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Rev. 7

Effective Date 3-12-99

ANNUNCIATOR RESPONSE

AR-971

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

CXAR ANNUNCIATOR RESPONSE

APPROVED BY: Procedure Owner

J. W. Tinsley for Mike Winship
(SIGNATURE ON FILE)

DATE:

3/9/99

PROCEDURE WRITER: Michael A. Winship

RESPONSIBLE DEPARTMENT: Nuclear Plant Operations Support

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1.0

PURPOSE

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

2.0

REFERENCES

2.1

DEVELOPMENTAL REFERENCES

- 2.1.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

3.0

PERSONNEL INDOCTRINATION

None

4.0

INSTRUCTIONS

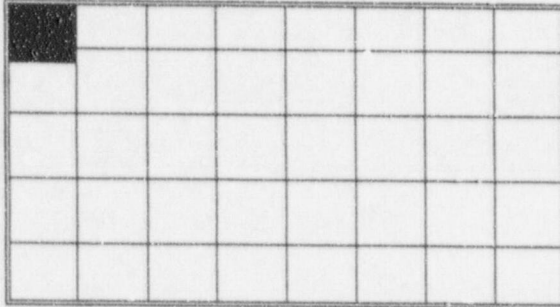
- 4.1 Respond to alarms on the CX Annunciator Panel as indicated on Enclosure 1, Annunciator Response.

5.0

FOLLOW-UP ACTIONS

None

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-1-1
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DEMINERALIZER 3A
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3A AS SEEN BY CX-17-DPIS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-17-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

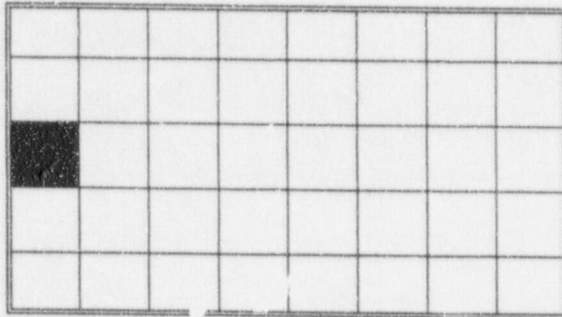
DISCUSSION:

- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-17-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-1-3
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DEMINERALIZER 3A
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3A AS SEEN BY CX-23-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-23-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

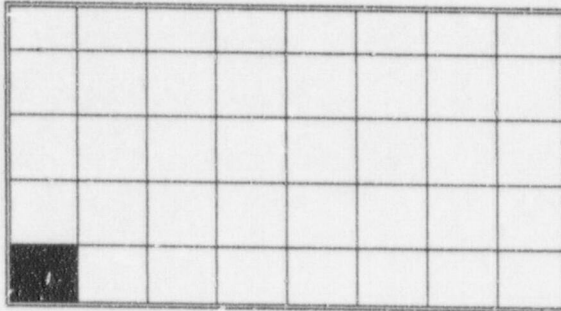
DISCUSSION:

- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-23-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-1-5
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CATION RESIN
RINSE
CONDUCTIVITY
HIGH

INDICATED CONDITION:

- o CATION RINSE CONDUCTIVITY AS SEEN BY CX-87-CE IS $> 35 \mu\text{MHO}$ WHEN THE REGENERATION TIMER IS IN THE RINSE CHECK STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

DISCUSSION:

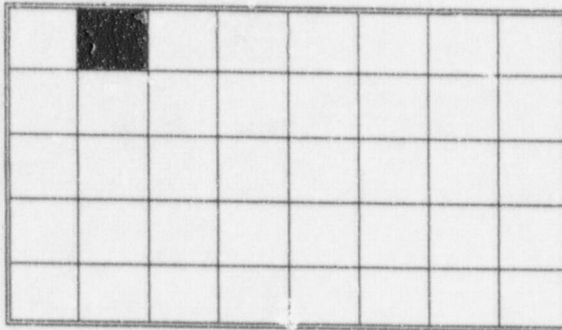
- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: CR-24, LR-47, CX-87-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-2-1



DEMINERALIZER 3B
DIFFERENTIAL
PRESSURE
HIGH

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3B AS SEEN BY CX-18-DPS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-18-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

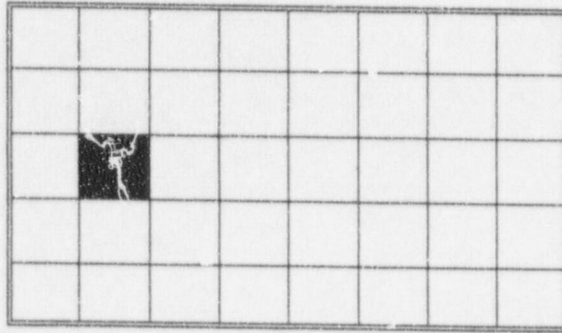
DISCUSSION:

- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-18-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-2-3
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DEMINERALIZER 3B
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3B AS SEEN BY CX-24-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-24-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

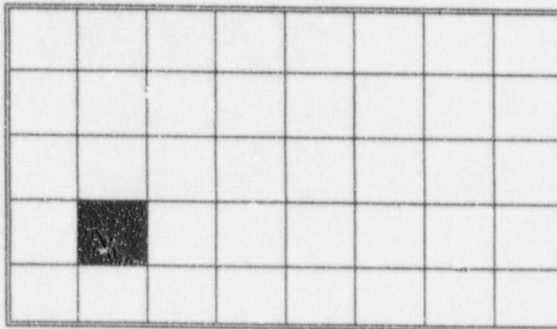
DISCUSSION:

- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-24-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-2-4
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**RUPTURE DISK
TROUBLE**

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3A, B, C, D, E, OR F, RUPTURE DISK AS SEEN BY CX-118, 119, 120, 121, 122, OR 123-FS IS > 1.25 PSID

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL AMBER LIGHT OUT AT THE CX PANEL AT 119' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o DETERMINE WHICH OF THE SIX DEMINERALIZER'S HAS THE ALARM CONDITION BY DETERMINING WHICH AMBER LIGHT IS OUT ON THE CONDENSATE POLISHING PANEL
- o REMOVE THE AFFECTED DEMINERALIZER FROM SERVICE PER OP-601
- o INITIATE MAINTENANCE ACTIVITIES TO REPLACE THE AFFECTED RUPTURE DISK

DISCUSSION:

- o EACH DISK IS SET TO RUPTURE AT 150 PSI ACROSS A DEMINERALIZER BED.

REFERENCES: DRAWING 208-017 SHEET CX-22

SENSING ELEMENT: CX-118, 119, 120, 121, 122, 123-FS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-2-5
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ANION RESIN
RINSE
CONDUCTIVITY
HIGH

INDICATED CONDITION:

- o ANION RESIN RINSE CONDUCTIVITY AS SEEN BY CX-90-CE IS $> 20 \mu\text{MHO}$
AND REGENERATION TIMER IS IN THE RINSE CHECK STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- ☐ NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

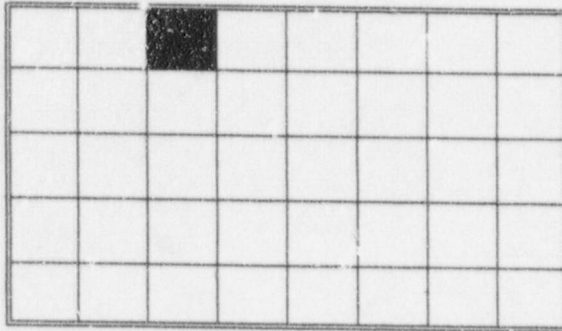
DISCUSSION:

- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: LR-48, CR-25, CX-90-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-3-1
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DEMINERALIZER 3C
DIFFERENTIAL
PRESSURE
HIGH

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3C AS SEEN BY CX-19-DPIS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-19-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

DISCUSSION:

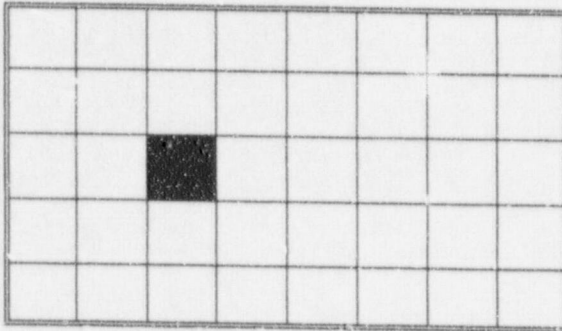
- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-19-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-3-3



DEMINERALIZER 3C
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3C AS SEEN BY CX-25-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-25-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

DISCUSSION:

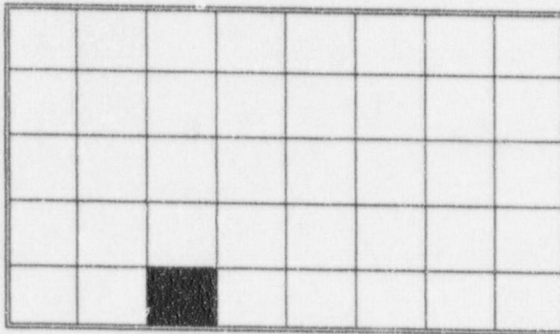
- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-25-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-3-5



