Weekly Report – week of August 22, 2011
Fabrication and Assembly of ERL hardware
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Beam line: Design, machining, and installation of downstream vacuum vessel restraint brackets commenced.

Controls: Efforts continued towards establishing serial communications with the Danfysik power supply controllers. A gigabit-ethernet camera will be tested as an possible alternative to resolving multi-device per host support issues that are currently experienced with firewire cameras.

Cryogenics:
Cryoplant system: Sullair Compressor skid oil lines replacement done.
Cryolines plant: Leak checking of field joint to be completed end of week, then proceed to close-up field joint jackets next week.
Cryogenic transfer lines to ERL cryomodules: Fabrication continues on valveboxes for cryomodules.
Cryo System: FMEA (Failure Mode Effect Analysis) is progressing along for final review with Lab safety committee in Sept.
Large grain gun test: Rotatable blind flange received and is in shop for machining correct hole size.
LN2 11,000 Gal storage Dewar: prepping vacuum space for pressure test on Friday

Gun Cryomodule/5-cell cavity: Work continued on the cathode cart / transporter with testing of the insertion system and detailed survey of the insertion arm being done. The gun string bleed up and installation of the FPCs in underway.

Instrumentation: An expansion of the device naming scheme was proposed and reviewed. An exhaustive detailed estimate of the tasks and resources required for completion of both G5 and ERL was compiled and completed. A review of the instruments planned for the four phases of the project (G0, G5 straight, G5 zig-zag, & ERL) was completed with accompanying block diagram drawings. This facilitated the completion of a cable list for all instrumentation cables required to be run between the instrument racks and the block house, noting the sectors where the cables will be dropped. The six halo scrapers were added to the list of integrated Faraday Cup collectors (now totaling 10 for G5.) More Faraday Cup amplifier modules are being built along with the amplifier/integrator chassis.

Laser: Work on fourth harmonic generation and transport line layout continues. Some further trades work needed for transport line support has been identified, but this is minor, other work can continue in parallel, and it should not impact schedule. Stepper motor control module for the Lumera has been received back from the vendor; testing will await a convenient time in the FHG development, since testing could affect the laser alignment. Window and mirror issues for operation at UV and green wavelengths have been resolved.

Large Grain Gun: The magnetic shield has been placed around the dewar and the dewar has been mounted to the platform that will roll into the blockhouse. A study plan for low-power testing has been devised and preparations continue for staging the final assembly of the cavity and vacuum system. Several last vacuum components are being ordered.

Photocathode: After an extensive 200 degree C bake of the deposition system and upon cool down a large leak opened up on the large 14" flange. After disassembly, cleaning and replacement of the gasket, the system is being pumped down and leak checked. During disassembly it was noted that the NEG in the Ion pump was damaged and requires replacement. A quote and availability of a replacement has been researched. A PO will be placed with a delivery of one week. The (K) arm is still showing signs of high outgassing and an extensive leak check has shown no leaks. The large bellows of the arm has been removed and cleaned. The remainder of the arm including the VAT isolation valve will be removed inspected and if necessary returned to VAT for cleaning. A quote has been received with a 3 week turn around time. The new turbo pumping system for the source arms has been received.
The deposition system will be reconfigured to except these components and also the addition of ion pumps.

Project Controls: As of lunchtime Thursday, 8/25 we have received 11 of the 16 WBS inputs and have begun putting the data into Microsoft Project and sitting with the estimators to add the logic ties.

Vacuum:

1. The hermetic string has been prepped for FPC installation. The FPC cart has been cleaned and wrapped in plastic and brought into clean room. The tooling to mount the FPC to the BackTech was checked for fit. The holes in the tooling do not line up with the CC gauges. With the gauge electronics removed, it clears one of the FPC's but not the other. A small relief will need to be machined.
2. The 10x20 clean room was certified by an outside vendor as class 100. Most of the room is at a class 10 level so we will have an excellent environment for FPC installation. A drop down curtain was received which will also help control the laminar flow directly over the cavity during installation.
3. Large grain cavity vacuum components were inventoried and a requisition for additional vacuum components will be generated. Developed an assembly process work flow for the top hat assembly. Waiting to receive a quote for a horizontal laminar flow HEPA filter system to be used for cavity installation to the top hat. Technician manpower to support large grain assembly is not immediately available
4. Detail design of the ERL Zig-Zag chamber fabrication drawings continues.
5. The downstream end of G5 up to the Profile Monitors is installed and leak checked. The portable clean room is removed from the beam line to allow magnet assembly.

6. Processing of all G5 chambers except laser mirror holder and HOM Damper is complete. Assembly of laser mirror cross and injection line triplet chamber, to be used as a drift chamber remain to be done.
7. Quote for additional components to complete the interim “G-0” e-gun commissioning beam line is received, and PO generated.
8. Preparing test of various clean room compatible heater jackets.
9. Supporting Laser mirror test preparation.
10. Integration of cathode cart controls into the ERL controls is under investigation.
11. Liquid helium leak checking of laser windows was done with two cool down cycles.