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Dec. 2007

PHENIX

NODE: RPC 8

ALARM CODE 815.0
RESTORE 815.1

LOCATION: BLDG. 1008C

SYSTEM: PHENIX COMMON ALARM (COMNALRM.FNX)

ACTION: DETERMINE WHICH SIGNAL IS IN ALARM AND GO TO ALARM RESPONSE SHEET FROM LIST BELOW

NODE	SIGNAL NAME	DESCRIPTION	PAGE NO.
RPC 8	FNXTEMP.SUP	Fnx Water Supply Temp.	815.0-1
RPC 8	FNXPRES.SUP	Fnx Water Supply Press	815.0-2
RPC 8	FNXLVL	Fnx Water Level	815.0-3
RPC 8	MAGFLO	Fnx Magnet Water Flow	815.0-4
RPC 8	FNXRESIS	Fnx Water Resistivity	815.0-5
RPC 8	LOAIR.ALRM	Low Compressed Air	815.0-6
RPC 8	FNXMKUP.CNT	Fnx Water High Mkup	815.0-7
RPC 8	ELECFLO	Fnx Electronics Water Flow	815.0-8

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (HiHi/Hi/Lo)
FNXTEMP.SUP	FNX Mag Water Supply Temp. (62°f = normal)	100/80/50° F

ACTION:

1. Verify temp is outside limits
2. Check that MANUAL/AUTO Switch for FNX Magnet Temp. Control Valve (TCV) is in Auto position.
   a) If not, place in AUTO and observe temp.
3. Verify that tower water temp is within limits. 68/85°F Summer 38/65°F Winter.
   a) If not, see that response sheet.
   Verify that tower water flow is within limits ≥1000 GPM.
   If not, see that response sheet.
4. For HiTemp alarm TCV indicator should be in Max Cooling Position.
   a) If not, place AUTO/MANUAL selector in manual and raise output in 5 psi increments until temp is 5° below hi limit.
   b) Check that tower fan & tower pumps are in Auto and are running.
   If not: Check and fill basin if necessary, place tower fans & pumps in auto and observe that the fan cycles on. If not try manual.
   c) Observe system temp and adjust.
   d) Advise MCR that Pumps will shut down 3 mins after system supply reaches 100°f.
5. For lo temp alarm TCV indicator should be in the bypass position.
   If not: Check that selector is in auto.
6. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo)
FNXPRES.SUP	FNX Magnet Supply Pressure (90 psig = Normal)	130/50

ACTION:

1. Verify press is outside limits.

2. Check that Selector Switch to Press. Control Valve (TCV) is in auto.
   a) If not: place in Auto and observe press.

3. If ≤50 check that man/auto selector is in auto & observe press for a few min. If still low switch to manual and lower pressure output in 5 psi increments until press = 90 psig.

4. If ≥130 check that selector is in auto and observe for a few min. If still high place selector in manual and increase output to valve until press ≈ 90 psig.

5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
FNXLVL	FNX Mag Water Level (15"- 9"=Normal)	25/9/1 inches

ACTION:

1. Verify level is outside Hi/Lo limits
   a) Pumps shut down @ ≤1"

2. Inspect B1008 and pump room for leaks

3. If no leaks check that FNXMKUP.OK light is on.
   If not: Press Make-Up Reset switch for a few seconds to reset FNXMKUP.OK. Check for flow thru deionizer.
   If not: Open bypass valve at solenoid until level = 15", then close bypass valve.

4. For Hi level check that solenoid bypass is closed.
   If not: close valve
   If level still rises, close Make-Up valve @ solenoid.

5. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
MAGFLO	FNX Magnet Water Flow (300-600 GPM=Normal)	750/150/100 GPM

ACTION:

1. Verify Low flow ≤250 GPM
2. Advise MCR (Pumps will stop @ ≤150 GPM)
3. Check B1008 Pump Room, and Exp Hall for leaks.
4. Check other system parameters:
   a) Pressure is ≈ 90 psig
   If less than 50: check that manual/auto selector is in Auto.
   If greater that 130: check manual/auto selector is in Auto. If press remains high switch to manual and raise output press in 5 psi increments until system press ≤ 90psi
5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Lo/LoLo)
FNXRESIS	FNX Mag Water Resistivity	≤5/megohm-cm (.5 - 1=Normal)

ACTION:

1. Verify resistivity is below low limits
2. Observe that flow is thru deionizer
3. Observe deionizer output resistivity (>2 megohm-cm)
4. Observe that system resistivity rises above .5 megohm
5. If Lo Alarm remains - Note 3 the following morning.

