PHENIX Gas System Operator Check List

Version 6.16 April 9, 2003

See Gas System Standing Orders for more information.
No one should change the checklist without contacting Rob Pisani first.
A new sheet should be printed everyday at midnight
Completed sheets should be put in the Gas Check list binder
All values should also be entered into the online checklist

Do NOT adjust any of the settings, even if they are out of range.

In emergencies, contact Carter Biggs (old style pager 344-3456 then 8535) office x7515 or home 654-0411) or Robert Pisani (pager 631-453-2550 (old pager x8539) office x5301 or home 738-8298)

USE PAGER NUMBERS FIRST. Page one person at a time. Note: New pagers do not work well at 510 or 1008.

IF one person does not reply in 15mn try the other person.

Item	Check Point	02:00	06:00	10:00	14:00	18:00	22:00
1	Operator						
2	Date						
3	Time						
4	Temperature						
5	Humidity						

Gas Mixing House Flammable Gas Monitors

PCR.0.4 in the Counting House

Item	Check Point	02:00	06:00	10:00	14:00	18:00	22:00
	GAS MIXING HOUSE SENSORS						
1	Reading 1						
2	Reading 2						
3	Reading 3						
4	Reading 4						

If any reading is 3 or greater send an email message to Paul Giannotti (gia@bnl.gov) saying which reading is above 3.

Distribution Panels Inside Mixing House

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	CO2 Supply Pressure, PR/C3	28 psi	20 psi	40 psi						
2	Argon Supply Pressure, PR/A3	20 psi	15 psi	40 psi						
3	Ethane Supply Pressure, PR/E3	20 psi	10 psi	40 psi						
4	Methane Supply Pressure, PR/M3	19 psi	10 psi	40 psi						
5	CF4 Supply Pressure, PR/F3	20.0 psi	10.0 psi	30.0 psi						
6	Isobutane Supply Pressure, PR/I3	15 psi	1 psi	20 psi						
7	Nitrogen Supply Pressure, PR/N2	30	20	50						

Compressed Air Panel

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Air Pressure In	86 psi	70 psi	120 psi						
2	BEAM-BEAM	6 SCFM	3 SCFM	10 SCFM						
3	MuTr FEE	100 SCFH	0 SCFH	200 SCFH						

TEC Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Argon Supply Pressure, PI6	20 psi	10 psi	25 psi						
2	Methane Supply Pressure, PI7	15 psi	10 psi	25 psi						
3	Mixer Output Pressure, PI2	40" WC	20" WC	100" WC						

4	TEC Supply Pressure, PI3	7.5" WC	1.0" WC	15.0" WC						
5	TEC Return Pressure, PT11	7.5" WC	1.0" WC	15.0" WC"						
6	TEC Compressor Flow on side, FI1a	17 SCFH	5 SCFH	25 SCFH						
7	TEC Flow to vent, FI8	ignore value	0 SCFH	5 SCFH						
8	TEC Chamber Pressure, PI1	2.0 mm H2O	0.0 mm H2O	6.0 mm H2O						
9	Argon bypass flow, FI3	Should be Zero	0 CFH	0 CFH						
10	TEC purifier temp on back, TIC1	200 or OFF	180	220						

DC/PC Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Argon Supply Pressure, PI6	20 psi	10 psi	25 psi						
2	Ethane Supply Pressure, PI7	15 psi	10 psi	25 psi						
3	Mixer Output Pressure, PI2	40" WC	8" WC	95" WC"						
4	DC/PC Supply Pressure, PI3	1.2" WC	.25" WC	3.0" WC"						
5	DC/PC Return Pressure, PT9	1.0" WC	0.0" WC	4.0" WC"						
6	DC/PC Chamber Pressure, PI1	4.0 mm H2O	1.0 mm H2O	5.0 mm H2O						
7	Argon bypass flow, FI6	should be 0.0 CFH	0	0						
8	Alcohol Temp, T1 (large)	0 deg C	-0.5 deg C	+0.5 deg C						
9	Alcohol Temp, T2 (small)	0 deg C	-0.5 deg C	+0.5 deg C						

