Weekly Reporting

WBS 1.01.07 JLAB Management

Week of May 18-24, 2017

**Issues:**

**Accomplishments this week:**

Preparing to present two BCRs this week:

1. Fabricate 18-20 cavities at RI from material that EZ had on hand
2. HOM BLA updated schedule and cost

Addressing recommendations from the Director’s Review.

Preparing a JLab Director’s Review of the Cryoplant Installation Package Review.

Preparing for the DOE Status Review.

**Upcoming Activities:**

JLAB LCLS-II CP Installation Package, Director’s Progress Review 1 June 2017

Collaboration Meeting 12 June 2017

DOE Status Review at SLAC 13-15 June 2017

SRF 2017 in China July 17-21, 2017

FAC at SLAC July 25-27, 2017 (Tentative)

Weekly Reporting

WBS 1.04.6 JLAB Cryomodules

Week of May 18-24, 2017

**Issues:** Impact on cryomodule assembly schedule due to design changes and parts availability associated with microphonics.

**Accomplishments this week:**

Plan to present BCR to fabricate 18-20 cavities at RI from material that EZ had on hand at CCB on Thursday.

Plan to present BCR for HOM BLA including updated schedule and cost at CCB on Thursday.

A planned CTF interruption for commissioning of the new CTF cold box began 22-May and is schedule to end by 4-June.

Revising estimate for using LERF for CM testing in advance of DOE review.

Cavity Status

Continuing with vendor on-site support at Zanon. Focus was on process development associated with helium tank welding. Two cavities (260, 261) that were inadvertently pressurized exceeded the field flatness specification were recovered using the cavity tuning machine. Zanon hold point status unchanged.

Zanon shipped 8 bare cavities to FNAL for process development on 18-May, and shipped 4 bare cavities to JLab for process development on 18-May. These are category 4 & 5 cavities.

RI is making good progress and is continuing to ship cavities. Hold Point 1 thru CAV0124 except 115, 116 & 123, Hold Point 2 thru CAV0117 with several exceptions and Hold Point 3 thru CAV0094 + 98 & 104.

Upcoming RI Shipments

CAV0087, CAV0088, CAV0089, CAV0090 – at DESY for testing, destined for JLab

CAV0053, CAV0056, CAV0059, CAV0060 – qualified at DESY – arrived at JLab.

CAV0058, CAV0091, CAV0093, CAV0098 – shipped to FNAL 15-May

CAV0092, CAV0094, CAV0097, CAV0104 – shipped to JLab 22-May

CAV0099, CAV0100, CAV0101, CAV0102 – shipping to FNAL next week

pCM Status

Warm up Started 5/18/17 PM and U-tubes were pulled 5/22/17 AM. Summary of tests include maximum gradients on all cavities, microphonics data on all cavities, Qo’s on all cavities, magnet testing and some LLRF work where Cavity 1 was in GDR mode briefly. Attempted 7 cavity run but had stability issues with cryogenics. Qo values were very low and the data is being reviewed and checked.

Production Status

CM-02 (currently at WS5):

Clean beam pipe work on Bayonet box end complete. Bayonet box installed. Warm coupler installation complete. Instrumentation Flanges installation in progress. Final pressure test planned for 5/24.

CM-03 (currently at WS3):

Tuner installation is in progress. Piezo’s have been preloaded. Mechanical tuner testing in progress. Magnet voltage taps are in progress.

CM-04 (currently at WS12:

First half of two-phase piping is leak checked.

CM-05

Last cavity (080) qualified for string five. Expected performance for these eight cavities - average Qo is 2.7e10 and average gradient is 22.5 MV/m. String assembly began Monday 5/22/17. Rollout from cleanroom scheduled for Friday 6/2/17.

CM-06 Cavity Testing

Four cavities qualified at DESY are planned for string 06. These shipped from DESY to RI on 10-May.

Cavity 063 had initial test in 5 mG field,Q0(16) = 2.1e10, 20.4 MV/m quench limited.

Cavity 083 is being retested on 23-May.

CM-07 Cavity Testing

Final test cycle (four cavities) was completed during May at DESY.

Preliminary results:

Cavity 087 - max gradient 20 MV/m; limited by cable breakdown; Qo(16MV/m)=2.2e10

Cavity 088 - max gradient 23.3 MV/m; limited by cable breakdown; Qo(16MV/m)=2.5e10

Cavity 090 - max gradient 24 MV/m; admin limited; Qo(16MV/m)=1.8e10

Cavity 089 - max gradient 21.8 MV/m; limited by cable breakdown; Qo(16MV/m)=2.2e10.

All cavities FE free

**QUALITY**

Participated in the dry-run meeting in preparation for the upcoming DOE Review at SLAC in mid-June.

