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C-A WATER GROUP ALARM MANUAL

Dicom Alarm No: 957

Location: Bldg. 957

Systems: NASA Space Radiation Laboratory (NSRL)

Pages 1 through 32

#	ALARM	RESET	STATUS	ALARM DESCRIPTION
957	0	1	@	NSRL MAGNET COMMON ALARM - CRITICAL -
957	2	3	@	NSRL POWER SUPPLY COMMON ALARM
957	4	5	@	NSRL TOWER COMMON ALARM - CRITICAL-
957	6	7	@	NSRL SUMP COMMON ALARM
957	8		9	SPARE
957	F		C	SPARE

Revision Date

August 2003

ALARM RESPONSE SHEET – NSRL

NODE: RC17

ALARM CODE 957.0
RESTORE 957.1

LOCATION: BLDG. 957

SYSTEM: MAGNET WATER COMMON ALARM - CRITICAL - (COMNALRM.MAG)

			Page:
RC17	MAGLVL	Water Level	957.0-1
RC17	MAGFLO..	Low Flow	957.0-2
RC17	MAG.RESIS	Low Resistivity	957.0-3
RC17	MAGMKUP.CNT	System Water high Make-up count	957.0-4
RC17	MAGMKUP.	System Water Make-up	957.0-5
RC17	MAGPRES.SUP	Supply Pressure	957.0-6
RC17	LOAIR.ALRM.OK	Bldg. Compressed Air Low Pressure	957.0-7
RC17	MAGTEMP.SUP	Supply Temp.	957.0-8

NOTE: IF COMMON ALARM IS RECEIVED - CHECK MAKE-UP DISPLAY FOR WATER MAKE-UP.

Back to main menu

957.0-1

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGLVL..	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 B957, pump room, Tunnel (956).
3. For Low Level: If no leaks check that MAGMKUP.OK (5k1) light is on. Press Make-Up Reset switch for a few seconds to reset MAGMKUP.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. Notes 1 & 3

NOTE:

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

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGFLO	Magnet System-Lo Flow	Alarm Limits (HI/LO/LO LO) 750/250/150 GPM

Action:

1. Verify Low flow <150 GPM.

2. Verify that pump is running.
   a) If not, Note 3.

3. If pump is running.
   a) Advise MCR that pumps may trip off @ 100 GPM.
   b) Investigate for major leak and isolate.

4. Verify if system pressure is between 100 - 200 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 Water Systems from "Call In" list

Back to Magnet Menu

Back to main menu

957.0-3

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAG.RESIS	Magnet Water Resistivity (.75 -1.25=Normal)	(Lo) .5/megohm-cm

ACTION:

1. Verify resistivity is below low limits.
2. Observe that MAGDI.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 Water Systems from "Call In" list

Back to Magnet Menu

Back to main menu

957.0-4

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGMKUP.CNT	Magnet Water Make-up count	(Hi/HiHi) 50/100 GAL in 10 min

ACTION:

1. Check B957 Pump Room, Tunnel (956) 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 Water Systems from "Call In" list

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGMKUP.	System Water Make-up	ON/OFF

ACTION:

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 Water Systems from "Call In" list

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGPRESS.SUP	Magnet Water Supply Press.	(Hi/Lo) 210/50psig

ACTION:

1. Verify Press. is outside limits.

2. Check that Auto/Manual Switch to Press. Control Valve (PCV) is in Auto.
   a) If not, place in Auto and observe press.