Canary Chamber Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Compressor Pressure, PI2	0.55	0.4	0.7						
2	Canary Cham. Pressure, PT1	0.7	0.3	1.5						
3	N2 Purge Box Pressure, PT_N2	0.5	0.3	1.						
4	Bublers from back of the rack on Left side	both are bublling								

RICH Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	WEST: Low Volume Flow Meter	1.3 L/M	0.5 L/M	2.0 L/M						
2	EAST: Low Volume Flow Meter	1.3 L/M	0.5 L/M	2.0 L/M						

MuID Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
PI1	CO2 Supply Pressure	25 PSGI	20 PSGI	30 PSGI						
PI2	C4H10 Supply Pressure	12 PSGI	4.5 PSGI	20 PSGI						
PI3	N2 Supply Pressure	15 PSGI	5 PSGI	40 PSGI						
PI4	N2 Head Pressure	70"WC	50"WC	90"WC						
FI13	N2 North Flow	30 L/M	10 L/M	70 L/M						
FI14	N2 South Flow	30 L/M	10 L/M	70 L/M						
PI5	Mixture Supply Pressure	50"WC	40"WC	60"WC						
FI12	South Chamber Flow	50 SCFH	30 SCFH	70 SCFH						
FI11	North Chamber Flow	50 SCFH	30 SCFH	70 SCFH						
PI11	Chamber Supply Pressure	10" WC	5" WC	20" WC"						
FI5	O2 Analyzer flow	500 cc/M	200 cc/M	700 cc/M						
FI6	H2O Analyzer flow	500 cc/M	200 cc/M	700 cc/M						
FI7	C)2 Analyzer flow	1000 cc/M	500 cc/M	1500 cc/M						
PI9	Return Pressure	2PSI	1PSI	5PSI						
FI10	South Return Flow	7 L/M	3 L/M	20 L/M						
FI9	NORTH Return Flow	7 L/M	3 L/M	20 L/M						

MuTR Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Argon Regulator Pressure, MRR01	15 psi	13 psi	30 psi						
2	CO2 Regulator Pressure, MRR02	15 psi	13 psi	30 psi						
3	CF4 Regulator Pressure, MRR03	12 psi	10 psi	20 psi						
4	New Gas Pressure, MRG04	11 psi	5 psi	20 psi						
5	Tank Output Pressure, MRG05	1 psi	0 psi	10 psi						
6	Supply Pressure, MRG06	2.5" WC	01" WC	10" WC"						
7	Return Pressure, MRG07	-0.5" WC	-1.0" WC	+0.5" WC"						
8	Total Supply Flow, MRMFM	6 LPM	.5 LPM	15 LPM						
9	Total Return Flow, CPMFM	5 LPM	0.5 LPM	15 LPM						
10	Compressor	Power ON (Y/N)								

RICH Control Rack, inside Gas Control Room

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	West: V9	Open								
2	West: V10	Close								
3	West: V11	Open								
4	West: Pressure	+0.600"	+0.100"	+0.750".						
5	East: V3	Open								
6	East: V4	Close								
7	East: V5	Open								
8	East: Pressure	+0.600"	+0.100"	+0.750".						

Canary Chamber Computer monitoring, inside RICH Control Rack

Item	Check Point	Nominal	Minimum	Maximum	02:00	06:00	10:00	14:00	18:00	22:00
1	Flow Mass Control, FMC	60	30	90						
2	Bertan HV power supp., PMT HV	Polarity: negative								
3	2 Bertan HV in NIM crate	A & C chann. LED "on"								

If any problem call Drift Chamber expert from DC standing orders.

TEC Computer Monitored Sensors

Scroll through the messages on the bottom part of the screen and look for any error messages.

Sensor	Function	Range	02:00	06:00	10:00	14:00	18:00	22:00
PT5	Input of TEC pressure	BROKEN, IGNORE						
PT9	Output of TEC pressure	2.0-8.0mmWC						
FI1	Flow indicator	5 - 25 LPM						
FM1	Argon mass flow controller	2.5 - 25 LPM						
FM2	Methane mass flow controller	0.25 - 2.5 LPM						
CH4/FM	Methane content	9 - 11 %						
Program	Current time on Monitor screen	Should be within 10mn of PC clock						
Alarms	Alarm system	Should be Enabled						

If alarms are DISABLED call gas system expert

DC/PC Computer Monitored Sensors

Scroll through the messages on the bottom part of the screen and look for any error messages.

