Weekly Reporting

WBS 1.01.07 JLAB Management

Week of Jul 29-Aug 4, 2016

**Issues:** Need to develop and qualify the new processing steps for SRF cavity and material. This will have significant impact on the SRF cavity cost and schedule.

**Accomplishments this week:**

Progressed P6 schedule.

Considerable work, meetings, and discussions on the plan for going forward with SRF cavities in light of the problems with the Niobium material.

Preparing for the upcoming cryo installation workshop to be held at JLab 10-11 August.

Working on cavity contracts modifications to support the high Q0 development work.

Working on responses to FAC review recommendations.

VTA retest test of the first RI cavity, VTA test of the second RI cavity.

**Upcoming Activities:**

Weekly Reporting

WBS 1.04.6 JLAB Cryomodules

Week of Jul 29-Aug 4, 2016

**Issues:** Niobium tubes are on the critical path for RI and Zanon cavity production. Efficient transfer of lessons learned from FNAL pCM assembly in order to reduce JLab pCM assembly duration. Funding mechanism for spare CM components unclear.

**Accomplishments this week:**

Continuing discussion on approach for improved flux expulsion. Received direction from project to expedite four cavities from RI.

Received direction from project to modify EP bulk removal on balance of first articles (8 units) at Zanon. Nominal increase to 200 microns with a minimum removal at the equators of 165 microns. Vendor will need to evaluate impact on cost and schedule.

Initiated weekly technical status meeting that covers R&D activities at FNAL and vendor development activities. Need input on schedule and plan from FNAL on R&D activities.

Cavity Procurement

RI has shipped all first article cavities (8 each to JLab & FNAL).

RI First Article Testing:

CAV0002 passed specifications after degaussing: Q0 = 2.6e10 at 16MV/m

and Emax = 24 MV/m (admin limited). No radiation detected.

CAV0005 failed: Q0 = 2.2e10 at 16MV/m and Emax = 16.4 MV/m (quench limited). No radiation detected.

CAV0004 re-scheduled to test Tuesday afternoon, 9 August. CAV0001 re-scheduled to test Wednesday afternoon, 10 August. Delay due to unplanned power outage for the Cryogenic Test Facility.

Four RI cavities arrived at FNAL; issue of miscommunication between freight forwarders was resolved. Four cavities each in process of shipping to JLab and FNAL.

See FNAL weekly report for status of material shipments. Currently connection tube materials are critical path for cavity vendors.

Zanon – The first 8 cavities are through hold point #2, the second eight cavities have advanced past hold point #1.

Inspection of ~40 unplated bellows from Lesker is on-going.

CM assembly activities:

Cavity support post have been removed. Alignment control points and set up was verified and cavity alignment was completed. Magnet lead temperature sensors are being installed. Beam pipe and HOM instrumentation has been completed. Completed pump down and leak check of UCM. Completed leak check of cryogenic circuit. Completed magnet work. Re-worked 50K lower shields have arrived from JLab machine shop. Vacuum vessel has been installed onto cantilever.

FNAL tuner SOTR to visit and support installation of tuners onto cold mass assembly.

Vacuum Vessel - JLab is still waiting for PHPK's subcontractor's welding docs related to the longitudinal welds on the pCM VV. WPS/PQR/WPQ and weld inspection report are needed.

JLab receiving inspection of MC coupling line F10010017 is held up because lack of vendor documents. Fermi is informed.

Received and reviewing procedures from FNAL for magnet lead installation.

Awaiting procedures focused on electrical methods for installation of instrumentation.

Cryomodule Test Facility

Lead brick installation around fan stack was completed to support C50 testing. Continued routing of new RF and multiconductor cables.

CM Assembly completion in P6 – 20-OCT; CM Testing start in P6 – 21-OCT.

**QUALITY** – On vacation; no report.

**Upcoming Travel:**

* WXCX Vendor Visit 1-5 AUG
* BLA Vendor Visit 14-18 AUG

Weekly Reporting

WBS 1.04.08 JLAB Cryoplant System

Week of July 29-Aug 4, 2016

**Issues:**

**Accomplishments this week:**

The LN2 dewar procurement specification remains in circulation for comments and/or approval. A BCR presentation was prepared to move the supply of the dewar from SLAC to JLab for WBS 1.04.08.08.

The FDR date for the 4.5K cold box is 7-8th September. The review will be held in Delaware at the Air Liquide Research Center.

A 3-D 4.5K cold box assembly engineering meeting was held at JLab on August 3rd. Six SLAC engineers/designers were in attendance. The overall successful meeting covered the internal/external location of heat exchangers, piping, instrumentation, installation interface locations, platforms, etc.

Work continued on the 60% 2K cold box assembly design documentation.

Bids for the warm helium gas storage vessels are due by 8 August. A BCR was prepared to purchase two additional vessels. SLAC was to repurpose existing vessels but they were found to be non-ASME design.

An installation and commissioning “retreat” has been scheduled to be held at JLab for the 10-11 August. Development of presentations for cryoplant installation and commissioning plans are underway.

The design of the transfer line interface boxes continued through the week.

A request by BIO to move the BIO meeting from 9th of August to the 16th was scheduled.

Presentations supporting the LCLS-II Director’s Review began with dry runs planned the week of August 15.

**QUALITY**

* Reviewing the 30,000 Gallon LN2 Dewar Technical Specification.
* A visit to the warm helium compressor vendor is planned toward early August for compliance verification.
* Continue to work with CryoPlant staff on the M: drive for storing vendor supplied documents.

**Upcoming Activities:**

Installation/Commissioning Plan Retreat at JLab, 10-11 August 2016

Cryoplant BIO Review 16 Aug 2016

Director’s Review 28 Aug-1 Sept 2016

4.5K Cold Box FDR 7-8th Sep 2016

Weekly Reporting

WBS 1.02.03.05.12 LLRF

Week of Jul 29-Aug 4, 2016

**Issues:** None

**Accomplishments this week:**

**JLAB**

* LLRF Coordination/Documentation:
  + Revised the LLRF FRS by adding a range for the cavity probe Qext.
  + Board designer and fabrication resources continue to be a slow point. We are actively pushing LCLS-II projects through as best we can.
  + Sending a resonance and power supply chassis to FNAL on 8/4.
* Resonance/Stepper Motor Board/Chassis:
  + Resonance chassis: The second chassis is being tested. The third chassis is in assembly.
  + Modified FMC board has been installed in 2nd chassis.
  + Resonance FMC connector board: Will be back from manufacturing next week.
  + Stepper boards: two waiting to be tested (for chassis three and four).
  + Modified power breakout board has been installed and tested.
  + New power connector boards are installed.
* Interlock Board/Chassis:
  + FEP: Onish has completed the board layout. After review the board will be sent out Monday for manufacture.
  + ARC/IR boards: Is assembled and waiting test.
  + Interlock FMC connector board (interlocks): Schematic is done. A designer is working on the layout.
  + Power supply board is still in CAD.
  + Interlock Chassis: Schedule has slipped to 9/1/16 for chassis completion because of designer and fabrication resource issues.
* Common Power Supply/Chassis:
  + Two chassis are complete. Additional chassis are in fabrication (for LBNL/FNAL).

**Upcoming Activities:**

* JLAB:
  + Continue prototype tests and assembly (resonance, interlocks, power supply)
  + Directors Review
  + FNAL pCM LLRF tests (September)