Weekly Report – week of November 28th, 2011
Fabrication and Assembly of ERL hardware
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**Controls:** Efforts are underway to install software packages that will be used in developing the Gigabit Ethernet Camera interface to the Controls System. Software configuration for the BiRa power supplies continued as well. A meeting is being planned for next week between Superconducting Magnet Division and C-AD personnel in order to learn more about the SMD quench protection platform and establish the level of support that they will provide towards our own implementation for the gun solenoid magnets.

**Cryogenics**: CryoControls: PLC and SCADA programming continues.
Electric feeds: Electrical 480VAC tie-ins for cryoplant in underway this week.
Update on cryo controls logic document and process control with a chart being worked on.
Cryo System: Operating procedures OPM's being worked on.
Cryogenic transfer lines to ERL cryomodules: Vendor still working on the valve boxes. The vendor reported the top dished head which was sent for machining the holes has been returned and assembly will start on the valvebox, and installation would occur after the holidays in January.
Cryogenic transfer lines to ERL cryomodules: Installation: Draft Phase hazard Analysis/Detail installation plan in review with CAD safety group. Installation subcontractor was on site for the walkthrough of jobsite.
Large Grain Gun Test: temperature sensor install support required when the setup is ready.
LESHC-PSSC Review was held on Nov. 29. Action items to be addressed.
LESHC-PSSC and ASSRC committee walkthrough for vertical test facility Dec 1.

**Gun Cryomodule/5-cell cavity:** The HTS solenoid has been mounted to the gun assembly, wired and tested. This will be followed shortly by welding the remaining few cryogenic cooling lines. The tuner controls were tested, which included exercising stepper motors and checking limit switches for proper operation. Next week a network analyzer will be connected to the gun to measure the frequency tuning range.

**Instrumentation:** The Pepper Pots are bagged and shelved in the clean room awaiting pre-installation survey. The Halo Scrapers are in the clean room awaiting disassembly and ultrasonic cleaning of the bellows to meet the required particulate levels. The four newly received Profile Monitors are in our Video Lab and are scheduled to have interface connectors installed. They are also scheduled to undergo initial motion check-out and optical resolution measurements. Later they will be moved to the survey room for pre-installation survey, and then moved to the cleanroom where they will be leak checked and analyzed for particle free qualification. The laser optics and a low power laser have been purchased to perform a laser alignment of the Pepper Pot Slit Mask during installation in the

beam line. Parts for the ICT heartbeat prototype electronics have arrived, assembly should begin next week. Evaluation of candidate digitizers for the DCCT system continues, we have narrowed the field to several products from National Instruments. We await evaluation information on the candidate GigE camera, to be used for profile image acquisition that is presently being tested for compatibility with the Linux operating system.

**Laser:** Testing/debugging of controls software for timing module continues; basic communication problems are resolved, continuing to refine the interface. Constructing an optical setup to test the refractive shaper module needed for transverse beam shaping.

**Large Grain Gun:** Assembly of the vacuum system has commenced in the cleanroom. The data acquisition system for the experiment has been tested successfully, however, several faulty temperature sensor components are being returned to the manufacturer for replacement. Work continues on preparation of the statement of work for the test cathode. The statement of work and purchase order is expected to be completed by next week for submission to procurement.

**Mezzanine/Cleanroom:** The clean room construction continues to move along well with the enclosure complete and the majority of the HVAC duct work installed. The electricians continue to run wires for the lighting, HEPA filters, switches and outlets. Work on the VTF cleanroom continues toward the scheduled completion date. The interior equipment and consumables have started to arrive for the cleanroom

**Photocathode:** [Deposition System] Received recommendations for the reassembly of the chamber. Main chamber blanks, cold cathode gauges, substrate heater, gate valves, ion pump, small NEG pump, and front plate have been installed. The gate valves have been connected to the pneumatic system and actuated. The location of an anode to monitor source deposits to be determined followed by rear plate installation. The Cs, K, and Sb source arms are attached and alignments are in process. The main chamber vacuum integrity will be tested next.

**Vacuum:**

1. A thin film of 321 SS was sputtered on a HOM ceramic break test piece. Further test are needed to fully develop the end product
2. Zig-zag Dipole chambers remain in final checking. Remaining zig-zag chambers are detailed and reviewed by engineering. All should be in checking queue within a couple of days. Work on side port rf-shields and detail chamber support design will follow.
3. Central Shops has begun fabrication of the impedance bridge for the e-gun HOM Ferrite Absorber. A prototype should be available within approximately one week to test in the coated test ceramic.
4. Coordinating a plan with Beam Components and Survey to outfit the 905 clean room with a clean room and UHV compatible dimensional inspection station.

5. Deposition chamber assembly continues
6. Preliminary design of the deposition chamber controls was started