPERATURE INPUTS TO SASS MISMATCHED BY >15° F.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "B" FEEDWATER TEMPERATURE INDICATOR, SP-5B-T1.
- o LOOP "B" FEEDWATER TEMPERATURE COMPUTER POINT, S-302.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "B" FEEDWATER TEMPERATURE IS THE TRANSMITTER SELECTED ON SP-5B-SEL.

LOOP "B" FEEDWATER TEMPERATURE SELECTOR SWITCH, SP-5B-SEL WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0805

INDICATED CONDITION:

- o LOOP "B" FEEDWATER FLOW INPUTS TO SASS MISMATCHED BY >1.8 MILLION LBM/HR.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "B" FEEDWATER FLOW INDICATOR, SP-8B-FIR1.
- o LOOP "B" FEEDWATER FLOW COMPUTER POINT, S-302.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "B" FEEDWATER FLOW IS THE TRANSMITTER SELECTED ON SP-8B.

LOOP "B" FEEDWATER FLOW SELECTOR SWITCH, SP-8B WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0806

INDICATED CONDITION:

- o LOOP "B" FEEDWATER Δ P INPUTS TO SASS MISMATCHED BY >3 PSID.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOOP "B" FEEDWATER Δ P COMPUTER POINT A-302.
- o LOOP "B" FEEDWATER Δ P COMPUTER POINT A-303.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "B" FEEDWATER Δ P IS THE TRANSMITTER SELECTED IN NNI CABINET 5.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0807

INDICATED CONDITION:

- o TURBINE HEADER PRESSURE "B" INPUTS TO SASS MISMATCHED BY >18 PSIG.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o TURBINE HEADER PRESSURE "B" INDICATOR SP-10B-PIR1
- o TURBINE HEADER PRESSURE "B" COMPUTER POINT T-232.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR LOOP "B" TURBINE HEADER PRESSURE IS THE TRANSMITTER SELECTED IN NNI CABINET 3.

TURBINE HEADER PRESSURE SELECTOR LOCATED IN NNI CABINET 3 WILL SELECT THE INPUT TO THE CONTROL BOARD INDICATOR. THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0808

INDICATED CONDITION:

- o NEUTRON POWER INPUTS TO SASS MISMATCHED BY >3.8%.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o THE AVERAGE OF NI-5 AND NI-6 INDICATED POWER.
- o THE AVERAGE OF NI-7 AND NI-8 INDICATED POWER.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR NEUTRON POWER IS NI-5/NI-6 OR NI-7/NI-8  
SELECTED IN ICS CABINET 4.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0845

INDICATED CONDITION:

- o GENERATED MEGAWATTS INPUT TO SASS MISMATCHED BY >30 MEGAWATTS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o GENERATED MEGAWATTS COMPUTER POINT, E-210.
- o GENERATED MEGAWATTS COMPUTER POINT, E-211.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR GENERATED MEGAWATTS IS THE TRANSMITTER SELECTED IN ICS CABINET 4.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0846

INDICATED CONDITION:

- o TOTAL CONDENSATE FLOW INPUT TO SASS MISMATCHED BY >0.3 MILLION LBM/HR.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o TOTAL CONDENSATE FLOW RECORDER CD-15-FIR.
- o TOTAL CONDENSATE FLOW COMPUTER POINT, A-304.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR TOTAL CONDENSATE FLOW IS THE TRANSMITTER SELECTED IN NNI CABINET 7.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-02	K-03-02
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SASS  
MISMATCH

EVENT POINT 0847

INDICATED CONDITION:

- o DEAERATOR TANK LEVEL INPUT TO SASS MISMATCHED BY >0.42 FEET.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o DEAERATOR TANK LEVEL RECORDER CD-61-LIR.
- o DEAERATOR TANK LEVEL COMPUTER POINT, S-240.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO OP-501

DISCUSSION:

THE NORMAL SASS SIGNAL SOURCE FOR DEAERATOR TANK LEVEL IS THE TRANSMITTER SELECTED IN NNI CABINET 7.

DEAERATOR LEVEL INPUT SELECTOR LOCATED IN NNI CABINET 7 WILL SELECT THE INPUT TO THE CONTROL BOARD RECORDER, CD-61-LIR, THE NON-SELECTED INPUT GOES TO THE COMPUTER POINT.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS NNI CONTACTS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-03-03	K-03-03
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SASS  
TRANSFER

EVENT POINT 0776

INDICATED CONDITION:

- o SASS HAS AUTO SELECTED EITHER "A" OR "B" INPUT.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED SASS TRIPPED INDICATION ON FAILED SASS MODULE.
- o SASS MISMATCH ALARM.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE PLANT STABLE.
- o REFER TO OP-501.

DISCUSSION:

THIS ALARM DOES NOT NECESSARILY INDICATE THAT THE SASS SYSTEM HAS TRANSFERRED INPUTS TO A CONTROLLING MODULE. IT ONLY INDICATES THAT ONE INPUT THAT FEEDS THAT SASS MODULE HAS FAILED.

REFERENCES: NNI DRAWINGS

SENSING ELEMENT: VARIOUS SASS NNI CONTACTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-04-01	K-04-01
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[illegible]

LOSS OF FW PP  
RUNBACK

EVENT POINT 1122

INDICATED CONDITION:

- o UNIT LOAD DEMAND >55% AND EITHER: <2 MAIN FEED PUMPS OPERATING  
OR  
<2 MAIN FEED BOOSTER PUMPS OPERATING

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o PLANT RUNS BACK TO 55% DEMAND AT 50% PER MINUTE.
- o MAIN FEED PUMP OR MAIN FEED BOOSTER PUMP TRIP INDICATIONS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-545.
- o REFER TO OP-605 FOR FEED PUMP LIMITATIONS AND RECOVERY.

DISCUSSION:

MAIN FEED PUMP TRIPPED IS SENSED BY <55 PSIG CONTROL OIL PRESSURE.