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Lo)
LOAIR.ALRM	Low Compressed Air	<50 psig

ACTION:

1. Verify compressed air pressure with press gauge.
2. Check that manual valves are open.
3. Check compressor in B1008 Support Building.
   a) If compressor is off - Call Plant Engineering Site Shift Supervisor at x4174, cell – 872-8988 or C/W desk x4284 during off hours.
4. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (HiHi/Hi)
FNXMKUP.CNT	FNX Mag Water Make-up Flow	150/100Gal in 10min

ACTION:

1. Check B1008 Pump Room, Assembly & Exp Hall for leaks.
2. If HiHi, advise MCR Pumps will shut off in 3 min.
3. Advise MCR, isolate leaking device.
4. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
ELECFLO.LO	FNX Electronics Water Flow	700/150/100

ACTION:

1. Verify low flow ≤ 150 GPM

2. Check B1008 Pump Room & Exp Hall for major leak or closed valves

3. Check other system parameters:
   a) Pressure is ≈ 90 psig
   b) FNX Mag Flow = 200 - 600 gpm.

4. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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NODE: RPC 8

ALARM CODE 815.2
RESTORE 815.3

LOCATION: BLDG. 1008C

SYSTEM: PHENIX POWER SUPPLY COMMON ALARM (COMNALRM.PS)

ACTION: DETERMINE WHICH SIGNAL IS IN ALARM AND GO TO ALARM RESPONSE SHEET FROM LIST BELOW

NODE	SIGNAL NAME	DESCRIPTION	PAGE NO.
RPC 8	PSTEMP.SUP	Power Supply Water Supply Temp	815.2-1
RCP 8	PSPRES.SUP	Power Supply Water Supply Press	815.2-2
RCP 8	PSLVL	Power Supply Water Level	815.2-3
RCP 8	PSFLO	Power Supply Water Flow	815.2-4
RCP 8	PSRESIS	Power Supply Water Resistivity	815.2-5
RCP 8	PSMKUP.CNT	Power Supply Water High Mkup	815.2-6

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (HiHi/Hi/Lo)
PSTEMP.SUP	Power Supply Water Supply Temp.	105/100/60°F (≈85°F = normal)

ACTION:

1. Verify temp is outside limits

2. Check that MANUAL/AUTO Switch for Power Supply Temp. Control Valve (TCV) is in Auto position.
   a) If not, place in AUTO and observe temp.

3. Verify that tower water temp is within limits. 68/85°F Summer 38/65°F Winter.
   a) If not, see that response sheet.

4. Verify that tower water flow is within limits ≥1000 GPM.
   a) If not, see that response sheet.

5. For HiTemp alarm TCV indicator should be in Max Cooling Position.
   a) If not, place AUTO/MANUAL selector in manual and lower output in 5 psi increments until temp is 5° below hi limit.
   b) Check that pump is in Auto and is running.
   If not: NOTE 3.
   c) Advise MCR that Pumps will shut down 3 mins after system supply reaches 105°f.

6. For lo temp alarm TCV indicator should be in the closed position.
   If not: Check that the manual/auto selector is in auto.

7. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.2-2

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo)
PSPRES.SUP	Power Supply Water Pressure	150/75 (100 psig = Normal)

ACTION:

1. Verify press is outside limits.

2. Check that Selector Switch to Press. Control Valve (PCV) is in auto.
   a) If not: place in Auto and observe press.

3. If ≤75 check that man/auto selector is in auto & observe press for a few min. If still low switch to manual and lower pressure output in 5 psi increments until press ≈ 100.

4. If ≥150 check that selector is in auto and observe for a few min. If still high place selector in manual and increase output to valve until press ≈ 100.

