

# Project Progress Summary

30 October 1990

## Injector and Front End Test

- Electron beam was run for the first time in the tunnel: 100 kV on the warm girder. Beam steering magnets and aperture amplifiers were installed. Gun HVPS (high-voltage power supply) was reassembled with new switching and run for the first time from the MCC. Initial checkout of local radiation monitoring was successful. Work will continue in debugging and verifying proper controls.
- RF power was successfully run from capture HPA to dummy load in tunnel.
- Stand for 5 MeV chicane was installed.
- Software is now to the state that Superlan has been run for the first time in CHL to connect control and monitoring of CHL signals to the MCC.
- Cryounit and cryomodule hookups have been checked out.
- Ring pump in W5 service building has been checked out. Debugging booster pump operation is under way.
- 500-keV analysis beam line installed.
- Main beam line complete to entrance of 5-MeV chicane.
- Vacuum hookup to first cryomodule under way.
- 100-keV DC beam run from gun to exit of capture section with only minor difficulties.
- Support for 5-MeV chicane in place. Installation of vacuum and magnets this week.

## WBS 1

- Retested IA015/IA015 cavity pair and it passed. The highest field gradient ever achieved in a five-cell cavity with couplers was reached on one cavity: 16.9 MV/m! It also showed Q's above the design value all the way to the peak gradient.
- The new VAT gate valves were tested on CE005 cavity. No degradation was seen. Currently testing with various cooldown conditions.
- Expect twelve Interatom cavities to arrive this week.
- Two setups for pair testing are nearly completed.
- The production chem room was checked out (using water) on Saturday; a few bugs need to be worked out.
- Received eight waveguides from Calorstat. One pair was installed on the cryomodule along with the bridging components. The cryomodule will go into the test cave next week.
- Two cavity pairs for the next cryomodule have had their tuners installed.
- The quarter-cryomodule is fully connected in the tunnel. The full cryomodule is connected to the dummy cryomodule (essentially a beam pipe that precisely spans the space to be occupied by the second injector cryomodule) and to the differential pump.
- The tuner contract has been placed with McSwain at a cost very close to the estimate.
- Successfully brazed 170 of 171 HOM loads, bringing the total to 294.
- Six RF windows have been successfully repaired, coated, and thermally cycled. Three have been RF tested and delivered. Another six windows are in the fixture to be electron-beam welded.

## WBS 2

### FET:

- Installation of the water hookup to the magnetic elements started.

### Stands:

- The bids for all cartridges and for the tops and bottoms for stands were received and evaluation started.

### Vacuum:

- A simplified geometry for the quadrupole girder end configurations was resolved.

### System Integration:

- Composition of the song sheets for the east spreader and recombiner started.

### Survey and Alignment:

- As part of the routine effort to monitor movement of the tunnel, the October survey revealed that since July the injector leg of the tunnel has sloped to a maximum of 1.5 mm over a 70-m distance. The north linac portion remained stable within measurement error.

## WBS 3

### General:

- Met with Jacques Millard from LBL on Friday. He advises that the CAD software conversion to UNIX is almost complete. We should be up and running under the new system by the new year. He reports that HP is very unsure as to how long they will support the EGS system. Currently the product has been taken over by the mechanical engineering group, but they don't really want to maintain it. LBL has about \$5 million invested in EGS, and they are thinking of possibly buying the software outright from HP and maintaining it long term.

### RF Controls:

- All control boards have been tested in the backplane, and all interfaces are correct and work properly.
- Four PST 2.5-W amplifiers shipped the 24th. They have the K. Mahoney stabilization circuit and are reported to work well.
- Arc and IR detector boards are here. Rick Slater is making up kits to stuff them.
- Golden Assembly delivered the completed buffer boards. They are ready for testing.

### RF Power:

- Started installation and checkout of the capture section HPA.
- Now have sixty klystrons from Varian. From now on testing will be by sample method, in accordance with the klystron test plan.
- Ferrite Components has developed a modification for the circulator to provide higher isolation at full power. After we complete power testing, FCI will come to CEBAF and modify our remaining units.

