Weekly Reporting

WBS 1.01.07 JLAB Management

Week of February 12-18, 2016

**Issues:**

Need Nb/NbTi material to be delivered to the cavity vendors. Some Nb sheet material has been delivered and we need to make sure the remainder goes in a timely fashion.

**Accomplishments this week:**

Jarrod Fitzpatrick and Preble attended the customs consultation meeting at FNAL 17 February.

Procurements are progressing for production bellows, tuner frames, and PICs.

Preparation of BCR and EAC files.

**Upcoming Activities:**

Weekly Reporting

WBS 1.04.6 JLAB Cryomodules

Week of February 12-18, 2016

**Issues:** JLab pCM schedule is driven by the availability of parts including magnetic shielding, tuners and GHRP assembly. Need to ship cavity materials to one vendor. Project schedule driven by production cavity delivery schedule – need to recover float.

**Accomplishments this week:**

The following list of BCRs have been discussed with the SM and are in preparation: Cavity Parts in Circulation Cost (approved at CCB 1/28), Cavity Tuning Machine (CTM, planned for CCB TBD) Cost, Production Tuner Schedule (planned for CCB 2/18) and Offsite Storage Cost (approved at CCB 1/28). Both approved BCRs still require Cobra integration, P6 update before final project sign-off (forms prepared for CCB 2/18).

EAC for infrastructure has been developed and is planned for presentation at CCB on 2/18. Test COBRA integration has been completed.

Actively working cavity production schedule issues in order to recover schedule float by accelerating vendor delivery rates. What-if schedule was developed and reviewed. Current vendor feedback is not consistent with accelerating schedule – discussions are on-going with both cavity vendors. The best understanding is currently reflected in the forecast P6 schedule.

Flux expulsion measurements completed on three VQ cavities. Results to be discussed. Plan forward to be developed.

Cavity Procurement

RI has first article production is underway.

Enough Nb sheet material is at Zanon for first articles and some production cavities. Nb tubes and Ti materials shipped from FNAL are on hold at DESY due to customs questions. NbTi materials shipped from JLab to Zanon are on-hold at Milan Airport awaiting information from DESY customs official. Delivery of materials needed for first articles is unknown at this time.

Zanon and RI have passed Phase I qualification.

Manufacturing drawings for cavities from RI and Zanon have been reviewed by JLab and FNAL SOTRs. Vendors have received feedback and have agreed to use identical tolerances and dimensions (Some minor differences were allowed for XFEL production). Expect acceptance of cavity drawings by the end of the month. Zanon HV drawings have been reviewed and feedback provided. Received majority of HV drawings from RI - still awaiting a few helium vessel drawings.

Cavity string assembly awaits copper plated bellows - need one more long bellows qualified or will use long bellows from 1st generation. Evaluation of cold end FPCs is complete, ensuring that component cleanliness and internal surfaces are acceptable.

Successfully re-tested string cavity AES033 with results that showed quenching at 20 MV/m with no field emission.

GHRP parts received from FNAL. Some progress on resolution of major NCRs. Assembling Upper Cold Mass subassembly. Welded Invar rod with defined procedure. Inspection of modified 50K thermal shields from FNAL ongoing. Completed GHRP gusset welds.

Production CM lead and CM assembly lead technician traveled to FNAL Monday through Wednesday to review FNAL cavity string activities and observe cold mass assembly activities. Excellent interactions with FNAL CM production team resulting in good info exchange, photos and detail for traveler/process development at JLab.

Initial planning has started for vendor visit to production VV manufacturer – tentatively late April.

Recovery plan for copper-plated bellows is being implemented. One long bellows is being returned from SLAC. All bellows for string assembly will be in hand by the week’s end. Received update from SLAC colleagues who are conducting material investigations of stainless steel used in bellows fabrication. No root cause identified but some useful suggestions have been given.

CMTF coax waveguide parts are being prepared for installation. Sections are being cut to length. Installation in mezzanine is ongoing.