REFERENCES: ICS DIGITAL AND ANALOG DRAWINGS

SENSING ELEMENT: ICS MODULE 2-9-9

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-04-02	K-04-02
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ASYMMETRIC ROD  
RUNBACK

## EVENT POINT 1123

### INDICATED CONDITION:

- o ASYMMETRIC CONTROL ROD CONDITION EXISTS ULD DEMAND IS >60%.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o PLANT IS RUNNING BACK TO 60% DEMAND AT A RATE OF 30% PER MINUTE.
- o ASYMMETRIC FAULT LIGHT IS ON LOCATED ON THE DIAMOND CONTROL PANEL.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-545.
- o REFER TO OP-502 FOR CRD RECOVERY.

### DISCUSSION:

AN ASYMMETRIC ROD RUNBACK WILL OCCUR WHEN THE DIAMOND IS IN AUTOMATIC, THE ULD DEMAND IS >60% AND ANY ONE OF THE FOLLOWING OCCUR:

ANY SAFETY ROD GROUP AT IN-LIMIT.  
SAFETY ROD GROUP NOT AT OUT-LIMIT AND GROUP 5 IN-LIMIT.  
CONTROL ROD >9" FAULT AND ANY SAFETY GROUP NOT AT THE OUT-LIMIT.  
CONTROL ROD >9" FAULT AND GROUP 5 IN-LIMIT.  
CONTROL ROD >9" FAULT AND GROUP 6 IN-LIMIT AND GROUP 5 >80% WITHDRAWN.  
CONTROL ROD >9" FAULT AND GROUP 7 IN-LIMIT AND GROUP 6 >80% WITHDRAWN.

REFER TO STS FOR ADMINISTRATIVE REQUIREMENTS.

### REFERENCES: ICS DIGITAL AND ANALOG DRAWINGS

### SENSING ELEMENT: ICS MODULE 2-9-8

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-04-03	K-04-03
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REACTOR  
LIMITED BY  
FEEDWATER

## EVENT POINT 1130

### INDICATED CONDITION:

- o FEEDWATER DEMAND EXCEEDS FEEDWATER FLOW BY MORE THAN 5%

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o UNIT MASTER IN TRACK ALARM.
- o REACTOR DEMAND IS DECREASING.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o STABILIZE RCS PRESSURE AND TEMPERATURE USING PRESSURIZER HEATERS, SPRAY VALVE, PORV, AND BALANCE FEED FLOW VS. REACTOR POWER.
- o INVESTIGATE AND CORRECT THE CAUSE OF FEEDWATER MISMATCH.

### DISCUSSION:

REACTOR LIMITED BY FEEDWATER CROSSLIMIT WILL DRIVE REACTOR DOWN TO MATCH INDICATED FEEDWATER FLOW.

REFER TO OP-103A FOR FEEDWATER FLOW VS. REACTOR POWER CURVE.

### REFERENCES: DRAWING ICS DIGITAL AND ANALOG DRAWINGS

### SENSING ELEMENT: ICS MODULE 3-6-9

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-04-04	K-04-04
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UNIT  
LOAD LIMIT  
HIGH

EVENT POINT 1120

INDICATED CONDITION:

- o UNIT LOAD DEMAND EXCEEDS THE OPERATOR SET HIGH LOAD LIMIT.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o UNIT MASTER IN TRACK ALARM.
- o ULD INDICATION IS GREATER THAN DIALED HIGH LOAD LIMIT SETPOINT.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REDUCE UNIT LOAD DEMAND OR INCREASE DIALED HIGH LOAD LIMIT SETPOINT.
- o REFER TO OP-504 FOR NORMAL HIGH LOAD LIMIT SETPOINTS.

DISCUSSION:

IF THE HIGH LOAD LIMIT SETPOINT IS REDUCED BELOW THE CURRENT ULD SETTING, THE ULD WILL RUN DOWN TO THE HIGH LOAD SETPOINT AT OPERATOR DIALED IN RATE.

REFERENCES: ICS ANALOG AND DIGITAL DRAWINGS

SENSING ELEMENT: ICS MODULE 3-5-7

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-04-05	K-04-05
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[illegible]

UNIT  
LOAD LIMIT  
LOW

EVENT POINT 1121

INDICATED CONDITION:

- 0 UNIT LOAD DEMAND IS BELOW THE OPERATOR SET LOW LOAD LIMIT.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o UNIT MASTER IN TRACK ALARM.
- o ULD INDICATION LESS THAN DIALED LOW LOAD LIMIT SETPOINT.

OPERATOR ACTIONS FOR A VALID ALARM:

- o INCREASE UNIT LOAD DEMAND OR REDUCE DIALED LOW LOAD LIMIT SETPOINT.
- o REFER TO OP-504 FOR NORMAL LOW LOAD LIMIT SETPOINTS.

### DISCUSSION:

IF THE LOW LOAD LIMIT SETPOINT IS RAISED ABOVE THE CURRENT ULD SETTING, THE ULD WILL RUN UP TO THE LOW LOAD SETPOINT AT THE OPERATOR DIALED IN RATE.

REFERENCES: ICS ANALOG AND DIGITAL DRAWINGS

SENSING ELEMENT: ICS MODULE 3-5-8



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-05-01	K-05-01
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[illegible]

LOSS OF RC PP  
RUNBACK

EVENT POINT 1124

INDICATED CONDITION:

- o UNIT LOAD DEMAND >75% DEMAND AND <4 RC PUMPS OPERATING.
- o UNIT LOAD DEMAND >100% DEMAND AND 4 RC PUMPS OPERATING.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o PLANT IS RUNNING BACK TO 75% DEMAND AT A RATE OF 30% PER MINUTE.  
o RC PUMP TRIPS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REFER TO AP-545.

DISCUSSION:

ICS USES RCP BREAKER POSITION TO DETERMINE REACTOR COOLANT PUMP STATUS.

