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C-A WATER GROUP ALARM MANUAL

Dicom Alarm No: 941

Location: Bldg. 912A

Systems: Special Experimental Cooling Sys. (SEM)

Pages 1 through 12

ACCT #	ALARM	RESET	STATUS	ALARM DESCRIPTION
<u>941</u>	<u>0</u>	<u>1</u>	<u>@</u>	<u>SEM COMMON ALARM - CRITICAL -</u>
<u>941</u>	<u>2</u>	<u>3</u>	<u>@</u>	<u>SEM TOWER COMMON ALARM - CRITICAL -</u>
941	4	5	SPARE	
941	6	7	SPARE	
941	8	9	SPARE	
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Revision Date

Nov. 2001

ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYS

NODE: RC14

ALARM CODE 941.0
RESTORE 941.1

LOCATION: BLDG. 912A

SYSTEM: S.E.M. COMMON ALARM - **CRITICAL -**
(COMNALRM.SEM)

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RC 14	<u>SEMTEMP.SUP S.E.M.</u>	Supply Temp.	<u>941-0-6</u>
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NOTE: **IF COMMON ALARM IS RECEIVED - CHECK MAKE-UP**
****DISPLAY FOR WATER MAKE-UP.****

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ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMLVL SEM</u>	Water Level (9"-15"=Normal)	(Hi/Lo/LoLo) 25/9/1 inches

ACTION:

1. Verify level is outside Hi/Lo limits
 - a) Pumps shut down @ ≤ 1 "
2. Inspect B912A, pump room, Trenches, magnet enclosure 913 F & G Sectors and B912 for leaks.
3. For Low Level: If no leaks check that SEMMKUP.OK (12,2) light is on. Press Make-Up Reset switch for a few seconds to reset SEMMKUP.OK. Check for flow thru deionizer.
4. 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. If Make-up is verified follow [C-A-OPM 2.19](#)
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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<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEM.RESIS</u>	S.E.M. Water Resistivity (.75 -1.25=Normal)	(Lo) .5/megohm-cm

- ACTION:**
1. Verify resistivity is below low limits
 2. Observe that SEMDL.BYPASS LED is off.
 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 – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMMKUP.CNT</u>	S.E.M. Water Make-up count	(Hi/HiHi) 50/100 GAL in 10 min

- ACTION:**
1. Check B912A Pump Room, trenches, magnet enclosure and B912 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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<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMMKUP. SEM</u>	System Water Make-up	ON/OFF
<u>ACTION:</u>	1. Verify Make-Up is ON on Water Group PC. 2. If Make-up is verified follow C-A-OPM 2.19	

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 – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMFLO</u>	SEM System-Lo Flow	Alarm Limits (HI/LO/LO LO) 125/30/20 GPM

- Action:**
1. Verify Low flow <30 GPM
 2. Verify that 1 pump is running
 - a) If not, Note 3
 3. If two pumps are running
 - a) Advise MCR that pumps may trip off @ 250 GPM.
 - b) Investigate for major leak and isolate
 4. Verify if system pressure is between 100 - 120 psig,
 - a) Note 1, 3 the following workday
 - b) If not, Note 3

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

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941-0-6

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMTEMP.SUP.</u>	SEM Water Supply Temp.	(HiHi/Hi/Lo) 105/100/60F

- ACTION:**
1. Verify temp is outside limits
 2. Advise MCR that pumps will go off at 105F
 3. Verify that tower water temp is within limits. 50/90F
a) If not, see that response sheet
 4. Verify that tower water flow is within limits 600 GPM
a) If not, see that response sheet
 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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941-0-7

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMPRESS.SUP</u>	Magnet Water Supply Press.	(Hi/Lo) 150/100psig
<u>ACTION:</u>	<ol style="list-style-type: none">1. Verify Press. is outside limits2. Check that Auto/Manual Switch to Press. Control Valve (PCV) is in Auto<ol style="list-style-type: none">a) If not, place in Auto and observe press.3. Check for LOAIR.ALARM4. For HiPress. Alarm, Check for closed valves & Lo flow5. For LoPress. Alarm, Check for HiFlow & large leak6. 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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941-0-8

ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>LOAIR.ALARM.OK</u>	Control Air Lo Pressure Lo	50psig

ACTION:

1. Verify Low Air Pressure
2. Advise MCR that SEM Water Press. & Temp. Control will be affected
3. Check that SEM Water press. Is within limits (see attached response sheet)
4. Call Plant Engineering Site Shift Supervisor at x4174, cell – 872-8988 or C/W desk x4284 during off hours.
5. Note 1 & Note 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 – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>SEMLLVL.</u>	SEM Water Level	(Hi/Lo/LoLo) 25/9/1 psig

ACTION:

1. Verify level is outside Hi/Lo limits at pump suction gauge
2. Advise MCR that pumps will shut down on pump suction 1 psig
3. Check LED @ controller position 11, 1
 - a) For Lo Level, fill light should be "ON"
 - b) For Hi Level, fill light should be "OFF"
4. For LoAlarm, check that solenoid valve SV-1 & SV-2 are energized and that flow is observed in flow indicator
5. For Hi Alarm, make sure that cold water bypass is closed.
6. Inspect area for leaks
7. 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 – S. E. M. TOWER SYSTEM

NODE: RC14

ALARM CODE 941.2
RESTORE 941.3

LOCATION: BLDG. 912A

SYSTEM: S.E.M. TOWER COMMON ALARM
(COMNALRM. TWR)

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NOTE: IF COMMON ALARM IS RECEIVED - CHECK FOR "BUILD. HIGH OZONE ALARM" FIRST.