## WBS 4

- Received two Rev. C trim system regulator boards and started checkout and debugging.
- Received EMI bulk power supply back from warranty repair at vendor. We now have two bulk power supplies on hand for continued trim system testing.

- Shunt regulator circuit board is being laid out.

### WBS 5

#### Safety:

- Monitor computer installed and screens built.
- ODH on line; final cables for ODH readout installed.
- Cables being run for R/S boxes; key switches due today (final parts).

#### General Controls:

- SLAN installed and undergoing tests (interconnected injector, safety, and CHL).

#### Beam Diagnostics:

- Camera systems operated from MCC.
- 1500-MHz monitors being installed.
- Six 100-MHz BPM electronic chassis complete. Fifteen coherent detector boards being stuffed and tested.

### WBS 7

- CHL utilities are now sufficiently operational to start compressor acceptance test.
- CTF is off this week for modification for upgrades.

### WBS 8

#### Accelerator Enclosure:

- Continued work on the south linac service and west arc service and exit stair buildings.
- Site grading and seeding are essentially complete.
- Monday, 29 October, was the official BOD for
  - east arc service buildings (E1, E2, E3, E4),
  - exit stair buildings 2 and 3, and
  - tunnel between exit stair 1 and exit stair 3.

#### End Stations:

- Continued repair work on beam tunnels A and C.
- Completed the structural concrete walls and roof in beam dump A.
- Beam dump C structural concrete walls and roof being placed this week.
- Completed south quadrant, Hall C floor slab. Entire floor slab should be completed this week.
- Continued waterproofing the counting house.

#### EEL Building:

- The subcontractor continued working on punch list items. BOD was planned to be today.

### Systems Integration and Installation

- ODH exclusion gate installation began Monday in the north linac.
- Arc detector schematic has been approved and will be issued this week.
- Location adjustments for LCW lines in the north linac and injector have been resolved, and WBS 8 work is proceeding.
- THE INJECTOR TUNNEL AND SERVICE BUILDING ARE SCHEDULED TO BECOME A CLASS 1 ODH AREA ON 7 NOVEMBER AT 5 P.M.

## Accelerator Division Support Services

### Machine Shop:

- EEL floor preparation scheduled for week of 1 November; move scheduled for week of 5 November.
- Two of the four HOM filter brackets have been fabricated (WBS 3).
- Began fabrication of main drive line prototypes (WBS 3).
- Eight BD magnets reworked and eighteen remain (WBS 2).

### Stockroom:

- Delivered twelve I/R detector boards (WBS 3).

### External Fabrication:

- Modified HOM filter support bracket drawing and initiated the fabrication of four units in the CEBAF machine shop (WBS 3).
- A mechanical technician is on board to support FET mechanical installation tasks.
- Ordered material and fittings to install temporary water system for 25-W amplifier testing (WBS 3).

## Safety Training

The first broad safety training session is scheduled for 7 November in the CEBAF Center auditorium. This is the last chance to get ODH training before the injector area becomes an ODH classified area!

Topics and times for the November 7 training session:

8:30-9:25

Radiation Protection

9:30-10:25

Emergency Management and Hazard Communication

10:30-11:10

Oxygen Deficiency Hazard (ODH)

11:15-noon

Lock and Tag Procedures

For further details, consult the Personnel Office's yellow flyer called "Training Activities for October & November 1990."

## Scientific/Technical Education

- Next CEBAF Science Series interactive presentation for science-minded students (and all others interested): Thursday, 8 November, 7 p.m. Warren Buck will cover *Quarks and Complexities in the Atom's Nucleus*.
- For a special professional activity CEBAF will sponsor next week for area math teachers, examples of typical math problems encountered routinely at CEBAF are being collected. The teachers will use the problems to show high school students how math connects with the world of work. Suggestions welcomed, appreciated, and destined for good use in local classrooms. Please send them in writing to Steve Corneliussen in Project Management.