CATION MIXED
RESIN RINSE
CONDUCTIVITY
HIGH

INDICATED CONDITION:

- o CATION MIXED RESIN RINSE CONDUCTIVITY AS SEEN BY CX-88-CE IS $> 0.5 \mu\text{MHO}$ AND REGENERATION TIMER IS IN THE RINSE CHECK STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

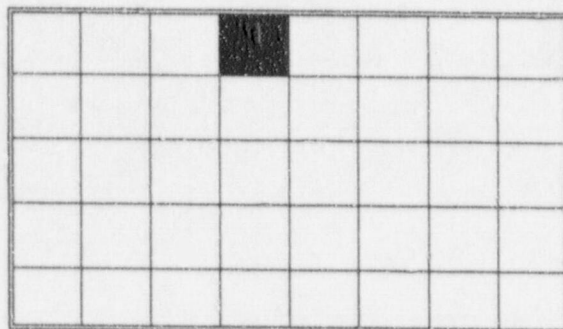
DISCUSSION:

- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: LR-49, CR-36, CX-88-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-4-1
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**DEMINERALIZER 3D
DIFFERENTIAL
PRESSURE
HIGH**

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3C AS SEEN BY CX-20-DPIS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-20-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

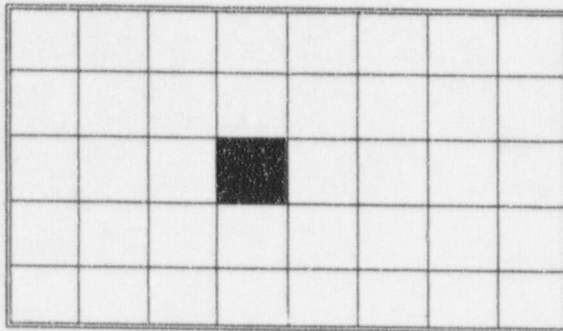
DISCUSSION:

- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-20-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-4-3
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DEMINERALIZER 3D
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3D AS SEEN BY CX-26-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-26-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

DISCUSSION:

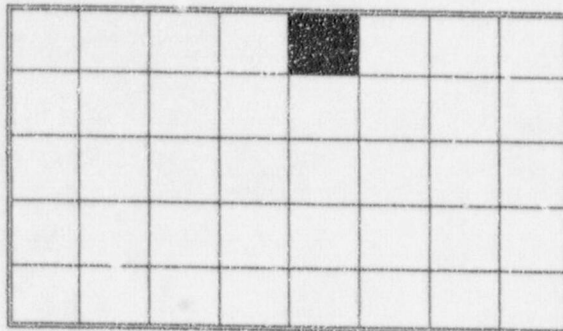
- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-26-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-5-1



DEMINERALIZER 3E
DIFFERENTIAL
PRESSURE
HIGH

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3E AS SEEN BY CX-21-DPIS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-21-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

DISCUSSION:

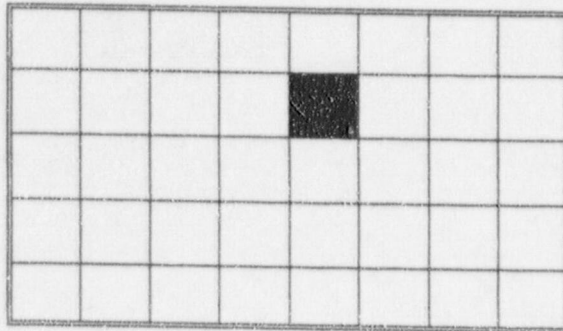
- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-21-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-5-2



RECIRCULATION
PUMP
TRIP

INDICATED CONDITION:

- o RECIRCULATION PUMP, SDP-7, CONTROL SWITCH IN NORMAL-AFTER-START POSITION AND MOTOR CONTACTOR OPEN

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL PUMP STATUS INDICATION ON THE CX PANEL AT 119' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o MATCH TARGETS ON CONTROL SWITCH
- o ENSURE NEUTRALIZATION TANK LEVEL IS > 2 FEET
- o CHECK VALVE LINE UP
- o INITIATE MAINTENANCE ACTIVITIES

DISCUSSION:

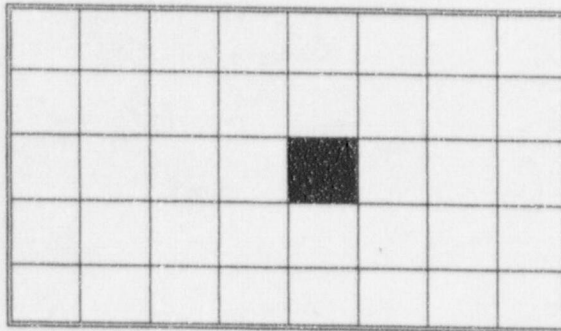
- o A PUMP TRIP WILL BE INITIATED WHEN NEUTRALIZATION TANK LEVEL AS SEEN BY CX-112-LS2 IS < 2 FEET. A PUMP TRIP WILL CLOSE THE WASTE DISCHARGE VALVE SDV-1.