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941-2-1

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRFLO.</u>	Tower Water Flow	(Lo/LoLo) 600/300 gpm
<u>ACTION:</u>	<ol style="list-style-type: none">1. Verify flow is outside limits<ol style="list-style-type: none">a) If flow is <300 advise MCR that pump(s) will shut down2. Check 912A for major leak3. Check other system parameters @ 912A<ol style="list-style-type: none">a) Pump discharge is between 30 & 20 psigb) Pump suction is between +2 & -10 in Hgc) Tower basin water level >64. If actual parameters are outside of a) or b) or to c) advise MCR that cooling for SEM Equipment, will be affected (Note 3)5. Note 3 & 1	
<u>NOTE:</u>	<ol style="list-style-type: none">1. Record Actions Taken2. MCR = Main Control Room3. Call Mech Svcs from "Call In" list	

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941-2-2

ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRLVL</u>	Cooling Tower Water Level	(Lo/LoLo) 15/12 inches
<u>ACTION:</u>	<ol style="list-style-type: none">1. Verify level is outside limits2. Check that LED on Controller @ location 11, 3 is on<ol style="list-style-type: none">a) Solenoid valve SV5 should be energizedb) If necessary open twr mkup bypass until level ~ 20 inches; then close valve3. Inspect area for leaks & check that drain valves are closed4. Notes 1 & 3	
<u>NOTE:</u>	<ol style="list-style-type: none">1. Record Actions Taken2. MCR = Main Control Room3. Call Mech Svcs from "Call In" list	

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941-2-3

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRTEMP.SUP</u>	Tower Water Supply Temp	(Hi/Lo) 85/60 F

- 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 fwd and observe temp
 - c) Place in HiSpeed fwd only if temp remains above 85 F
 4. For LoAlarm fan should be off
 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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941-2-4

ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRPIPNG.LOTEMP</u> <u>.ALRM</u>	Cooling Tower Outdoor Piping	(Lo) 40F

- 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 OFF @ location 8,1
 3. If outdoor air temp is 32F, Note 3

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

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941-2-5

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRFANVIB.HI</u>	Cooling Tower Fan	ON/OFF

- ACTION:**
1. Verify that fan has stopped
 2. Advise MCR that SEM cooling will be affected
 3. 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 – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRPRES.SUP</u>	Tower Water Supply Pressure (25 psig = Normal)	(Lo) 10

ACTION:

1. Verify press is outside limits.
2. Check that Tower Pumps is running.
3. Check that flow 3000gpm.
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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941-2-7

<u>SIGNAL NAME</u>	<u>DESCRIPTION</u>	<u>ALARM LIMITS</u>
<u>TWRCOND</u>	TOWER WATER CONDUCTIVITY (.5 - .7 = Normal)	(Hi) 0.8 milisiemens

- ACTION:
1. Verify resistivity 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
 3. Call Mech Svcs from "Call In" list

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941-2-8

ALARM RESPONSE SHEET – SPECIAL EXPERIMENTAL COOLING SYSTEM

<u>Signal Name</u>	<u>Description</u>	<u>Alarm Limits</u>
O3.ALRMHI.OK	HIGH BLDG. OZONE	(HI) .1 ppm.

- Action:**
1. Verify "Bldg. high ozone alarm" on Water Group PC (Flashing Red).
 2. Verify ozone system has shutdown on Water Group PC.
 - a. "O3 System Interlocked" should be flashing red.
 - b. "O3 System Status" should be flashing red.
 3. After ozone system has been interlocked, Bldg. 912a ozone levels should drop within 15 minutes. The Bldg high ozone alarm should clear (turn green) and the "O3 System Interlocked" should stay on (Flashing Red).
 4. If the "Bldg high ozone alarm" resets on the Water Group PC (turns green) and the system is off, notify Water Group of system status during normal working hours.
 5. If the "Bldg high ozone alarm" does not reset on the Water Group PC (turn green) within 15 minutes the Fire Department must respond to Bldg. 912a and disable the Ozone system. (Instructions to disable the ozone system are on the Fire Department Run Cards).
 6. Do not try to restart ozone system under any circumstances!
 7. Note: A yellow strobe light is located on the ozone unit.
 - a. Light on: Evacuate Bldg. 912 a and follow step 2.

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

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941-2-9

<u>Signal Name</u>	<u>Description</u>	<u>Alarm Limits</u>
O3.SYS.OK	Ozone System Fault	(On/Off)

- Action:**
1. If "O3 System Status" show the Ozone system as off (Flashing red) on the Water Group PC, notify Water Group of system status during normal working hours.
 2. Do not try to restart ozone system under any circumstances!
 3. If "Bldg. high ozone alarm" on the Water Group PC is flashing red, follow instructions for that alarm.

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

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