REFERENCES: ICS DIGITAL AND ANALOG DRAWINGS

SENSING ELEMENT: ICS MODULE 2-9-11

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-05-03	K-05-03
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FW  
LIMITED BY  
REACTOR

EVENT POINT 1135

INDICATED CONDITION:

0. N<sup>2</sup> POWER AND REACTOR DEMAND ARE MISMATCHED BY MORE THAN 5%.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NEUTRON ERROR >5% (POSITIVE OR NEGATIVE) IC-25-NEI.
- o UNIT MASTER IN TRACK ALARM.

OPERATOR ACTIONS FOR A VALID ALARM:

- o STABILIZE DCS PRESSURE AND TEMPERATURE USING PZR HEATERS, SPRAY, PORV, AND BALANCE FEED FLOW WITH REACTOR POWER.
- o INVESTIGATE AND CORRECT THE CAUSE OF REACTOR DEMAND MISMATCH.

DISCUSSION:

THIS ALARM OCCURS WHENEVER REACTOR DEMAND AND NI POWER VARY BY MORE THAN 5%.

IF ONE OR BOTH FW LOOP MASTERS ARE IN AUTO THE FEEDWATER LIMITED BY REACTOR CROSS-LIMIT WILL INCREASE FEEDWATER DEMAND WHEN NEUTRON ERROR IS  $> +5\%$ , AND DECREASE FEEDWATER DEMAND WHEN NEUTRON ERROR IS  $< -5\%$ . THIS MATCHES FEEDWATER TO WITHIN 5% OF NI POWER.

PLACING REACTOR AND DIAMOND IN HAND WILL REMOVE ANY CROSS-LIMIT SIGNAL TO FEEDWATER.

NEUTRON ERROR IS DEFINED AS HIGH SELECTED NI POWER MINUS RX DEMAND.

REFERENCES: ICS DIGITAL AND ANALOG DRAWINGS

SENSING ELEMENT: ICS MODULE 3-7-5

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-05-04	K-05-04
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REACTOR  
DEMAND LIMITED  
HIGH

EVENT POINT 1112

INDICATED CONDITION:

- o REACTOR DEMAND >102%

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o REACTOR BAILEY DEMAND METER INDICATION.
- o NUCLEAR INSTRUMENTS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REDUCE ULD DEMAND TO  $\leq$  100%.
- o ENSURE REACTOR POWER IS LESS THAN 100% RTP PER STS.

DISCUSSION:

THIS ALARM INDICATES THE REACTOR (SUBSECTION) DEMAND IS LIMITED TO <102%.  
IF ULD INCREASES ANY FURTHER A REACTOR TO FEEDWATER MISMATCH WILL DEVELOP.  
THIS CONDITION CAN BE CAUSED BY A LOSS OF OVERALL PLANT EFFICIENCY.

REFERENCES: ICS ANALOG AND DIGITAL DRAWINGS

SENSING ELEMENT: ICS LIMITER MODULE IC-3811-RC; SIGNAL MONITOR IC-3611-RC

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-06-01	K-06-01
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RCS  
 $\Delta T_c$   
HIGH

EVENT POINT 1328

INDICATED CONDITION:

- o SELECTED LOOP "B"  $T_c$  EXCEEDS SELECTED LOOP "A"  $T_c$  BY MORE THAN  $5^\circ F$  AS SENSED BY RC-8-DTS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o  $\Delta T_c$  INDICATOR.
- o INDIVIDUAL  $T_c$  INDICATION.
- o FEEDWATER FLOW MISMATCH.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE  $\Delta T_c$  SETPOINT CORRECT.
- o MANUALLY ADJUST FEEDWATER FLOWS TO CORRECT  $\Delta T_c$  MISMATCH.
- o ENSURE QPT IS WITHIN LIMITS OF STS.

DISCUSSION:

THIS ALARM INDICATES "B" LOOP  $T_c$  IS HOTTER THAN "A" LOOP  $T_c$ . FEEDWATER MUST BE INCREASED TO THE "B" LOOP AND DECREASED TO THE "A" LOOP TO RESTORE  $\Delta T_c$ .

REFERENCES: DRAWING 208-007 SHEET RC-027

SENSING ELEMENT: RC-8-DTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-06-01	K-06-01
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RCS  
 $\Delta T_c$   
HIGH

EVENT POINT 1370

INDICATED CONDITION:

- o SELECTED LOOP "A"  $T_c$  EXCEEDS SELECTED LOOP "B"  $T_c$  BY MORE THAN  $5^\circ F$  AS SENSED BY RC-8-DTS

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o  $\Delta T_c$  INDICATOR.
- o INDIVIDUAL  $T_c$  INDICATION.
- o FEEDWATER FLOW MISMATCH.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE  $\Delta T_c$  SETPOINT CORRECT.
- o MANUALLY ADJUST FEEDWATER FLOWS TO CORRECT  $\Delta T_c$  MISMATCH.

DISCUSSION:

THIS ALARM INDICATES "A" LOOP  $T_c$  IS HOTTER THAN "B" LOOP  $T_c$ . FEEDWATER MUST BE INCREASED TO THE "A" LOOP AND DECREASED TO THE "B" LOOP TO RESTORE  $\Delta T_c$ .

REFERENCES: DRAWING 208-047 SHEET RC-027

SENSING ELEMENT: RC-8-DTS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-06-02	K-06-02
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UNIT MASTER  
IN TRACK

## EVENT POINT 1125

### INDICATED CONDITION:

- o THE FOLLOWING CONDITIONS WILL PLACE ICS IN "TRACK":

BOTH FEEDWATER LOOP DEMANDS IN HAND  
TURBINE NOT IN ICS AUTO  
BOTH OUTPUT BREAKERS OPEN  
UNIT UNDER CROSS-LIMIT  
PLANT RUNBACK  
REACTOR TRIP CONFIRM

STM GEN/RX MASTER IN HAND  
REACTOR DEMAND STATION IN HAND  
DIAMOND STATION IN MANUAL  
UNIT LOAD < LOW LOAD LIMIT  
UNIT LOAD > HIGH LOAD LIMIT

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o RED AND WHITE LIGHTS ARE ON, LOCATED ON THE ULD STATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE STABLE PLANT CONDITIONS.

