SHMS Magnets Routine Pre-run Check Out Sheet

Date: 3/26/15

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Experiment Number: Q1 High Power Test

Notes: Record Values in columns where applicable

① MAGNET IS Recovering from a major site power outage

Special Notes:	HB	Q1	Q2	Q3	Dipole

A: Physical Observations	HB	Q1	Q2	Q3	Dipole
Magnetic material near magnet cleared		✓			
Electronic equipment near magnet cleared		✓			
Personal near HMS advised of operations		✓			
Magnetic field warning signs in place		✓			
All clear around magnet		✓			

B: Vacuum Checks		HB	Q1	Q2	Q3	Dipole
Condensation of Freezing on OVC			✓			
Vacuum Reading	V = Torr		4.48×10^{-6}			
Spectrometer Vacuum reading	V = Torr	NA				

C: Cryogenic and Valve Checks	HB	Q1	Q2	Q3	Dipole
U Tubes inspected for condensation/frosting		✓			
CCR inspected for condensation/frosting except for N2 exhaust line.		✓			
Audible check for gas leaks		✓			
Heater Tape working CCR neck		✓			
Visual check of valve actuators, LVDT settings & motor operations		✓			
Lead flow valves operating and correct position		✓			

Heaters set at ~40C & working		✓			
Manual Valves in correct position: Current Leads flow		✓			
Helium Cool down /Warm up		✓ on GH			
From HMI screens:					
Cryo He Supply valve setting [5] %		84.8			
Cryo He Return valve setting [6] %		99.2			
Helium Liquid Level		61.0%			
Helium Pressure atm		1.337			
Helium Magnet Average Temperature K		4.51			
Helium Temperatures within range [4.2 to 4.8K]		✓			
Cryo LN2 Supply valve setting [2] %		56.4			
LN2 Liquid Level %		75.2			
LN2 Pressure ATM		1.029			
LN2 Magnet Average Temperature K		79			
LN2 temperatures within range [77 – 80 K]		✓			
Helium and LN2 liquid levels maintained for last 24 hrs.		NO (1)			
Valve Settings Open/close valve by 5% via PLC Manual Mode		✓ ✓			
Valves at Hard Set [-6%] [Quads:1,3,4]		✓			
Current lead flow valves at ~10% open and ~10 l/min, no current		✓			
Current lead flow valves at ~10% and 2,000 l/h, no current		✓			

ESR Data & Transfer Line Temperature		HeS	HeR	LN2	HeR	HeS
		T1	T2	T3	T4	T5
HMS Transfer Lines Temperatures HMS	K	4.64	4.71	94.0K	4.47	4.64
SHMS		6.4	7.9	143.3	—	—
			CPI671SC	CFI6711C	CPI9521	CTD9521
ESR data: 4K Supply Pressure & Flow, 4K Return Pressure & Temp			1.64atm	10.7g/s	1.24atm	4.2K
ESR and HMS data updating, logging and trending						

D: Electrical & Main Power Supply Checks	HB	Q1	Q2	Q3	Dipole
UPS powered and on		✓			
480V Main wall circuit breaker ~~locked OFF~~ ON		✓			

Fuse IN / Fuse OUT

Q1

208V Magnet circuit breakers ON		✓			
Record Resistance of Left Current bus bar to Ground.		108.3			
Record Resistance of Right Current bus bar to Ground		108.2			
Inspect current leads connection within PSU		✓			
Quench Detectors with power and no interlocks		✓			
Energy Dump resets remotely		✓			
LCW Checkout					
LCW to HMS		Supply	Return	Flow	Temp
Record values		245	40	69.8	80
LCW to PSU is ON		✓			
Check for water leaks within PSU		✓			
Close all interlocked PSU doors		✓			
Turn on 480V wall circuit breaker		NA			
Power enable switch ON in counting house		NA			
PSU switched ON		✓			
PSU, Magnet, Quench Detector & Interlock Tests	**HB**	**Q1**	**Q2**	**Q3**	**Dipole**
Verify and clear all PSU interlocks					
Turn OFF water to PSU, Verify and reset Interlock		✓			
Verify Remote operation of PSU		✓			
Quench detector Current Channel 1 measured		0.077			
Quench detector Channel 2 measured		0.011			
Quench detector Channel 3 measured		0.012			
Quench detector Current Channel 4 measured		0.077			
Broken Cable detection checked		✓			
Verify Remote Polarity switch		✓			
Verify Fast Dump Switch from Counting House		NA			
PSU turned on and ramps to 100A		✓			
Hall Probes / NMR working		✓			
PSU ramped to 0 A and placed in standby		✓			
Keep Alive Relays working		✓			