REFERENCES: DRAWING 208-017 SHEET CX-21 AND 208-072 SHEET SD-10

SENSING ELEMENT: 42/51CR

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-5-3



DEMINERALIZER 3E
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3E AS SEEN BY CX-27-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-27-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

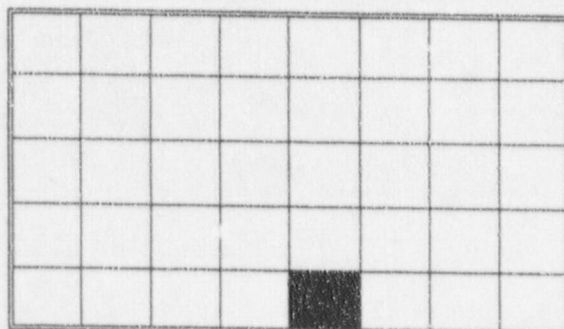
DISCUSSION:

- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-27-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-5-5
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PARTIAL
AMMONIATION
MIXED RESIN
CONDUCTIVITY HIGH

INDICATED CONDITION:

- o PARTIAL AMMONIATION MIXED RESIN CONDUCTIVITY AS SEEN BY CX-88-CE IS 0.5 μ MHO AND REGENERATION TIMER IS IN THE RINSE CHECK STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- c INITIATE MAINTENANCE ACTIVITIES

DISCUSSION:

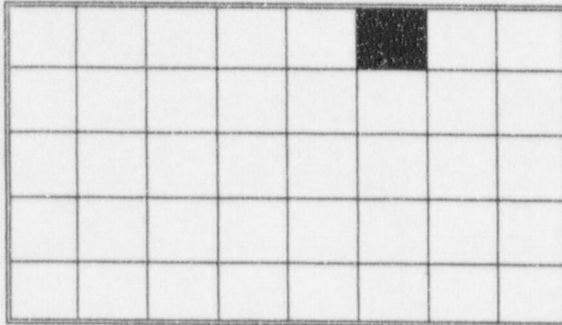
- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: LR-49, CR-32, CX-88-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-6-1



DEMINERALIZER 3F
DIFFERENTIAL
PRESSURE
HIGH

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZER 3F AS SEEN BY CX-22-DPIS IS > 60 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-22-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE AND BACKWASH DEMINERALIZER PER OP-601
- o IF REQUIRED, PLACE ANOTHER DEMINERALIZER IN SERVICE PER OP-601

DISCUSSION:

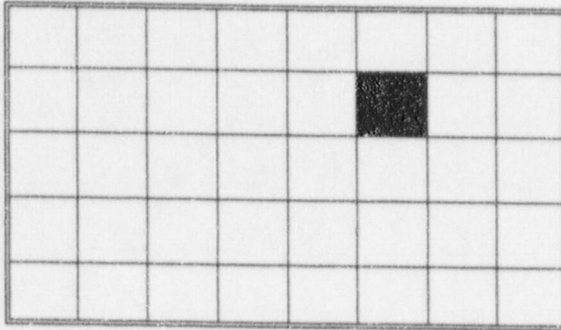
- o THE SUPPORT STRUCTURE HOLDING THE RESIN CANNOT WITHSTAND THE FULL DIFFERENTIAL PRESSURE GENERATED FOR A COMPLETELY CLOGGED RESIN BED. EACH DEMINERALIZER IS EQUIPPED WITH A RUPTURE DISK THAT WILL RELIEVE THE DIFFERENTIAL PRESSURE AT 150 PSI.

REFERENCES: DRAWING 208-017 SHEET CX-20

SENSING ELEMENT: CX-22-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-6-2



SDT-1
TANK LEVEL
HIGH/LOW

INDICATED CONDITION:

- o SDT-1 TANK LEVEL AS SEEN BY CX-112-LS1 OR CX-112-LS2 IS > 20 FEET OR < 2 FEET

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL TANK LEVEL INDICATOR CX-112-LI ON THE CX PANEL AT 119' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o IF TANK LEVEL IS > 20 FEET,
THEN SECURE FILLING THE TANK AND PREPARE FOR A TANK RELEASE
- o IF TANK LEVEL IS < 2 FEET,
THEN SECURE THE RECIRCULATION PUMP, SDP-7, AND CHECK VALVE LINE UP