5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.2-3

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
PSLVL	Power Supply Water Level	25/6/1 inches (9"-15"=Normal)

ACTION:

1. Verify level is outside Hi/Lo limits
   a) Pumps shut down @ ≤1"
2. Inspect B1008, pump room and Power Supply mezzanine for leaks.
3. For Low Level:
   If no leaks check that PSMKUP.OK light is on.
   If not: Press Make-Up Reset switch for a few seconds to reset MKUP.OK.
   Check for flow thru deionizer.
   If not: Open bypass valve at solenoid until level = 15", then close bypass valve.
4. For Hi level check that solenoid bypass is closed.
   If not: close valve
   If level still rises, close Make-Up valve @ solenoid.
5. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.2-4

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
PSFLO	Power Supply Water Flow	150/50/25 (≈100 GPM Normal)

ACTION:

1. Verify low flow ≤ 50 GPM
2. Advise MCR (Pumps will stop @ ≤25 GPM)
3. Check B1008 Pump Rm, Assembly Build. Exp Hall and Power Supply mezzanine for major leak.
4. Check other system parameters:
   a) Level is ≥9 inches
   b) Pressure is between 100 and 130 psig
5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.2-5

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
PSRESIS	Power Supply Water Resistivity	(Lo) .5/megohm-cm (.75-1.25=Normal)

ACTION:

1. Verify resistivity is below low limits
2. Observe that flow is thru deionizer
3. Observe deionizer output resistivity (>2 megohm-cm)
4. Observe that system resistivity rises above .5 megohm
5. If Lo Alarm remains - Note 3 the following morning.

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.2-6

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/HiHi)
PSMKUP.CNT	Power Supply Water Make-up Flow	50/100 GAL in 10 min

ACTION:

1. Check B1008 Pump Room and Power Supply mezzanine for leaks.
2. Advise MCR that pumps will shut down after 3 min. If HiHi MKUP occurs
3. Advise MCR, isolate leaking device
4. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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NODE: RPC 8

ALARM CODE 815.4
RESTORE 815.5

LOCATION: BLDG. 1008C

SYSTEM: PHENIX CHILLED WATER COMMON ALARM (COMNALR.CHW)

ACTION: DETERMINE WHICH SIGNAL IS IN ALARM AND GO TO ALARM RESPONSE SHEET FROM LIST BELOW

RCP 8	CHWTEMP.SUP	Chilled Water Supply Temp	815.4-1
RCP 8	CHWPRES.SUP	Chilled Water Supply Press	815.4-2
RCP 8	CHWLVL	Chilled Water Level	815.4-3
RCP 8	CHWFLO	Chilled Water Flow	815.4-4
RCP 8	CHWMKUP.CNT	Chilled Water High Mkup	815.4-5

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815.4-1

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (HiHi/Hi/Lo)
CHWTEMP.SUP	Chilled Water Supply Temp.	85/65/38°f (≤45-50f = normal)

ACTION:

1. Verify temp is outside limits

2. Verify that chilled water flow is within limits ≥300
3. GPM.
   a) If not, see that response sheet.

3. For HiTemp alarm:
   a) Check that pump is in Auto and is running.
   If not: Call Plant Engineering Site Shift Supervisor at x4174, cell – 872-8988 or C/W desk x4284 during off hours.

4. For lo temp alarm:
   If not: Same as 5a.

5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.4-2

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo)
CHWPRES.SUP	Chilled Water Pressure	55/25 psig (40-50 psig = Normal)

ACTION:

1. Verify press is outside limits.
2. Check that Pump is running.
3. Check that level = 9 -15 inches.
4. Check that flow is ≈750 gpm.
5. Check that approiate valves are open.
6. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.4-3

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
CHWLVL	Chilled Water Level	25/6/1 inches (9"-15"=Normal)

ACTION:

1. Verify level is outside Hi/Lo limits
   a) Pumps shut down @ ≤1"
2. Inspect B1008 pump room for leaks.
3. For Low Level:
   If no leaks check that CHWMKUP.OK light is on.
   If not: Press Make-Up Reset switch for a few seconds to reset CHWMKUP.OK. Check for level increase.
   If not: Open bypass valve at solenoid until level = 15", then close bypass valve.
4. For Hi level check that solenoid bypass is closed.
   If not: close valve
   If level still rises, close Make-Up valve @ solenoid.
5. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.4-4

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
CHWFLO	Chilled Water Flow	875/300/100 (≈750 GPM Normal)

ACTION:

1. Verify low flow ≤ 300 GPM
2. Advise MCR (Pumps will stop @ ≤ 100 GPM)
3. Check B1008 Pump Room for major leak.
4. Check other system parameters:
   a) Level is ≥9 inches
   b) Pressure is between 40 and 50 psig
5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.4-5

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/HiHi)
CHWMKUP.CNT	Chilled Water Make-up Flow	100/200 GAL in 10 min

ACTION:

1. Check B1008 Pump Room for leaks.
2. Advise MCR that pumps will shut down after 3 min. If HiHi MKUP occurs
3. Advise MCR, isolate leaking device
4. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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NODE: RPC 8