**QUALITY**

* Provided support in the qualification of the remaining bellows for the prototype cavity string while Naeem and Ed visited the tuner vendors in Germany. The final set of bellows that was copper plated by SLAC was pushed through the various work centers at JLab. Several of the bellows exhibited plating concerns and the parts were sent to SLAC for examination. Long Bellows (#0039) is being evaluated for acceptance to go onto the prototype cavity string.
* SLAC has recently provided to the partner labs a newly released Quality Assurance procedure on ‘Managing Significant Nonconformance Doc # LCLSII-1.1-QA-0563-R0.’ In addition, a template for a Dashboard was provided by SLAC for the monthly reporting of significant NCRs. In general terms, the SLAC procedure looks reasonable. There are some details within the procedure that could be adjusted or clarified. Separating significant vs. insignificant (minor vs. Major) is important to the NCR process. Fermilab’s NCR on the GHRP might be looked at as an example of ‘flushing’ out the SLAC procedure.
* The Documentation Team has created a sub-directory on the M:drive for permanently storing certain vendor supplied documents. This is the final storage location where the files are protected and backed-up regularly by the JLab Computer Center. A document describing the usages of these new folders is being created for the staff members and users.

**Upcoming Activities:** Vendor Visit to China April 24-29, 2016

Weekly Reporting

WBS 1.04.08 JLAB Cryoplant System

Week of February 12-18, 2016

**Issues:** None

**Accomplishments this week:**

The weekly design coordination meeting was held with the 4.5K cold box vendor (Air Liquide). All action items are being properly addressed in preparation of a preliminary design review for 9-10 March 2016. Engineering topics this past week included a discussion continuation with the vendor for the heat exchanger design calculations and required documentation submittals in preparation of the PDR to be held at JLab. A plan to witness a performance test of the turbine brake system is also being schedule for 17 March, shortly after the PDR.

A presentation of the 2K cold box assembly plan follow up was presented for the cryogenic cryoplant meeting. Additional JLab meetings were held to investigate joint FRIB 2K cold box design.

Antonio C. de Lira (SLAC controls engineer) joined the JLab design team to work on the LCLSII cryoplant controls

Specifications for the warm helium oil removal vessels, gaseous helium storage vessels, and final charcoal vessel were released for approval.

Design work continued for the compressor room warm helium gas piping installation design. Design completion remains set for March 2016.

**Upcoming Activities:**

Antonio de Lira joining the JLab design team, 15 Feb 2016

Warm Helium Compressor CDR, 29 Feb 2016

4.5K Cold Box PDR, 9-10 March 2016

4.5K Cold Box Turbine Brake Operations Demonstration, Post PDR, 17 March 2016

Weekly Reporting

WBS 1.02.03.05.12 LLRF

Week of February 12-18, 2016

**Issues:** None

**Accomplishments this week:**

* LLRF Coordination/Documentation:
  + Working on PDR presentations (Curt and Rama).
  + Reviewed P6 schedule with JLAB LLRF team.
* Resonance/Stepper Motor Board:
  + All the channels have been tested. Next step is to test with Phyrotron stepper motor.
  + Chassis design is a work in progress.
* Interlock Board/Chassis:
  + FEM: Schematic and layout will start this week.
* Common Power Supply: Chassis in design.
* CMTF
  + Waveguide and Coax: Workers have installed four coax lines in the vent shaft. RF technical staff is working to improve the assembly procedure so that the coax meets insertion loss requirements.
  + Cable Tray: Will be installed in three weeks.
  + Documentation: System block diagram is being updated weekly.
  + LLRF: Chassis assemble (RF & digital boards) has begun.
  + SSAs: Power (480 and 110) work has slowed down because of other priorities.

**Upcoming Activities:**

* JLAB:
  + Continue prototype tests and assembly (resonance, interlocks, power supply)
  + Work on PDR (presentations)
* CMTF: Continue working on documentation, installation and instrumentation.
* LLRF PDR Planned for March 3/4 at SLAC