

PROJECT PROGRESS SUMMARY

February 5, 1991

Message from the Director

CEBAF is recognized as a very successful project and laboratory, due to the caliber, commitment, and enthusiasm of the staff. You make our achievements and progress possible! Let's continue to get our job done safely and right (QA), and continue to pay attention to housekeeping in all work areas. You are the most impressive team I have had the pleasure to lead. Thanks!

Jermain Gruder

Multidisciplinary Appraisal

DOE Oak Ridge Operations (ORO) completed its EH&S and QA appraisal of CEBAF on 1 February 1991. Grover Smithwick, DOE/ORO Deputy Manager, and Rod Nelson, DOE/ORO Assistant Manager for Environment, Safety, and Quality, attended the closeout. Margaret Wilson summarized the findings, which are being compiled into a final report during the next 30 days.

The first week, there were no Priority I (most serious) findings, eight Priority II, and three Priority III findings as reported in last week's *Project Progress Summary*. (The eighth Priority II finding was inadvertently omitted. It was that internal safety program appraisals are not being conducted by divisions.)

The second week fifteen additional Priority II and nine additional Priority III findings were reported in the areas of health physics, environment (clean air, clean water, groundwater, hazardous waste, and environmental quality assurance), and quality assurance. Priority II findings addressed (1) imprecise dates on hazardous waste labels; (2) lack of a QA program for the ES&H group; (3) insufficient specificity in environmental QA/QC program; (4) lack of documentation of training program and requirements for environmental monitoring and hydrogeology; (5) lack of formal internal audit programs in environmental protection; (6) lack of a documented groundwater protection management program; (7) lack of a testing program to document effectiveness of radiation safety; (8) omission of skin, extremity, and organ radiation dose limits in the Preliminary Radiation Safety Manual; (9) lack of a formalized health physics internal audit program; (10) lack of formal environmental radiation monitoring program; (11) omission of some requirements in CEBAF Quality Assurance (QA) Manual; (12) Undefined policies for design requirements, procedures, and "as-built" documentation; (13) omission of acceptance criteria and special handling procedures from some Specific Quality Assurance Plans (SQAPS); (14) lack of documentation for final evaluation and acceptance; (15) lack of formal documentation of some ongoing QA activities. Priority III findings covered (1) deficiencies in waste storage practices; (2) certification for future asbestos work; (3) inadequate hydrogeological characterization; (4) groundwater monitoring well security and labeling; (5) unsubstantiated groundwater seepage rate estimates; (6) inadequate control of radiation safety procedures/records (illegible signatures; pencil, red or blue ink; verification that recipients received and understand changes); (7) lack of regular, documented meeting frequency for Radiation Review Panel; (8) insufficient traceability for health physics trainees; (9) lack of defined and documented method for prebriefing health physics auditors.

QUALITY ASSURANCE BULLETIN:

Substandard and Counterfeit Parts

Several DOE labs, as well as DOD, NASA, and NRC facilities, have received substandard and counterfeit parts which were installed and put in service before their unsatisfactory characteristics were discovered. In the case of counterfeit bolts, the head

markings on the bolts indicated the bolts were a specific grade. Chemical analysis and destructive testing proved the bolts did not meet specification. DOE has investigated these incidents, and a copy of the report file is in the library under the title "Counterfeit Parts."

The lesson to be learned is to be alert and suspicious when you inspect purchased material, realizing that there are unscrupulous companies and individuals trying to take advantage of a trusting public.

If you have problems in this regard, please contact your Division Quality Assurance Officer or Tom Hassler.