### DISCUSSION:

WHILE IN TRACK ICS USES GENERATED MEGAWATTS AS FRONT END DEMAND, HOWEVER WHEN TRACKING IS DUE TO A LOW OR HIGH LOAD LIMIT, OR WHEN A PLANT RUNBACK IS IN PROGRESS, ICS TRACKS THE IMPOSED LOAD LIMIT.

### REFERENCES: ICS ANALOG AND DIGITAL DRAWINGS

### SENSING ELEMENT: ICS MODULE 2-8-13



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-06-06	K-06-06
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[illegible]

ATMOSPHERIC  
DUMP VALVE  
NOT FULL CLSD

EVENT POINT 0949

INDICATED CONDITION:

- o ATMOSPHERIC DUMP VALVE, MSV-25, NOT FULL CLOSED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "A" STEAM PRESSURE >1025 PSIG.
- o MSV-25 HAND/AUTO STATION DEMAND INDICATES >0.

OPERATOR ACTIONS FOR A VALID ALARM:

- o REDUCE OTSG "A" PRESSURE.
- o VERIFY PROPER OPERATION OF TURBINE BYPASS VALVES.
- o IF OTSG PRESSURE NORMAL AND MSV-25 IS OPEN THEN TAKE MANUAL CONTROL OF MSV-25 AND CLOSE VALVE.

### DISCUSSION:

MSV-25 RECEIVES IT'S PRESSURE INPUT FROM EFIC OTSG PRESSURE INSTRUMENTS.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: 33-C, MSV-25 CLOSED CONTACT.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-06-06	K-06-06
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[illegible]

ATMOSPHERIC  
DUMP VALVE  
NOT FULL CLSD

EVENT POINT 0950

INDICATED CONDITION:

- 0 ATMOSPHERIC DUMP VALVE MSV-26, NOT FULL CLOSED.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o OTSG "B" STEAM PRESSURE >1025 PSIG.  
o MSV-26 HAND/AUTO STATION DEMAND INDICATES >0.

OPERATOR ACTIONS FOR A VALID ALARM:

- 0 REDUCE OTSG "B" PRESSURE.
- 0 VERIFY PROPER OPERATION OF TURBINE BYPASS VALVES.
- 0 IF OTSG PRESSURE NORMAL AND MSV-26 IS OPEN THEN TAKE MANUAL CONTROL OF MSV-26 AND CLOSE VALVE.

DISCUSSION:

MSV-26 RECEIVES IT'S PRESSURE INPUT FROM EFIC OTSG PRESSURE INSTRUMENTS.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: 33-C, MSV-26 CLOSED CONTACT.

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-01	K-07-01
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STEAM GEN A  
LEVEL  
LOW-LOW

EVENT POINT 0912

INDICATED CONDITION:

- 0 STEAM GENERATOR "A" LEVEL <12" AS SENSED BY SP-1A-LS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o STEAM GENERATOR "A" LEVEL INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER FEEDWATER LINEUP.
- o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND INCREASE FEED RATE TO STEAM GENERATOR "A".
- o IF EMERGENCY FEEDWATER ACTUATES REFER TO AP-450.

### DISCUSSION:

IF ICS CONTROLS DOWNSTREAM OF THE LEVEL LIMITER ARE IN AUTO THE OTSG LEVELS SHOULD BE MAINTAINED AT THE LOW LIMIT OF APPROXIMATELY 30".

EMERGENCY FEED WATER WILL ACTUATE AT APPROXIMATELY 6" ON EFIC LOW RANGE LEVEL INSTRUMENTS.

SP-1A-LS2 INPUT IS FROM "A" STEAM GENERATOR STARTUP LEVEL.

REFERENCES: DRAWING 208-039 SHEET MS-14

SENSING ELEMENT: SP-1A-LS2

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-02	K-07-02
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STEAM GEN A  
LEVEL  
HIGH/LOW

## EVENT POINT 0943

### INDICATED CONDITION:

- o STEAM GENERATOR "A" LEVEL >93.5% AS SENSED BY SP-1A-LS1.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o STEAM GENERATOR "A" LEVEL INDICATION.

### OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RESTORE STEAM GENERATOR LEVEL.
- o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND REDUCE FEED RATE TO STEAM GENERATOR "A".
- o IF STEAM GENERATOR LEVEL CONTINUES TO INCREASE CONSIDERATION SHOULD BE GIVEN TO ISOLATE MAIN FEEDWATER TO STEAM GENERATOR "A" USING EFIC MAIN FEEDWATER ISOLATION PUSHBUTTONS.

### DISCUSSION:

IF ICS CONTROLS DOWNSTREAM OF THE LEVEL LIMITER ARE IN AUTO THE OTSG LEVELS SHOULD BE MAINTAINED AT THE HIGH LIMIT OF APPROXIMATELY 95%.

VERY HIGH LEVELS IN A STEAM GENERATOR MAY CAUSE CARRYOVER AND DAMAGE THE MAIN TURBINE.

SP-1A-LS1 INPUT IS FROM "A" STEAM GENERATOR OPERATE LEVEL.

REFERENCES: DRAWING 208-039 SHEET MS-14

SENSING ELEMENT: SP-1A-LS1

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-02	K-07-02
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STEAM GEN A  
LEVEL  
HIGH/LOW

EVENT POINT 0944

INDICATED CONDITION:

- o STEAM GENERATOR "A" LEVEL <24" AS SENSED BY SP-1A-LS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o STEAM GENERATOR "A" LEVEL INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RESTORE STEAM GENERATOR LEVEL.
- o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND INCREASE FEED RATE TO STEAM GENERATOR "A".
- o IF EMERGENCY FEEDWATER ACTUATES THEN REFER TO AP-450.

DISCUSSION:

IF IN AUTO ICS SHOULD LIMIT OTSG LEVEL TO 30" ON THE START UP RANGE, THEREFORE A PROBLEM EXISTS WITH ICS LEVEL CONTROL OR OPERATOR ERROR.