DISCUSSION:

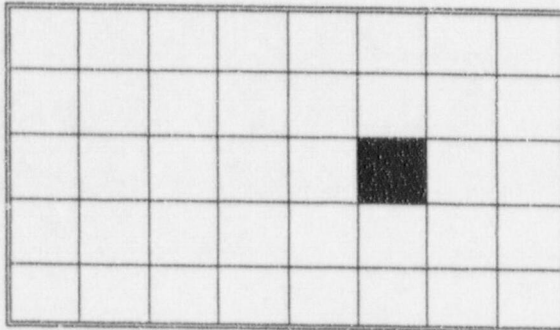
- o SDP-7 WILL TRIP WHEN NEUTRALIZATION TANK LEVEL AS SEEN BY CX-112-LS2 IS < 2 FEET. A PUMP TRIP WILL CLOSE THE WASTE DISCHARGE VALVE SDV-1.

REFERENCES: DRAWING 208-017 SHEET CX-21 AND CX-23

SENSING ELEMENT: CX-112-LS1, CR-59, CX-112-LS2

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-6-3



DEMINERALIZER 3F
RESIN TRAP
DIFFERENTIAL
PRESSURE HIGH

INDICATED CONDITION:

- o THE DIFFERENTIAL PRESSURE ACROSS THE RESIN TRAP OF DEMINERALIZER 3C AS SEEN BY CX-28-DPIS IS > 15 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-28-DPIS AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REMOVE DEMINERALIZER FROM SERVICE PER OP-601
- o DETERMINE CAUSE AND CORRECT RESIN TRAP PLUGGAGE
- o BACKFLUSH DEMINERALIZER RESIN TRAP PER OP-601

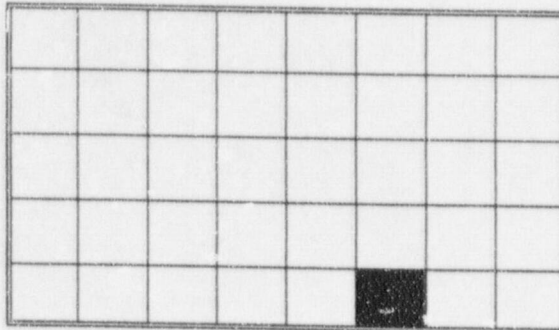
DISCUSSION:

- o EXCESSIVE RESIN TRAP PLUGGAGE IS INDICATIVE OF DAMAGED DEMINERALIZER INTERNALS OR IMPROPER VALVE LINE UP IN THE CONDENSATE POLISHING SYSTEM.

REFERENCES: DRAWING 208-017 SHEET CX-21

SENSING ELEMENT: CX-28-DPIS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-6-5
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REGENERATION
CYCLE
COMPLETE

INDICATED CONDITION:

- o THE LAST STEP IN THE REGENERATION SEQUENCE HAS BEEN COMPLETED

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL AMBER LIGHT ON THE CX PANEL AT 119' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

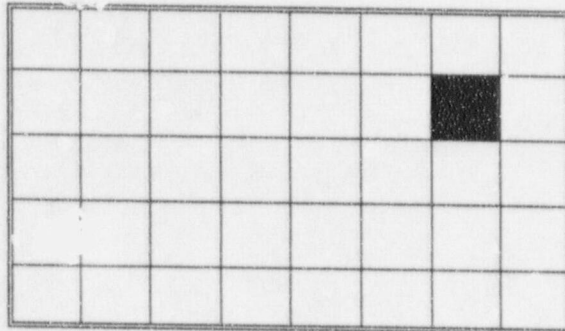
DISCUSSION:

- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: CR-33

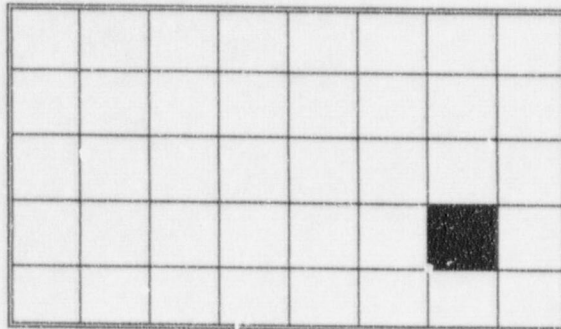
CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-7-2
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CAUSTIC
DILUTION WATER
FLOW
LOW