Examined the Fermilab NCRs on Cu-plated bellows with certain types of non-conforming appearances.

Continued to monitor SNCRs to prepare for the monthly dashboard reporting to SLAC.

**Upcoming Travel:**

E. Zanon Vendor Oversight May 16-26 (C. Reece)

Magnetic Hygiene Visit to FNAL – May 25 (G. Cheng, L. Zhao)

E. Zanon Vendor Oversight May 30-Jun 10 (A. Palczewski)

SRF 2017 Lanzhou, China July 17-22 (A. Palczewski, C. Reece, N. Huque, L. Zhao, V. Bookwalter, K. Davis, G. Cheng)

WXCX Vendor Visit July 24-28 (Cheng, Fischer)

Weekly Reporting

WBS 1.04.08 JLAB Cryoplant System

Week of May 18-24, 2017

**Issues:**

**Accomplishments this week:**

Work continued to address the recommendations of the Director’s Review inclusive of recommendation #32 (JLab Director’s Review of the Cryoplant Installation Design Completion.) The recommendation called for a review of the resources and schedule to complete the JLab portion of the cryoplant. The review committee, committee charge, and agenda have been developed.

Work continued to complete the drawings to be delivered to Smith Group for completion of the cryoplant installation GC installation. Status of the documentation was presented as part of the weekly CP/CDS weekly meeting.

One additional CP1 LP warm helium compressors is scheduled for delivery after Memorial Day with the final CP1 MP warm helium compressor scheduled for ~ 1 week later .

4.5K Cold Box

* + CP1 Upper cold box heat exchangers HX-1 and HX-2 have been mounted on the cold box internal structure. HX-3 is in the process of being mounted using CP2 HX-3.
  + The missing seismic analysis appendix is scheduled for delivery to JLab on Tuesday, May 30th.



* + Both the CP1 upper and lower cold box is 1 week behind schedule and has determined the cause to be interference with the shipping of the warm helium compressors. The next witness point was scheduled for 13 June but will be conducted on June 7th to avoid interference with the DOE review.

Work continued to complete the documentation submittals to SG and BIO for the cryoplant installation target date of June 15th. Status of the documentation was presented in the CP/CDS weekly status meeting.

Final stages of the two recovery compressor skids remain on scheduled delivery for July 2017.

**QUALITY**

Coordinating with SLAC Project QA for a visit to JLab on May 31 to look at the checking process of Cryoplant design drawings.

Preparing for the Director’s Progress Review on Cryoplant Installation on June 1 2017 at JLab.

Provided to our JLab SOTR the documentation package (memory stick) for the first compressor skid delivered to SLAC.

**Upcoming Travel/Reviews:**

JLAB LCLS-II CP Installation Package, Director’s Progress Review 1 June 2017

DOE Review, SLAC, June 13-15th 2017

JLab Director’s Review of Cryoplant Installation, June 1

FAC Review, SLAC, late July 2017 - tentative

Weekly Reporting

WBS 1.02.03.05.12 LLRF

Week of May 18-24, 2017

**Issues:** None

**Accomplishments this week at JLab:**

* LLRF Coordination/Documentation:
  + Heater: The FPGA board is in the process of being assembled, due June 12th. Front and back panels have been laid out and due back from the vendor in two weeks.
  + LLRF Production: SLAC said the vendor estimate for the RFS should be in this week or next.
  + BCS: We had a teleconference last week concerning defining the tasks and responsibilities. We meet with Joe Delong this week.
* Resonance/Stepper Motor Board/Chassis:
  + CMTF Resonance Tests: Tested the chassis in the CMTF using EPICS. Both the stepper driver and the piezo amplifier were tested. In the case of the piezo a simple integrator was used to track slow He drifts while in GDR mode.
  + Software: Continue working on both firmware and software for the next CM tests in June.
  + Design Freeze: The production modifications will be put up on the LLRF Box for review.
* Interlock Board/Chassis:
  + Design Freeze: We had a meeting where we reviewed the design and listed modifications needed for production. In the case of the FEP board there are enough modifications such that we will immediately build and test one with the modifications. The list will be put on to the LLRF Box for review.
* Common Power Supply/Chassis/Boards:
  + Power Distribution Chassis: We received no comments on the production modification details. We will order the PS chassis distribution board later this week.
  + Gun Power Distribution Board: Still waiting to be tested.
  + Gun/Buncher PS Chassis: The power supplies are now here. We will use the same PS chassis distribution board when it arrives.
* CMTF
  + PRC/RFS: One PRC and two RFS chassis have installed and tested with EPICS. The functionality was verified by observing IQ, Amplitude and Phase waveforms.

**Upcoming Activities:**

* Prepare for DOE Review
* LLRF FDR the week of June 19