SP-1A-LS2 INPUT IS FROM "A" STEAM GENERATOR STARTUP LEVEL.

REFERENCES: DRAWING 208-039 SHEET MS-14

SENSING ELEMENT: SP-1A-LS2

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-03	K-07-03
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STEAM GEN A  
BTU  
CONDITION

## EVENT POINT 1126

### INDICATED CONDITION:

- o STEAM GENERATOR "A" FEEDWATER DEMAND IS >BTU LIMIT AS CALCULATED BY ICS.

### REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o THE FOLLOWING PARAMETERS INPUT TO A BTU CONDITION:

OTSG OUTLET PRESSURE HIGH  
RCS Th LOW

FEEDWATER TEMPERATURE LOW  
RCS FLOW LOW

### OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE AND CORRECT CAUSE OF ALARM CONDITION.

### DISCUSSION:

THE BTU LIMIT ALARM INDICATES CONDITIONS WHERE EITHER, THE ENERGY INPUT TO THE OTSG IS NOT SUFFICIENT, OR FEEDWATER/OTSG TEMPERATURE/PRESSURE ARE INADEQUATE TO MAINTAIN REQUIRED SUPERHEAT TO OPERATE THE MAIN TURBINE.

WITHOUT SUFFICIENT SUPERHEAT THERE IS A RISK OF CARRYOVER DAMAGE TO THE TURBINE BLADING.

REFERENCES: ICS/NNI DRAWINGS

SENSING ELEMENT: ICS MODULE 3-7-3



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-04	K-07-04
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STEAM GEN A  
LOW LEVEL  
LIMITED

EVENT POINT 1128

INDICATED CONDITION:

- o LOOP "A" FEEDWATER DEMAND IS ON LOW LEVEL LIMIT CONTROL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- d ICS MAINTAINS STEAM GENERATOR "A" AT APPROXIMATELY 30" ON THE START UP LEVEL INDICATOR.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE ICS MAINTAINS OTSG LEVEL  $\geq 30"$  ON THE START UP LEVEL INDICATOR.
- o IF LEVEL IS NOT BEING MAINTAINED BY ICS THEN MANUALLY CONTROL OTSG LEVEL USING FEEDWATER CONTROL VALVES AND MAIN FEED PUMP SPEED FOR 80 PSID.

### DISCUSSION:

THIS ALARM INDICATES THAT ICS IS TRYING TO CONTROL OTSG LEVEL AT THE LOW  
LEVEL LIMIT SETPOINT.

REFERENCES: ICS AND NNI DRAWINGS

SENSING ELEMENT: ICS MODULE 3-7-5

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-05	K-07-05
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[illegible]

VERIFY  
FWV-30  
ON AUTO

EVENT POINT 1227

INDICATED CONDITION:

- o ICS FEEDWATER LOOP "A" DEMAND >50% AND FWV-30 <15% FULL OPEN.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-30 AUTO/MANUAL TOGGLE SWITCH POSITION.
- o FWV-30 POSITION INDICATION.
- o LOOP "A" FEEDWATER MASTER DEMAND INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY FWV-30 AUTO/MANUAL TOGGLE SWITCH IN AUTO.
- o ENSURE FWV-30 IS OPENING.

DISCUSSION:

THIS IS AN EXPECTED ALARM DURING A NORMAL POWER INCREASE.

AT 50% FEEDWATER DEMAND ICS PULSES THE MAIN BLOCK VALVES TO 15% OPEN THEN RUNS THE VALVE OPEN THE REMAINING 85%.

WHEN THE MAIN BLOCK VALVE LEAVES IT'S CLOSED SEAT FEED PUMP CONTROL TRANSFERS FROM  $\Delta P$  CONTROL TO FLOW CONTROL.

REFERENCES: ICS AND NNI DRAWINGS

SENSING ELEMENT: FWV-30 POSITION SWITCHES

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-06	K-07-06
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[illegible]

TURB BYP VLV  
AIR  
FAILURE

EVENT POINT 0951

INDICATED CONDITION:

- o TURBINE BYPASS VALVE, MSV-9 SUPPLY AIR PRESSURE <60 PSIG AS SENSED BY MSV-9-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o INSTRUMENT AIR LOW PRESSURE INDICATION.
- o TURBINE BYPASS VALVE DOES NOT CONTROL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF LOW AIR PRESSURE.
- o CONSIDERATION SHOULD BE GIVEN TO OPERATING MSV-9 LOCALLY USING INSTRUCTIONS GIVEN IN OP-608.

DISCUSSION:

TURBINE BYPASS VALVES ARE AIR TO OPEN AND AIR TO CLOSE SO AIR FAILURE RESPONSE IS UNPREDICTABLE. HOWEVER THE MOST COMMON FAILURE MODE IS CLOSED.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: MSV-9-PS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-06	K-07-06
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[illegible]

TURB BYP VLV  
AIR  
FAILURE

EVENT POINT 0952

INDICATED CONDITION:

- 0 TURBINE BYPASS VALVE, MSV-10 SUPPLY AIR PRESSURE <60 PSIG AS SENSED BY MSV-10-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o INSTRUMENT AIR LOW PRESSURE INDICATION.
- o TURBINE BYPASS VALVE DOES NOT CONTROL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF LOW AIR PRESSURE.
- o CONSIDERATION SHOULD BE GIVEN TO OPERATING MSV-10 LOCALLY USING INSTRUCTIONS GIVEN IN OP-608.

DISCUSSION:

TURBINE BYPASS VALVES ARE AIR TO OPEN AND AIR TO CLOSE SO AIR FAILURE RESPONSE IS UNPREDICTABLE. HOWEVER THE MOST COMMON FAILURE MODE IS CLOSED.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: MSV-10-PS

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-06	K-07-06
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[illegible]

TURB BYP VLV  
AIR  
FAILURE

EVENT POINT 0953

INDICATED CONDITION:

- o TURBINE BYPASS VALVE, MSV-11 SUPPLY AIR PRESSURE <60 PSIG AS SENSED BY MSV-11-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o INSTRUMENT AIR LOW PRESSURE INDICATION.
- o TURBINE BYPASS VALVE DOES NOT CONTROL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF LOW AIR PRESSURE.
- o CONSIDERATION SHOULD BE GIVEN TO OPERATING MSV-11 LOCALLY USING INSTRUCTIONS GIVEN IN OP-608.

