**LCLS-II AUGUST PROJECT STATUS REPORT**

**DATE:** September 1, 2015

**LOCATION OF PROJECT:** Jefferson Lab

**SENIOR TEAM LEAD:** Joe Preble

**MONTHLY PROGRESS**

Summary

JLab is continuing to make good progress on the Cryogenic Plant, Cryomodules, and LLRF. We have hosted several meetings with FNAL, SLAC, and contractors for the Cryogenic Plant civil construction and cryogenic system modeling. Significant progress has been made with CP#1 procurements with the 4.5K cold box award signing planned for the first week of September and the warm compressor best value evaluation completed and presented to JLab, the project, and the DOE. Several additional cryogenic plant specifications have been released for review and are on track for supporting procurements on schedule. The cryomodule program is making good progress on the pCM with 4 dressed cavities qualified for the cavity string with the remainder schedule to be qualified by the middle of September. The first horizontal test of a cavity with the high power fundamental power coupler was started. Infrastructure procurement and installation is staying on track to support the build of the pCM starting in September. Requests for release of production procurements for vacuum valves and cavity HOM and field probe feedthroughs were submitted. Schedules and associated project documentation is being updated for the new baseline to be used for CD2/3 reviews.

Management

Hosted the Cryogenic Systems Modeling Meeting on 11-13 August, 2015. Attendees included folks from SLAC, FNAL, JLab, and Cryo consultant for integrated system process modeling.

Developing the FY16 JLab internal work plan based on the P6 plan.

Reviewed July progress of Cryomodules and Cryoplant with SLAC, and updated P6 schedule in preparation for new baseline. Finalized details of the FNAL/JLab schedule logic links for the new baseline. Finalized vendor information for Cryoplant #1 4.5K Coldbox into P6.

Submitted monthly cost and funding report. Prepared and submitted funding request for FY16 Q1 and Q2.

Procurements status:

1. Received the DOE signoff on 4.5K Coldbox package. Procurement Clearance Request was sent to SLAC.
2. Warm Helium Compressor Bid Package best value evaluation was completed. We held the Cryoplant warm compressor procurement recommendation briefing with SLAC project management and DOE.
3. Submitted request to the project to release the production Gate Valves and HOM and field probe feedthrough procurements.
4. Plating contract placed for the cavity string beamline components. Final pCM copper plated beamline spool pieces and bellows were shipped by vendor.
5. RFI issued for closed chemistry tool.

Attended vendor site visit at SLAC on August 19th.

Received reworked cryomodule assembly tooling.

Completed interviews for an additional LCLS-II procurement position.

ESH - QA

Reviewed the QA requirements on the draft technical specification for the 2K cold compressor and the warm helium storage tanks.

The Acceptance Criteria Strategy (ACS) documents for the LCLSII Dressed Cavity have been fully signed off. A copy of the signed documents was sent to Mike Skonicki at SLAC. Draft ACS documents for the Cavity string bellows and spool pieces were created and are being reviewed internally. Work continues on the ACS documents for the other component procurements.

FNAL provided a copy of their internal procedure on parts receiving and inspection process. JLab staff is reviewing the procedure for comparison.

Teleconferences continue with FNAL to discuss FNAL parts and receiving procedure TD-2201 and the Multi-lab NCR communication flowchart. The flowchart needs to include the role of “acquisitioner” at FNAL, whose function is to take some of the administrative burdens off of the SOTRs when it comes to component procurements.

The draft LCLS-II QA Systems Collaboration paper is being reviewed for the upcoming SRF Conference in September.

Cryomodules

The first VQ cavity (AES023) was shipped to RI, along with one set of testing hardware.

The second VQ cavity (AES025) was successfully baseline tested and was shipped to Zanon, along with one set of testing hardware.

The third and fourth VQ cavities (RI023, AES014) are being prepared for baseline testing.

