

PROJECT PROGRESS SUMMARY

April 30, 1991

CEBAF Flash Report #16: CEBAF Front End Test Reaches 25 MeV

At 4:21 p.m. on April 25, 1991, an electron beam at 5 MeV was accelerated through a superconducting eight-cavity cryomodule in the CEBAF tunnel, reaching 25 MeV, the design energy for this portion of the injector.

Detailed measurements are being made of electron beam properties as the test's 25-MeV phase continues. With the addition later of a second cryomodule, the test will proceed to 45 MeV, the full injection energy.

FET Operations

- Four shifts of operation were performed this period. The other days were devoted to RF and software checkout.
- Operation which was previously hampered by microphonics improved significantly with the addition of sand to the W5 penetration. Further reductions are desirable and are being addressed.
- Two initial runs in the week with four cryomodule cavities powered paved the way for successful achievement of 25 MeV on Thursday. Pulses at 80 microamps and 10 microsecond duration were run at 120 Hz. All cavities were powered and the software and RF control behaved reasonably well.
- The run was repeated on Friday with greater than 25 MeV achieved at similar beam conditions. Fine tuning of warm section phases resulted in more stable performance and small energy spreads, no more than 0.3%. Detailed measurements await CW beam.

WBS 1

- The tunnel modules (travellers #2 and #5) were successfully used in the front end test to reach 25 MeV on Thursday.
- The end can leak tests went fine last week at Koch. The first set is expected to be shipped this week. Delivery rate is expected at two sets per month.
- The pair with the leak at the elbow flange had the HOM load replaced and tested fine last Friday. A cavity pair with the solid window frame will be turned over to the cryo unit assembly area today. A pair with the old window frame tested fine last week and will be removed from the test stand today. Another pair with the solid window frame will be tested this Thursday. Chemistry and assembly will begin on a new pair Thursday.
- The alignment for cryomodule (traveller #6) was finished last week, the shield was cooled over the weekend, and primary cooling will begin today for the test cave testing this week.
- Two cryo units are complete for the next cryomodule (traveller #7) assembly.
- Two solid frame rf windows are completed and ready for turnover to the cavity group, and two are ready except for final flange finishing. Electron-beam welded six brazed windows; the welding procedures have been improved.
- Four heated loads need flange polishing and then they can be turned over to the cavity group.
- Testing continues in the unheated HOM load material search. Various concentrations of AlN-Mo samples have been received. Two furnace runs from Ceradyne should be finished next week.
- Tested a new version of the high-Q-cavity testing software. It measures Q_L versus field and works well.

WBS 2

Magnets:

- The change request (#211) for the value engineering of the spreader/recombiner and dogleg dipoles to reduce their cost was submitted to and passed by the Associate Project Managers. It is being sent to the Department of Energy for final approval.

Stands:

- The first set of tops and bases for the east arc, the stand washer sets, and the remaining batch of the quadrupole stands were received.

Build and commission CEBAF safely, within cost and on schedule to meet performance objectives.

- The first production stands for the quadrupole girders of the east arc were mounted for a final check of their design before the remainder are installed under contract.

Vacuum:

- The drawings and specifications for the connection pipes between magnets in the west arc were signed.

System Integration:

- The conventional construction base drawing (28401-E-000701) and the element drawing (28401-E-000702) of the latter part of the north linac and the first spreader were completed and submitted to Project Management for the approval signature process.

WBS 3

RF Power:

- Four additional HPAs arrived from ETM, bringing the total to 18.
- We have started winding the power supply fault current limiting line reactors at the CEBAF machine shop. We will make ten sets total.

Fabrication:

- Fifty klystron overload boards on order; expect delivery 13 May.
- Received 345 video boards from Technicircuits. No quality problems were detected. Starting to stuff and test.

WBS 4 - First north linac trim rack installed.

WBS 5

- Fabrication of 20 camera shields has begun.
- All quartz recessed viewports (68) have been received from vendor.

WBS 6 - No report received.

WBS 7

- The installation of the return transfer line in the injector area has been initiated. Welding on the 2-K circuit is progressing.
- Leak checks on the southeast supply transfer line and the return header to the 2-K cold box are in their final stages.

WBS 8

- The dome subcontractor continued erecting shoring in Hall A in preparation for constructing the concrete domes. This activity is now about 25% complete.
- Continued placing first- and second-lift concrete wall sections in Hall B.
- Continued placing second- and final-lift wall sections in Hall C.
- The walls for truck access tunnel C are complete. The roof is 20% complete.
- Placed 80% of the floor slab for truck access tunnel B and started forming the walls.

Computer Center

- All VAX computers (CEBAF1/2/5/6/7/8, CVS001-8) will be shut down for the entire weekend of May 17th starting at 3:00 p.m. Friday to upgrade the operating system.
- There is a new color thermal-wax printer in the Computer Center. The printer supports postscript and HPGL format and can be used from CEBAF1/2/4/5/6/7 and from Macintoshes.

Support Services

Stockroom:

- Received new style "easy adjust" hard hats.
- Delivered five arc detector and three IR amplifier kits to WBS 3.

External Fabrication:

- Received 400 cable tray dividers from vendor for WBS 4.

Document Control:

- New direct-imaging high-speed plotter is being tested for compatibility with the various CEBAF CAD systems.
- Microfilm printer/reader has been installed. Card system is being assembled.