3. Check for LOAIR.ALRM.

4. For HiPress. Alarm, Check for closed valves & Lo flow.

5. For LoPress. Alarm, Check for HiFlow & large leak.

6. Note 3 & 1.

NOTE:

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

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
LOAIR.ALRM.OK	Control Air Low Pressure	50psig

ACTION:

1. Verify Low Air Pressure.
2. Advise MCR that NSRL Water Press. & Temp. Control will be affected.
3. Check that Magnet 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 Water Systems from "Call In" list

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MAGTEMP.SUP.	Water Supply Temp.	(HiHi/Hi/Lo) 105/100/55°F

ACTION:

1. Verify temp is outside limits.

2. Advise MCR that pumps will go off at 105°F.

3. Verify that tower water temp is within limits. 50/90°F.
   a) If not, see that response sheet.

4. Verify that tower water flow is within limits 750 - 2000 GPM.
   a) If not, see that response sheet.

5. Note 3 & 1.

NOTE:

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

Back to Magnet Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

NODE: RC17

ALARM CODE 957.2
RESTORE 957.3

LOCATION: BLDG. 957

SYSTEM: POWER SUPPLY COMMON ALARM (COMNALRM.PS)

Back to main menu

ALARM RESPONSE SHEET – NSRL

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

ACTION:

1. Verify level is outside Hi/Lo limits.
   b) Pumps shut down @ ≤1".
2. Inspect B957, pump room, B930A & 930UEB for leaks.
3. For Low Level: If no leaks check that PSMKUP.OK (1k1) light is on. Press Make-Up Reset switch for a few seconds to reset PSMKUP.OK. Check for flow thru deionizer.
4. If not: Open bypass valve at solenoid until level = 15", then close bypass valve.
6. For Hi level check that solenoid bypass is closed. If not: close valve If level still rises, close Make-Up valve @ solenoid.
7. Notes 1 & 3.

NOTE:

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

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
PSFLO	Power Supply-Lo Flow	Alarm Limits (HI/LO/LO LO) 1500/250/150 GPM

Action:

1. Verify Low flow <250 GPM.

2. Verify that pump is running.
   b) If not, Note 3.

3. If pump is running.
   c) Advise MCR that pumps may trip off @ 150 GPM.
   d) Investigate for major leak and isolate.

4. Verify if system pressure is between 50 - 150 psig,
   c) Note 1, 3 the following workday.
   d) If not, Note 3.

NOTE:

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

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

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

ACTION:

1. Verify resistivity is below low limits.
2. Observe that PSDI.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 Water Systems from "Call In" list

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

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

ACTION:

1. Check B957 Pump Room, B930A & 930UEB 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 Water Systems from "Call In" list

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
PSPRESS.SUP	Power Supply Water Supply Press.	(Hi/Lo) 150/50psig

ACTION:

1. Verify Press. is outside limits.

2. Check that Auto/Manual Switch to Press. Control Valve (PCV) is in Auto.
   a) If not, place in Auto and observe press.

3. Check for LOAIR.ALRM.

4. For HiPress. Alarm, Check for closed valves & Lo flow.

5. For LoPress. Alarm, Check for HiFlow & large leak.

6. Note 3 & 1.

NOTE:

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

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
LOAIR.ALRM.OK	Control Air Low Pressure	50psig

ACTION:

1. Verify Low Air Pressure.
2. Advise MCR that NSRL Water Press. & Temp. Control will be affected.
3. Check that Power Supply 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 Water Systems from "Call In" list

Back to Power Supply Menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
PSTEMP.SUP.	Power Supply Temp.	(HiHi/Hi/Lo) 105/100/60ºF

ACTION:

1. Verify temp is outside limits.

2. Advise MCR that pumps will go off at 105ºF.

3. Verify that tower water temp is within limits. 50/90ºF.
   a) If not, see that response sheet.

4. Verify that tower water flow is within limits 750 - 2000 GPM.
   a) If not, see that response sheet.

5. Note 3 & 1.

NOTE:

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

Back to Power Supply Menu

Back to main menu

NODE: RC17

ALARM CODE 957.4
RESTORE 957.5

LOCATION: BLDG. 957

SYSTEM: NSRL TOWER COMMON ALARM (COMNALRM. TWR)

Back to main menu

NOTE: **IF COMMON ALARM IS RECEIVED - CHECK FOR "BUILDING HIGH O-ZONE ALARM FIRST.**

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRFLO.	Tower Water Flow	(Lo/LoLo) 750/500 gpm

ACTION:

1. Verify flow is outside limits.
   a) If flow is <500 advise MCR that pump(s) will shut down.

2. Check 957 for major leak.

3. Check other system parameters @ 957.
   a) Pump discharge is between 50 & 20 psig.
   b) Pump suction is between +2 & -10 in Hg.
   c) Tower basin water level >12.