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> o HOT WATER TO CAUSTIC MIX TEE AS SEEN BY CX-52-FIS IS < 6 GPM AND REGENERATION TIMER IS IN THE CAUSTIC STEP
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> o LOCAL FLOW INDICATION CX-52-FIS
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> o INITIATE MAINTENANCE ACTIVITIES
<p>DISCUSSION:</p> <ul style="list-style-type: none"> o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.
<p>REFERENCES: DRAWING 208-017 SHEET CX-21 AND CX-23</p>
<p>SENSING ELEMENT: CR-56, CX-52-FIS</p>

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-7-4
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**SYSTEM
DIFFERENTIAL
PRESSURE
HIGH**

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZERS AS SEEN BY CX-15-DPS1 OR CX-16-DPS1 IS > 70 PSID

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATORS CX-15-DPI OR CX-16-DPI ON CX PANEL AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE THE PROPER NUMBER OF DEMINERALIZERS ARE IN SERVICE FOR INDICATED CONDENSATE FLOW
- o IF CONDENSATE FLOW IS EXCESSIVE FOR UNIT LOAD, THEN CHECK HEATER DRAIN SYSTEM FOR OPEN DUMP VALVES TO CONDENSER
- o CHECK INDIVIDUAL DEMINERALIZER DPI'S FOR HIGH DEMINERALIZER DP

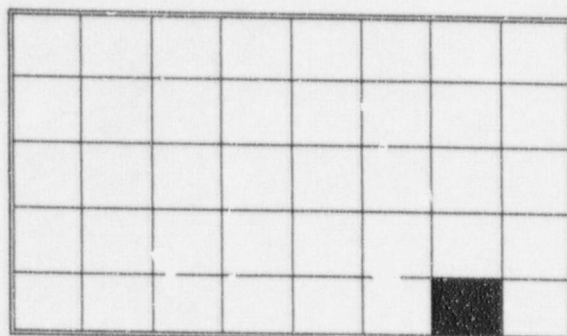
DISCUSSION:

- o WHEN DIFFERENTIAL PRESSURE AS SEEN BY CX-15-DPS2 IS > 80 PSID, BYPASS VALVE, CXV-5 WILL OPEN, (REFER TO OP-603).
- o WHEN DIFFERENTIAL PRESSURE AS SEEN BY CX-16-DPS2 IS > 80 PSID, BYPASS VALVE, CXV-12 WILL OPEN, (REFER TO OP-603).

REFERENCES: DRAWING 208-017 SHEET CX-22

SENSING ELEMENT: CX-15-DPS1, CX-16-DPS1

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-7-5
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AIR
PRESSURE
LOW

INDICATED CONDITION:

- o CX AIR PRESSURE AS SEEN BY CX-34-PS IS < 75 PSIG

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL PRESSURE INDICATOR CX-36-PI LOCATED AT AIR COMPRESSOR DISCHARGE HEADER

OPERATOR ACTIONS FOR A VALID ALARM:

- o ENSURE CX AIR COMPRESSOR CXP-3A OR CXP-3B RUNNING
- o CHECK VALVE LINEUP

DISCUSSION:

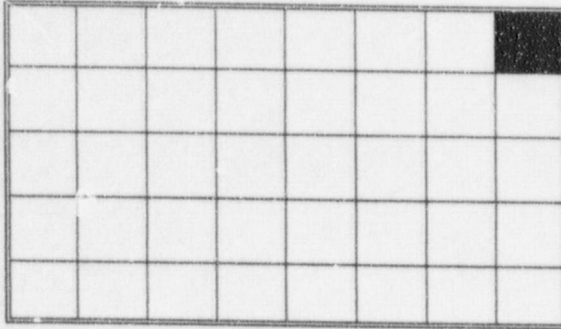
- o CX AIR COMPRESSORS SHOULD MAINTAIN CX AIR PRESSURE > 80 PSIG

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: CX-34-PS

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-8-1



DILUTE ACID
CONDUCTIVITY
HIGH/LOW

INDICATED CONDITION:

- o DILUTE ACID CONDUCTIVITY AS SEEN BY CX-48-CE IS $> 10\%$ OR $< 6\%$ AND REGENERATION TIMER IS IN THE ACID STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

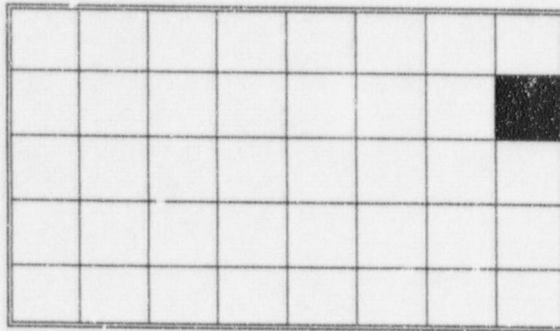
DISCUSSION:

- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-20 AND CX-23

SENSING ELEMENT: LR-50, TDR10, CX-48-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-8-2
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**DILUTE CAUSTIC
CONCENTRATION
HIGH/LOW**

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> o STANDARD CAUSTIC CONCENTRATION AS SEEN BY CX-55-DI IS > 1.109 OR < 1.065 SPECIFIC GRAVITY AND REGEN TIMER IS IN THE RINSE CHECK STEP o SUPERREX CAUSTIC CONCENTRATION AS SEEN BY CX-55-DI IS > 1.197 OR < 1.153 SPECIFIC GRAVITY AND REGEN TIMER IS IN THE RINSE CHECK STEP
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> o NONE
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> o INITIATE MAINTENANCE ACTIVITIES
<p>DISCUSSION:</p> <ul style="list-style-type: none"> o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.
<p>REFERENCES: DRAWING 208-017 SHEET CX-21 AND CX-23</p>
<p>SENSING ELEMENT: LR-41, TDR11, CX-55-DI</p>

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-8-3

DILUTE AMMONIA
CONDUCTIVITY
HIGH/LOW

INDICATED CONDITION:

- o DILUTE AMMONIA CONDUCTIVITY AS SEEN BY CX-043-CE IS $> 1.5\%$ OR $< 0.6\%$ AND REGENERATION TIMER IS IN THE AMMONIA STEP

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o NONE

OPERATOR ACTIONS FOR A VALID ALARM:

- o INITIATE MAINTENANCE ACTIVITIES

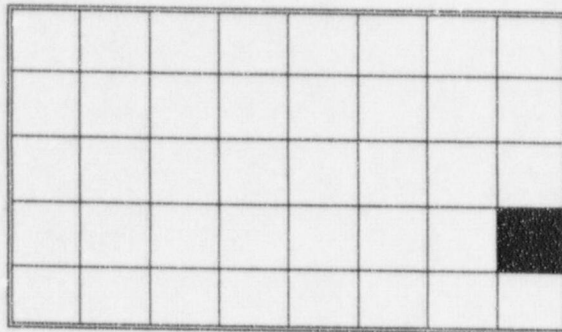
DISCUSSION:

- o THE REGENERATION EQUIPMENT OF THE CX SYSTEM HAS NOT BEEN USED SINCE 1980. THIS WINDOW SHOULD NOT BE IN ALARM DURING ANY MODE OF PLANT OPERATION.

REFERENCES: DRAWING 208-017 SHEET CX-21 AND CX-23

SENSING ELEMENT: LR-51, TDR15, CX-43-CE

CONDENSATE POLISHING ANNUNCIATOR RESPONSE	CX-8-4
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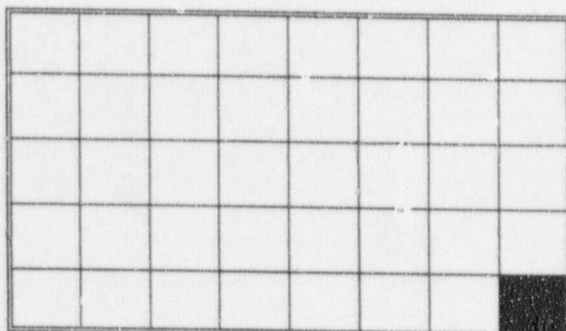


**HOT WATER TANK
TEMPERATURE
HIGH/LOW**

<p>INDICATED CONDITION:</p> <ul style="list-style-type: none"> o WATER TEMPERATURE AS SEEN BY CX-54-TS2 IS $> 140^{\circ}\text{F}$ OR $< 100^{\circ}\text{F}$
<p>REDUNDANT INDICATION WHICH WILL VERIFY ALARM:</p> <ul style="list-style-type: none"> o NONE
<p>OPERATOR ACTIONS FOR A VALID ALARM:</p> <ul style="list-style-type: none"> o ENSURE HOT WATER TANK HEATERS ARE ENERGIZED <ul style="list-style-type: none"> o CXHE-2A - WATER TREATMENT MCC 3B BREAKER 5C CLOSED o CXHE-2B - WATER TREATMENT MCC 3B BREAKER 5D CLOSED o INITIATE MAINTENANCE ACTIVITIES TO REPAIR HEATER CONTROL CIRCUITRY
<p>DISCUSSION:</p> <ul style="list-style-type: none"> o THE HOT WATER TANK HEATERS ARE CONTROLLED BY CX-54-TS1 TO MAINTAIN TEMPERATURE $> 100^{\circ}\text{F}$ AND $< 120^{\circ}\text{F}$
<p>REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23</p>
<p>SENSING ELEMENT: CX-54-TS2, CR-52</p>