JLab has eight cavities on-site - AES029, 030, 031, 032, 033, 034, 035 and 036. Considering corrections for testing hardware, four cavities are qualified for string assembly – AES030, 032, 033, 034. AES036 test was aborted due to field emission and rescheduled for testing September 1.

Received two cold couplers from Cornell and began receipt inspection. These couplers showed signs of oxidation on the inner conductor and are under evaluation for use in the prototype string. This issue is being resolved with SLAC.

Continuing with preparations for HTB testing of AES033. Cavity/HV assembly is installed in space frame. Cold mass was installed in vacuum vessel. Instrumentation and cabling was installed. Tooling for warm coupler installation was completed. Cold coupler was installed. HTB was installed in CMTF. Warm coupler was installed. HTB was cooled down and RF testing will begin Wednesday, September 2.

SSA water connections are completed. Hook-up of electrical service and integrating PSS connections is on-going, and expected to be operational Wednesday, September 2.

JLab Alignment Group is making plans to install monuments for prototype string alignment activities.

Plans for installation of CM tooling are continuing including procurement and layout of anchors. Balance of CM assembly tooling arrived from vendor. Plans for installation are ongoing.

Three cu-plated bellows assemblies were received by FNAL.

The first batch of cavity string bellows (specifically spool pieces) needed for string assembly were plated at the vendor and were shipped to and received at JLab. Two sets of spools were shipped to FNAL.

Submitted requests for authorization to proceed with production procurements for gate vales and HOM and field probe feedthroughs.

Participated in Cryogenic Systems Modeling Meeting held at JLab with SLAC, FNAL, Cryo consultant and JLab for integrated system process modeling, August 11-13.

Cryoplant

The LCLS-II 4.5K Cold Box Procurement Clearance Request (PCR) was submitted to SLAC for approval on Wednesday, Aug 5, 2015, and is in the final stage of award. A planned vendor visit to SLAC for onsite condition discussion was conducted August 19-20th.

Modification of the Cryoplant Functional Requirements Document LCLSII-4.8-FR-0244 was completed and submitted to project for approval.

Review of the SLAC documentation “Cryogenic Systems Integrations,” LCLSII-4.1-FR-0327 was completed and approved.

A draft version of the 2K cold compressors (JLab 79222-S001) and helium gas storage vessels (JLab 79729-S001) procurement specifications were released for comment. Comments were received and are in the process of being incorporated into the procurement specification.

Work developing documentation for the warm helium compressor procurement recommendation was completed and a presentation was made to JLab project management on August 25. A presentation was made to SLAC project management on August 27 followed by a DOE presentation on August 28.

Two contract designers were added to the design team. Initial work will include the compressor room warm helium piping design.

An Integrated Cryogenic System Process Modeling Review hosted by JLab, was held Aug 11-13th. Topics include the technical integration between the cryoplant, cryogenic distribution system and cryomodules. Technical responses to action items were developed and submitted.

A second Integrated Cryogenic Plant Infrastructure Review, hosted by JLab, was held August 18th. Topics included the technical integration between the cryogenic plant and civil design of the cryogenic plant building utilities and equipment layout.

Weekly meetings with SLAC Infrastructure continued for planning the new larger cryoplant building for the first and second cryogenic plant. Topics included electrical power and cooling water, equipment layout and work clearances.

Cryo-distribution

No effort at Jefferson Lab.

LLRF

Stepper Motor Board: The stepper board is complete and has been sent for review. The ISD is in draft and been assigned a number.

Interlocks Board: William has completed the schematic for arc & IR board and he will get started on the pcb. Rama is working with him on the FMC to custom breakout board.

Common Power Supply: Sent out potential power supplies. Working on rear connector and filter panel design for the chassis. Revising supply specifications to support the LO distribution and the upconverter.

CMTF: SSA has been placed above the CMTF, and waveguide was installed to it. Electricians are working on the 208 VAC extension cord. A plan for the LCW system for both the SSA and isolator is being implemented. The EPICS control interface is expected to be complete by the end of August.

RF Chassis: A field control chassis is being upgraded to operate at 1300 Mhz.