4. If actual parameters are outside of a) or b) or to c) advise MCR that cooling for NSRL Equipment, will be affected (Note 3).

5. Note 3 & 1.

NOTE:

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

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRLVL	Cooling Tower Water Level	(Lo/LoLo) 12/10 inches

ACTION:

1. Verify level is outside limits.

2. Check that LED on Relays @ location 1k5 is on.
   a) Solenoid valve SV9 should be energized.
   b) If necessary open twr mkup bypass until level ~ 22 inches; then close valve.

3. Inspect area for leaks & check that drain valves are closed.

4. Notes 1 & 3.

NOTE:

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

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRTEMP.SUP	Tower Water Supply Temp	(Hi/Lo) 90/45ºF

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 85ºF.

4. For LoAlarm fan should be off.

5. Notes 1 & 3.

NOTE:

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

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRPIPNG.LOTEMP .ALRM	Cooling Tower Outdoor Piping	(Lo) 40°F

ACTION:

1. Verify temp is outside limits.

2. Verify that heat trace is on.
   a) If not raise upper temp SW setting at cooling tower until LED on Relay is OFF @ location 2K8.

3. If outdoor air temp is 32F, Note 3.

NOTE:

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

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

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

ACTION:

1. Verify that fan has stopped.
2. Advise MCR that NSRL cooling will be affected.
3. Notes 1 & 3.

NOTE:

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

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRPRES.SUP	Tower Water Supply Pressure (40 psig = Normal)	(Lo) 15

ACTION:

1. Verify press is outside limits.
2. Check that Tower Pumps is running.
3. Check that flow ≈1500gpm.
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 Water Systems from "Call In" list

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TWRCOND	TOWER WATER CONDUCTIVITY (210 - 1190 = Normal)	(Hi/Lo) 1200 milisiemens 200 milisiemens

ACTION: 1. Verify conductivity is outside limits.

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

NOTE:
1. Record Actions Taken
2. MCR = Main Control Room
3. Call Water Systems from "Call In" list

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

Signal Name	Description	Alarm Limits
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. 957 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. 957 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. 957 and follow step 2.

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

Signal Name	Description	Alarm Limits
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.

Back to Tower menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

NODE: RC17

ALARM CODE 957.6
RESTORE 957.7

LOCATION: BLDG. 957

SYSTEM: SUMP COMMON ALARM

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
TUNNEL.SUMP.PMP	Tunnel Sump Pump	ON/OFF

ACTION:

1. Check water group PC for water losses in the BAF magnet cooling system.
2. Inspect tunnel for leaks and verify sump volume.
3. Verify holding tank on mezzanine level is not full.
4. Notes 1 & 3

NOTE:

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

Back to Sump menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
PUMPRM.SUMP.PMP	Pump Room Sump Pump	ON/OFF

ACTION:

1. Inspect B957 pump room and power supply area for leaks.
2. Verify holding tank on mezzanine level is not full.
   a) If tank is not full – Note 1 & Note 3 the following day.
   b) If tank IS full Note 3 immediately.

NOTE:

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

Back to Sump menu

Back to main menu

ALARM RESPONSE SHEET – NSRL

SIGNAL NAME	DESCRIPTION	ALARM LIMITS
MEZZ.TANK.HI	Mezzanine Tank Hi Level	ON/OFF

ACTION: 1.Verify that no water is being pumped into tank from sumps.

2. If no additional water is being pumped into tank - Notes 1 & 3 in the morning.

NOTE:
1. Record Actions Taken
2. MCR = Main Control Room
3. Call Water Systems from "Call In" list

Back to Sump menu

Back to main menu