DISCUSSION:

TURBINE BYPASS VALVES ARE AIR TO OPEN AND AIR TO CLOSE SO AIR FAILURE RESPONSE IS UNPREDICTABLE. HOWEVER THE MOST COMMON FAILURE MODE IS CLOSED.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: MSV-11-PS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-07-06	K-07-06
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[illegible]

TURB BYP VLV  
AIR  
FAILURE

EVENT POINT 0954

INDICATED CONDITION:

- o TURBINE BYPASS VALVE, MSV-14 SUPPLY AIR PRESSURE <60 PSIG AS SENSED BY MSV-14-PS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o INSTRUMENT AIR LOW PRESSURE INDICATION.
- o TURBINE BYPASS VALVE DOES NOT CONTROL.

OPERATOR ACTIONS FOR A VALID ALARM:

- o INVESTIGATE CAUSE OF LOW AIR PRESSURE.
- o CONSIDERATION SHOULD BE GIVEN TO OPERATING MSV-14 LOCALLY USING INSTRUCTIONS GIVEN IN OP-608.

DISCUSSION:

TURBINE BYPASS VALVES ARE AIR TO OPEN AND AIR TO CLOSE SO AIR FAILURE RESPONSE IS UNPREDICTABLE. HOWEVER THE MOST COMMON FAILURE MODE IS CLOSED.

REFERENCES: DRAWING 208-039 SHEET MS-014

SENSING ELEMENT: MSV-14-PS



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-01	K-08-01
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STEAM GEN B  
LEVEL  
LOW-LOW

EVENT POINT 0955

INDICATED CONDITION:

- o STEAM GENERATOR "B" LEVEL <12" AS SENSED BY SP-1B-LS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o STEAM GENERATOR "B" LEVEL INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER FEEDWATER LINEUP.
- o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND INCREASE FEED RATE TO STEAM GENERATOR "B".
- o IF EMERGENCY FEEDWATER ACTUATES REFER TO AP-450.

DISCUSSION:

IF ICS CONTROLS DOWNSTREAM OF THE LEVEL LIMITER ARE IN AUTO THE OTSG LEVELS SHOULD BE MAINTAINED AT THE LOW LIMIT OF APPROXIMATELY 30".

EMERGENCY FEED WATER WILL ACTUATE AT APPROXIMATELY 6" ON EFIC LOW RANGE LEVEL INSTRUMENTS.

SP-1B-LS2 INPUT IS FROM "B"STEAM GENERATOR STARTUP LEVEL.

REFERENCES: DRAWING 208-039 SHEET MS-14

SENSING ELEMENT: SP-1B-LS2

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-02	K-08-02
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STEAM GEN B  
LEVEL  
HIGH/LOW

EVENT POINT 0945

INDICATED CONDITION:

- o STEAM GENERATOR "B" LEVEL >93.5% AS SENSED BY SP-1B-LS1.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o STEAM GENERATOR "B" LEVEL INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE CAUSE AND RESTORE STEAM GENERATOR LEVEL.
- o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND REDUCE FEED RATE TO STEAM GENERATOR "B".
- o IF STEAM GENERATOR LEVEL CONTINUES TO INCREASE CONSIDERATION SHOULD BE GIVEN TO ISOLATE MAIN FEEDWATER TO STEAM GENERATOR "B" USING EFIC MAIN FEEDWATER ISOLATION PUSHBUTTONS.

DISCUSSION:

IF ICS CONTROLS DOWNSTREAM OF THE LEVEL LIMITER ARE IN AUTO THE OTSG LEVELS SHOULD BE MAINTAINED AT THE HIGH LIMIT OF APPROXIMATELY 95%.

VERY HIGH LEVELS IN A STEAM GENERATOR MAY CAUSE CARRYOVER AND DAMAGE THE MAIN TURBINE.

SP-1B-LS1 INPUT IS FROM "A" STEAM GENERATOR OPERATE LEVEL.

REFERENCES: DRAWING 208-039 SHEET MS-14

SENSING ELEMENT: SP-1B-LS1

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-02	K-08-02
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STEAM GEN B  
LEVEL  
HIGH/LOW

EVENT POINT 0946

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>o STEAM GENERATOR "B" LEVEL &lt;24" AS SENSED BY SP-1B-LS2.</li> </ul>
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>o STEAM GENERATOR "B" LEVEL INDICATION.</li> </ul>
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>o DETERMINE CAUSE AND RESTORE STEAM GENERATOR LEVEL.</li> <li>o TAKE MANUAL CONTROL OF FEEDWATER VALVES AND/OR MAIN FEED PUMP AND INCREASE FEED RATE TO STEAM GENERATOR "B".</li> <li>o IF EMERGENCY FEEDWATER ACTUATES THEN REFER TO AP-450.</li> </ul>
<p>DISCUSSION:</p> <p>IF IN AUTO ICS SHOULD LIMIT OTSG LEVEL TO 30" ON THE START UP RANGE, THEREFORE A PROBLEM EXISTS WITH ICS LEVEL CONTROL OR OPERATOR ERROR.</p> <p>SP-1B-LS2 INPUT IS FROM "A" STEAM GENERATOR STARTUP LEVEL.</p>
<p>REFERENCES: DRAWING 208-039 SHEET MS-14</p>
<p>SENSING ELEMENT: SP-1B-LS2</p>

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-03	K-08-03
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STEAM GEN B  
BTU  
CONDITION