ALARM CODE 815.6
RESTORE 815.7

LOCATION: BLDG. 1008C

SYSTEM: PHENIX TOWER COMMON ALARM (COMNALRM.TWR)

ACTION: DETERMINE WHICH SIGNAL IS IN ALARM AND GO TO ALARM RESPONSE SHEET FROM LIST BELOW

RCP 8	TWRTEMP.SUP	Tower Water Supply Temp	815.6-1
RCP 8	TWRPRES.SUP	Tower Water Supply Press	815.6-2
RCP 8	TWRLVL	Tower Water Level	815.6-3
RCP 8	TWRFLO	Tower Water Flow	815.6-4
RCP 8	TWRCOND	Tower Water Conductivity	815.6-5
RCP 8	TWRMKUP.LOTEMP.ALRM	Tower Water Mkup Low Temp	815.6-6
RCP 8	TWRFAN.VIB.NI	Tower Fan Hi Vibration	815.6-7

NOTE: IF ALARM IS INTERMITTENT, CHECK MKUP DISPLAY & TREND FOR WATER LOSS

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ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo)
TWRTEMP.SUP.	Tower Water Supply Temp	85/60°f - Summer 65/38°f – Winter

ACTION:

1. Verify temp is outside limits

2. Check that tower fan switch is in Auto
   a) If not, place switch in Auto

3. For HiAlarm fan should be in HiSpeed and water flow to top of tower.
   a) If not, redirect water to top with tower valve
   b) If fan does not operate in Auto, place fan switch in manual, slow speed and observe temp
   c) Place in HiSpeed fwd only if temp remains above 85°F

4. For LoAlarm fans should be off.

5. a) Summer alarms – Chiller On
   b) Winter alarms – Chiller Off

6. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.6-2

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo)
TWRPRES.SUP	Tower Water Supply Pressure	75/15 (≈30 psig = Normal)

ACTION:

1. Verify press is outside limits.
2. Check that Tower Pump is running.
3. Check that flow ≈1200gpm.
4. Check that appropriate valves are open.
5. For low Press check for leaks in Pump Room and at tower.
6. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.6-3

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Lo/LoLo)
TWRLVL	Tower Water Level	17/14 (23"-29"=Normal)

ACTION:

1. Verify level is outside Lo limits
   a) Pumps shut down @ ≤14"
2. Inspect B1008 pump room and tower for leaks.
3. For Low Level:
   If no leaks check that TWRMKUP.OK light is on.
   If not: Open bypass valve at solenoid until level = 29", then close bypass valve.
4. Notes 1 & 3

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.6-4

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi/Lo/LoLo)
TWRFLO	Tower Water Flow	1800/1000/750 (≈1200 GPM Normal)

ACTION:

1. Verify low flow ≤ 1000 GPM
2. Advise MCR (Pumps will stop @ ≤ 750 GPM)
3. Check B1008 Pump Room and Tower for major leak.
4. Check other system parameters:
   a) Level is ≥17 inches
   b) Pressure is between 15 and 75 psig
5. Note 3 & 1

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.6-5

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS (Hi)
TWRCOND	TOWER WATER CONDUCTIVITY	≥ 0.8 milisiemens (.45 - .55 = Normal)

ACTION: 1. Verify conductivity is outside limits

2. Check that manual valve in series with solenoid valve is open

3. If Hi Alarm remains - Note 3 the following morning.

NOTE:
1. Record Actions Taken
2. MCR = Main Control Room (x4662)
3. Call Mech Svcs from "Call In" list
4. CAS = Support (x2024)

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815.6-6

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
		(Lo)
TWRMKUP.LOTEMP. ALRM	Cooling Tower Make-up Piping	40°f

ACTION:

1. Verify temp is outside limits.

2. Verify that heat trace is on.
   a) If not - raise upper temp SW setting until LED on Controller is on at location 12,7

3. If outdoor air temp is ≤32°f, Note 3.

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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815.6-7

ALARM RESPONSE SHEET - PHENIX

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRFAN.VIB.HI	Cooling Tower Fan Vibration	ON/OFF

ACTION:

1. Verify That the fan has stopped.
2. Advise MCR that PHENIX cooling will be affected.
3. Note 1 & 3.

NOTE:

1. Record Actions Taken
2. MCR = Main Control Room
3. Call Mech Svcs from "Call In" list

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