DIPOLE MAGNET TEST SEQUENCE

New Magnet On Bench, Scan the Name, Prepare Shift Log-Book etc.

- *HV Insulation Test Before connection to CFB (Cryogenic Feed Box – Carries Cryogenic and Electrical Connections From Test Bench to Magnet)*
- *Connection to CFB*

Carried out by ICS Group

PREPARATORY TESTS AT ROOM TEMPERATURE:

- **Lyre Test: Simulate Effect of Thermal Contraction in Cold condition**
- **IAP (Instrument Analysis Procedure): Check Functioning of Quench Heaters, Voltage Taps, and Temperature Sensor**
- **Quench Heater Resistance Measurement**
- **HV Insulation Test: After connection to CFB**

Magnet Cool Down to 1.9 K

INITIAL COLD TESTS:

- **IAP: Check Offset and Gain Errors of Data Acquisition Instrumentation - Adjust wherever needed**
- **HV Insulation Test: Before Magnet Powering**
- **Slow Power Abort Test: Power the Magnet upto 1000 A and then back to Zero with Controlled Ramp Rate**
- **Provoked Quench Tests: Power the Magnet upto 1500 A and check Quench-Heaters' operation by Provoking a Quench by Triggering one pair of Low-Field and High-Field Heaters alternately**

POWER TESTS AT COLD CONDITION:

- **TRAINING of Magnet: Feed the Magnet with Repetitive Current Ramp cycles until it gets "TRAINED" (Reaches the Ultimate Designed Current Value of 12850 A) – Refer Training Rules**
- **When the magnet is Trained, Generate a *.u file to record that Ultimate Target Current is reached**
- **De-Excitation Check: Reduce Current from 12000 A to Zero In Controlled way at a slope of -125 A/sec**

MAGNETIC MEASUREMENTS (ON SELECTED MAGNETS):

- **Measurement of Field profile, Harmonics etc. by Rotating a coil in the magnet aperture**

FINAL TESTS AT COLD:

- **HV Insulation Test: After Completion of Magnet Power Tests**
- **Minimum Energy Quench: Provoke a Quench by Firing one LF Heater at minimum required Heater-Voltage**

Magnet Warm-up back to 300 K

FINAL TESTS AT WARM:

- **IAP: Final Check for Electrical Integrity of Voltage Taps, and Temperature Sensor after completion of Power Tests at cold**
- **Final Resistance Measurement at Room temperature of Quench Heaters, Voltage Taps in main magnet, Corrector magnets, & Temperature sensor etc.**

- *Disconnection from CFB*
- *HV Insulation Test : After Disconnection from CFB*

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