# EVENT POINT 1127

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> <li>STEAM GENERATOR "B" FEEDWATER DEMAND IS &gt;BTU LIMIT AS CALCULATED BY ICS.</li> </ul>
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> <li>THE FOLLOWING PARAMETERS INPUT TO A BTU CONDITION: <ul style="list-style-type: none"> <li>OTSG OUTLET PRESSURE HIGH      FEEDWATER TEMPERATURE LOW</li> <li>RCS Th TEMPERATURE LOW      RCS FLOW LOW</li> </ul> </li> </ul>
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> <li>INVESTIGATE AND CORRECT CAUSE OF ALARM CONDITION.</li> </ul>
<p>DISCUSSION:</p> <p>THE BTU LIMIT ALARM INDICATES CONDITIONS WHERE EITHER, THE ENERGY INPUT TO THE OTSG IS NOT SUFFICIENT, OR FEEDWATER/OTSG TEMPERATURE/PRESSURE ARE INADEQUATE TO MAINTAIN REQUIRED SUPERHEAT TO OPERATE THE MAIN TURBINE.</p> <p>WITHOUT SUFFICIENT SUPERHEAT THERE IS A RISK OF CARRYOVER DAMAGE TO THE TURBINE BLADING.</p>
<p>REFERENCES: ICS, NNI DRAWINGS</p>
<p>SENSING ELEMENT: ICS MODULE 3-7-4</p>

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-04	K-08-04
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STEAM GEN B  
LOW LEVEL  
LIMITED

EVENT POINT 1129

INDICATED CONDITION:

- o LOOP "B" FEEDWATER DEMAND IS ON LOW LEVEL LIMIT CONTROL.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o ICS MAINTAINS STEAM GENERATOR "B" AT APPROXIMATELY 30" ON THE START UP LEVEL INDICATOR.

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE ICS MAINTAINS OTSG LEVEL  $\geq$  30" ON THE START UP LEVEL INDICATOR.
- o IF LEVEL IS NOT BEING MAINTAINED BY ICS THEN MANUALLY CONTROL OTSG LEVEL USING FEEDWATER CONTROL VALVES AND MAIN FEED PUMP SPEED.

DISCUSSION:

THIS ALARM INDICATES THAT ICS IS TRYING TO CONTROL OTSG LEVEL AT THE LOW SETPOINT.

REFERENCES: ICS AND NNI DRAWINGS

SENSING ELEMENT: ICS MODULE 3-7-6



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-05	K-08-05
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[illegible]

VERIFY  
FWV-29  
ON AUTO

EVENT POINT 1228

INDICATED CONDITION:

- o ICS FEEDWATER LOOP "B" DEMAND >50% AND FWV-29 <15% FULL OPEN.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-29 AUTO/MANUAL TOGGLE SWITCH POSITION.
- o FWV-29 POSITION INDICATION.
- o LOOP "B" FEEDWATER MASTER DEMAND INDICATION.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY FWV-29 AUTO/MANUAL TOGGLE SWITCH IN AUTO.
- o ENSURE FWV-29 IS OPENING.

DISCUSSION:

THIS IS AN EXPECTED ALARM DURING A NORMAL POWER INCREASE.

AT 50% FEEDWATER DEMAND ICS PULSES THE MAIN BLOCK VALVES TO 15% OPEN THEN RUNS THE VALVE OPEN THE REMAINING 85%. WHEN THE MAIN BLOCK VALVE LEAVES IT'S CLOSED SEAT FEED PUMP CONTROL TRANSFERS FROM  $\Delta P$  CONTROL TO FLOW CONTROL.

REFERENCES: ICS AND NNI DRAWINGS

SENSING ELEMENT: FWV-29 POSITION SWITCHES



ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-06	K-08-06
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[illegible]

FW CONTROL VLV  
AIR  
FAILURE

EVENT POINT 1430

INDICATED CONDITION:

- o INSTRUMENT AIR PRESSURE TO FWV-37 IS < APPROXIMATELY 35 PSIG AS SENSED BY FWV-37-KS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-37 AIR FAIL RESET PUSHBUTTON AMBER INDICATING LIGHTS ON.
- o FWV-37 BAILEY CONTROL STATION SHIFTS TO "HAND".
- o FWV-37 WILL NOT MOVE IN RESPONSE TO MCB CONTROLS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER INSTRUMENT AIR PRESSURE TO FWV-37.
- o DEPRESS AIR FAIL RESET PUSHBUTTON WHEN AIR PRESSURE IS RESTORED.

DISCUSSION:

WITH <35 PSIG INSTRUMENT AIR TO FWV-37 A BELLWS COLLAPSES, THIS MECHANICALLY LOCKS THE VALVE POSITIONER, OPENS A DIAPHRAGM BYPASS VALVE AND ACTUATES THIS ALARM. WHEN SUPPLY AIR PRESSURE DROPS TO <28 PSIG A SOLENOID VALVE CLOSES AND ISOLATES AIR TO THE VALVE. THE AIR FAIL RESET PUSHBUTTON RE-OPENS THIS SOLENOID, BUT IF INSTRUMENT AIR IS BELOW 35 PSIG THE BELLWS WILL NOT EXPAND AND REMOVE THE MECHANICAL LOCK INSIDE THE VALVE POSITIONER SO HOLDING THE AIR FAIL RESET PUSHBUTTON WILL NOT ALLOW THE OPERATOR TO POSITION THE VALVE UNLESS THE ALARM CLEARS AND THE AIR FAIL RESET PUSHBUTTON INDICATOR LIGHTS GO OUT.

REFERENCES: DRAWING 208-032 SHEET FW-33

SENSING ELEMENT: 20X-FWV-37

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-06	K-08-06
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[illegible]

FW CONTROL VLV  
AIR  
FAILURE

EVENT POINT 1431

INDICATED CONDITION:

- o INSTRUMENT AIR PRESSURE TO FWV-38 IS  $\approx$  APPROXIMATELY 35 PSIG AS SENSED BY FWV-38-KS.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-38 AIR FAIL RESET PUSHBUTTON AMBER INDICATING LIGHTS ON.
- o FWV-38 BAILEY CONTROL STATION SHIFTS TO "HAND".
- o FWV-38 WILL NOT MOVE IN RESPONSE TO MCB CONTROLS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER INSTRUMENT AIR PRESSURE TO FWV-38.
- o DEPRESS AIR FAIL RESET PUSHBUTTON WHEN AIR PRESSURE IS RESTORED.