Sensor	**Function**	**Range**	**02:00**	**06:00**	**10:00**	**14:00**	**18:00**	**22:00**
PT5	Input of East PC	10 - 30 mmWC						
PT6	Input of East DC	2.0 - 8.0 mmWC						
PT7	Input of West DC	2.0 - 8.0 mmWC						
PT8	Input of West PC	10 - 30 mmWC						
FI1	Flow indicator(Broken Ignore Value)	BROKEN IGNORE,4-25 LPM						
FM1	Argon mass flow controller	2 - 10 LPM						
FM2	Ethane mass flow controller	2 - 10 LPM						
C2H6/FM	Ethane content	49 -51 %						
Merlin	chiller	-3.3 to +3 deg C						
Program	Current time on Monitor screen	Should be within 10mn of PC clock						
Alarms	Alarm system	Should be Enabled						

If alarms are DISABLED call gas system expert

MuID Computer Monitored Sensors

Sensor	Function	Range	02:00	06:00	10:00	14:00	18:00	22:00
PI8	South N2 Pressure	0.25 - 1.5 "WC						
PI12	NORTH N2 Pressure	0.2 - 1.5 "WC						
PT4	Chamber head pressure	1 - 2.5 "WC						
PT6	SOUTH Chamber Outlet pressure	0.1-1.5 "WC						
PT5	North Chamber Outlet pressure	0.1-1.5 "WC						
O2	O2 Contamination	0 - 400 ppm						
H2O	H2O Contamination	0 - 150 ppm						
FM1	CO2 Flow	10 - 35 lpm						
FM2	C4H10 Flow	0.5 - 3.5 lpm						
CO2_FM	CO2 mixture ratio	91.0 - 93.0%						
Program	Current time on Monitor screen	Should be within 10mn of PC clock						
Alarms	Alarm system	Should be Enabled						

If alarms are DISABLED call gas system expert

MuTR Flow Controller

Sensor	Function	Range	02:00	06:00	10:00	14:00	18:00	22:00
1	CF4 Flow Rate (Dial 1)	0.1 - 3.0 LPM						
2	CO2 Flow Rate (Dial 2)	0.15 - 4.5 LPM						
3	Argon Flow Rate (Dial 3)	0.25 - 7.5 LPM						
4	Sum of Flow Rates	CF4 + CO2 = Argon ?						
5	MKS Flow Controller Power Switch and 3 LEDs	Power ON (Y/N)						

IR Gas racks on web cam

pcam1.phenix.bnl.govpcam2.phenix.bnl.gov

DO NOT USE PCs IN MIXING HOUSE TO VIEW WEB CAMS

Rack	**which Magnehelic gage**	**Function**	**Nominal**	**Range**	**02:00**	**06:00**	**10:00**	**14:00**	**18:00**	**22:00**
West	Left Big Flow Meter	PC Output Flow	5 SCFH	3 - 8 SCFH						
West	Middle Big Flow Meter	DC Output Flow	13.5 SCFH	5 - 18 SCFH						
West	Right Big Flow Meter	N/A	Not Used	N/A						
West	Top Pressure Meter	PC Output Pressure	<	<6						
West	Bottom PRESSURE Meter	DC Output Pressure	<	<6						
West	Digital Thermometer (Bottom Reading)*	MuID BLT rack temperature	35	15-40 C*						
East	Left Big Flow Meter	PC Output Flow	5 SCFH	3 - 8 SCFH						
East	Middle Big Flow Meter	DC Output Flow	13.5 SCFH	5 - 18 SCFH						
East	Right Big Flow Meter	TEC Output Flow	28 SCFH	10 - 33 SCFH						
East	Top Pressure Meter	PC Output Pressure		<6						
East	Bottom PRESSURE Meter	DC Output Pressure		<6						

*If the MuID BLT rack temperature is high, contact MuID expert.
If the temperature is low, note it on the logbook and send an email to MuID expert.