CONDENSATE POLISHING ANNUNCIATOR RESPONSE

CX-8-5



**SYSTEM
DIFFERENTIAL
PRESSURE
HIGH/HIGH**

INDICATED CONDITION:

- o DIFFERENTIAL PRESSURE ACROSS DEMINERALIZERS AS SEEN BY CX-15-DPIS2 OR CX-16-DPIS2 IS > 80 PSI

REDUNDANT INDICATION WHICH WILL VERIFY ALARM:

- o LOCAL DIFFERENTIAL PRESSURE INDICATOR CX-15-DPI OR CX-16-DPI ON CX PANEL AT 95' ELEVATION

OPERATOR ACTIONS FOR A VALID ALARM:

- o REDUCE UNIT LOAD TO MAINTAIN CONDENSATE FLOW WITHIN THE CAPABILITIES OF THE CONDENSATE DEMINERALIZER SYSTEM
- o IF CONDENSATE FLOW IS EXCESSIVE FOR UNIT LOAD, THEN CHECK HEATER DRAIN SYSTEM FOR OPEN DUMP VALVES TO CONDENSER
- o CHECK INDIVIDUAL DEMINERALIZER DPI'S FOR HIGH DEMINERALIZER DP

DISCUSSION:

- o WHEN THIS ALARM IS RECEIVED, BYPASS VALVES CXV-5 AND/OR CXV-12 WILL OPEN. IT IS AGAINST PLANT POLICY TO OPERATE WITH ONE OR MORE BYPASS VALVES OPEN, ALTHOUGH THE PLANT CAN OPERATE UNDER THESE CONDITIONS. PUSHBUTTONS ARE PROVIDED ON THE CX PANEL AT 95' ELEVATION TO RESET THE ALARM AND CLOSE THE OPEN BYPASS VALVE.

REFERENCES: DRAWING 208-017 SHEET CX-22 AND CX-23

SENSING ELEMENT: CR-44, CR-45, CX-15-DPS2, CX-16-DPS2

PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: AR0971

New Rev: 7

PRR#: 16521

Title: CXAR ANNUNCIATOR RESPONSE

MINOR CHANGES

If Minor Changes are included, check the applicable box(es) and provide a list of affected steps. The following corrections are incorporated throughout:

- | | |
|--|---|
| <input type="checkbox"/> Sentence Structure | <input type="checkbox"/> Redundant words or phrases |
| <input type="checkbox"/> Punctuation | <input type="checkbox"/> Abbreviations |
| <input type="checkbox"/> Capitalization | <input type="checkbox"/> Obviously incorrect units of measure |
| <input type="checkbox"/> Spelling | <input type="checkbox"/> Inadvertently omitted symbols (#, %, etc.) |
| <input type="checkbox"/> Organizational Changes: position titles, department names, or telephone numbers | <input type="checkbox"/> Obvious step numbering discrepancies |
| | <input type="checkbox"/> Format |

The following corrections are incorporated in the step(s) indicated: "Throughout" is used in lieu of Step# if a specific change affects a large number of steps.

Correcting equipment nomenclature that does not agree with field labels or balance of procedure

Changing information that is obviously incorrect and referenced correctly elsewhere

Misplaced decimals that are neither setpoint values nor tolerances

Reference to a procedure when an approved procedure has taken the place of another procedure

Fixing branching points when it is clear the branching steps were originally intended but were overlooked or incorrectly stated due to step number changes

Adding clarifying information such as NOTES and CAUTIONS

Adding words to clarify steps, NOTES, or CAUTIONS which clearly do not change the methodology or intent of the steps

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PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: AR0971

New Rev: 7

PRR#: 16521

Title: CXAR ANNUNCIATOR RESPONSE

NON-INTENT CHANGES

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Window CX-2-2

Deleted page from AR-971 as there is no alarm input to window CX-2-2

Window CX-2-4

Changed Indicated Condition from '<1.25 PSI' to '> 1.23 PSID', per CX-118 thru CX-123-FS Instrument Data Sheets
Changed Redundant Indication from 'Light on' to 'Light out', per CX-118 thru CX-123-FS Instrument Data Sheets

CHANGE OF INTENT, CANCELLATION, OR NEW PROCEDURE

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Window CX-3-2

Delete Page as alarm has been de-termed and spared per MAR 95-06-01-01, FCN-8, SA/USQD 98-0108 Attached

Window CX-4-2

Delete Page as alarm has been de-termed and spared per MAR 95-06-01-01, FCN-8, SA/USQD 98-0108 Attached

Window CX-5-4

Delete Page as alarm has been de-termed and spared per MAR 95-06-01-01, FCN-8, SA/USQD 98-0108 Attached