DISCUSSION:

WITH <35 PSIG INSTRUMENT AIR TO FWV-38 A BELLOWS COLLAPSES, THIS MECHANICALLY LOCKS THE VALVE POSITIONER, OPENS A DIAPHRAGM BYPASS VALVE AND ACTUATES THIS ALARM. WHEN SUPPLY AIR PRESSURE DROPS TO <28 PSIG A SOLENOID VALVE CLOSES AND ISOLATES AIR TO THE VALVE. THE AIR FAIL RESET PUSHBUTTON RE-OPENS THIS SOLENOID, BUT IF INSTRUMENT AIR IS BELOW 35 PSIG THE BELLOWS WILL NOT EXPAND AND REMOVE THE MECHANICAL LOCK INSIDE THE VALVE POSITIONER SO HOLDING THE AIR FAIL RESET PUSHBUTTON WILL NOT ALLOW THE OPERATOR TO POSITION THE VALVE UNLESS THE ALARM CLEARS AND THE AIR FAIL RESET PUSHBUTTON INDICATOR LIGHTS GO OUT.

REFERENCES: DRAWING 208-032 SHEET FW-33

SENSING ELEMENT: 20X-FWV-38

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-06	K-08-06
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[illegible]

FW CONTROL VLV  
AIR  
FAILURE

EVENT POINT 1432

INDICATED CONDITION:

- o INSTRUMENT AIR PRESSURE TO FWV-39 VALVE POSITIONER <80 PSIG AS SENSED BY FWV-39-PS1 OR
- o SUPPLY AIR PRESSURE TO FWV-39 E/P CONVERTER <28 PSIG AS SENSED BY FWV-39-PS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-39 AIR FAIL RESET PUSHBUTTON AMBER INDICATING LIGHTS ON.
- o FWV-39 BAILEY CONTROL STATION SHIFTS TO "HAND".
- o FWV-39 WILL NOT MOVE IN RESPONSE TO MCB CONTROLS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER INSTRUMENT AIR PRESSURE TO FWV-39.
- o DEPRESS AIR FAIL RESET PUSHBUTTON WHEN AIR PRESSURE IS RESTORED.

DISCUSSION:

WITH LOW AIR PRESSURE PS-1 OR PS-2 WILL PICK UP. THIS WILL ENERGIZE A SOLENOID WHICH WILL ISOLATE AND BLEED AIR TO TWO DIAPHRAGM VALVES THAT SUPPLY AIR TO THE VALVE ACTUATOR. WHEN AIR BLEEDS OFF THESE DIAPHRAGM VALVES THE VALVES CLOSE, THIS ISOLATES AIR TO THE TOP AND BOTTOM OF FWV-39 ACTUATOR. THIS EFFECTIVELY LOCKS UP THE VALVE. THE AIR FAIL RESET PUSHBUTTON WILL RE-OPEN THIS SOLENOID VALVE BUT IF PRESSURE IS NOT HIGH ENOUGH THE DIAPHRAGM VALVES WILL NOT OPEN TO ALLOW MOTIVE AIR TO GO TO THE VALVE ACTUATOR. SO, OPERATION OF THE VALVES WHILE AIR FAIL RESET ALARM IS IN USING THE AIR FAIL RESET PUSHBUTTON IS NOT CERTAIN.

REFERENCES: DRAWING 208-032 SHEET FW-33, DRAWING 308-324

SENSING ELEMENT: 20X-FWV-39

ICS-K ANNUNCIATOR RESPONSE	ICS-CY3-08-06	K-08-06
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[illegible]

FW CONTROL VLV  
AIR  
FAILURE

EVENT POINT 1433

INDICATED CONDITION:

- o INSTRUMENT AIR PRESSURE TO FWV-40 VALVE POSITIONER <80 PSIG AS SENSED BY FWV-40-PS1 OR
- o SUPPLY AIR PRESSURE TO FWV-40 E/P CONVERTER <28 PSIG AS SENSED BY FWV-40-PS2.

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o FWV-40 AIR FAIL RESET PUSHBUTTON AMBER INDICATING LIGHTS ON.
- o FWV-40 BAILEY CONTROL STATION SHIFTS TO "HAND".
- o FWV-40 WILL NOT MOVE IN RESPONSE TO MCB CONTROLS.

OPERATOR ACTIONS FOR A VALID ALARM:

- o VERIFY PROPER INSTRUMENT AIR PRESSURE TO FWV-40.
- o DEPRESS AIR FAIL RESET PUSHBUTTON WHEN AIR PRESSURE IS RESTORED.

DISCUSSION:

WITH LOW AIR PRESSURE PS-1 OR PS-2 WILL PICK UP. THIS WILL ENERGIZE A SOLENOID WHICH WILL ISOLATE AND BLEED AIR TO TWO DIAPHRAGM VALVES THAT SUPPLY AIR TO THE VALVE ACTUATOR. WHEN AIR BLEEDS OFF THESE DIAPHRAGM VALVES THE VALVES CLOSE, THIS ISOLATES AIR TO THE TOP AND BOTTOM OF FWV-40 ACTUATOR. THIS EFFECTIVELY LOCKS UP THE VALVE. THE AIR FAIL RESET PUSHBUTTON WILL RE-OPEN THIS SOLENOID VALVE BUT IF PRESSURE IS NOT HIGH ENOUGH THE DIAPHRAGM VALVES WILL NOT OPEN TO ALLOW MOTIVE AIR TO GO TO THE VALVE ACTUATOR. SO, OPERATION OF THE VALVES WHILE AIR FAIL RESET ALARM IS IN USING THE AIR FAIL RESET PUSHBUTTON IS NOT CERTAIN.

REFERENCES: DRAWING 208-032 SHEET FW-33, DRAWING 308-324

SENSING ELEMENT: 20X-FWV-40