WBS 1

- The rotary tilt positioner for the electron beam welder passed its acceptance test last week. John Brawley electron-beam welded 6 RF windows.
- Linwood Williams continues to electron-beam weld elbows for cavity pair parts. Eight have been done.
- Assembled two cavity pairs last week; they will be tested this week. Four cavities are prepared for assembly. One-hundred fifty transmission probes were electron-beam welded last Wednesday in Connecticut.
- The January delivery of Interatom cavities arrived last week. This brings the total to 82 cavities on site.
- The HOM flange repairs have been made and cryounits are being assembled and moved to the cryomodule assembly area. The end can shipment is expected 1 March; John Robb has gone to Koch to do a first-article inspection this week, prior to further assembly.
- Fifteen HOM loads have been tested using the diodes and resistors, and they show no leaks.
- The six windows welded last week have been cycled and leak checked. One was rejected for a chip in the corner. Six more windows were electron-beam welded over the weekend and need to be finished. Twelve brazed windows await welding.

WBS 2

Magnets:

- Nine more one-meter arc dipoles were received for a total of thirty-three on hand out of the fifty required.
- We have formulated our methods to simplify and reduce the cost of the Spreader/Recombiner Dipoles, whose procurement was cancelled due to high cost. The change request is being prepared that will (1) allow a less costly method of steel preparation, (2) reduce the number of steel cores from eighteen to eleven, (3) reduce types of coils from fourteen to eight and, (4) substitute two "H" style magnet types for several "C" types to more easily obtain the stringent gap tolerances of large poles.
- A successful test was completed of a commercially available impulse tester that can detect shorted turns in coils even while mounted in an iron yoke. Requirements of tests by this device will be written into the fabrication specifications applied to vendors who build quadrupoles. This test ended specification development and permits final sign-off.

Stands:

- The first article inspection of the stands for the arc quadrupole girders was performed revealing that, contrary to specification, the vendor was welding after machining. While the stands passed general inspection, the method change has placed a hold on authorization for further production. Negotiations with the vendor has led them to guarantee full compliance with the tolerances on our drawings by performing a one hundred percent inspection.

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

Cooling Water System - Low Conductivity Water (LCW):

- The water lines for all devices requiring cooling in the injector were attached to the LCW system and commissioned.

WBS 3

RF Separator:

- The design is complete for a simple "proof of principal" RF separator cold test model resonator. We will fabricate the resonator from sheet material in CEBAF shops. It should be ready for testing in two weeks.
- The first few RF control modules are running in the injector front end. There appear to be no serious problems, but there is a lot more software yet to be written before they will function with all features operational.
- LVDT readout board production order was awarded to Eastern Manufacturing, Inc. We expect them to produce the required forty-four boards in about two to three weeks.

RF Power:

- HOM filters shipped by Gamma Microwave now total fifty-six. They seem to be back on schedule and running smoothly.
- Ferrite Components, Inc. has shipped a total of 147 circulators. They are running a little behind schedule, but we foresee no overall schedule impact. (Units for the next five HPAs are already on hand at ETM).
- Circulators and couplers are now being shipped directly to ETM in California for installation into the HPA cabinets. The next HPAs we receive will have all waveguide pieces fully assembled.

WBS 4

- Received an additional 2000 feet of 500 MCM copper cable for ground system.
- Completed first round bid evaluations for box power supply solicitation. Started writing summary.
- Continued to work with EMI, Inc. concerning bulk power supplies which are failing acceptance test. Shipped seven power supplies last week and will ship back at least six during the week of 4 February.
- Tested first article Rev. C trim regulator board. Found minor problem with pad clearance, which is being resolved with vendor.
- Solicitation for thirty-two channel CAMAC scanner card was put "on the street."

WBS 5

Controls:

- GPIB crate controller received schematics from LLNL. The procurement of modules will begin this week.

Diagnostics:

- The procurement of electronics for the north linac BPMs has begun.
- Cable for the north linac run safe boxes have been pulled.

Safety:

- Three BLM high voltage power supplies and 114 photomultiplier tubes have been ordered.
- Cables for the north linac run safe boxes have been pulled.
- Conduits for south linac ODH system trunk cables have been installed.

WBS 6 - No report received.

WBS 7

- CHL 4K system has been vacuum pumped and is ready for circulation of GHe. Some minor tasks must be completed prior to start-up.
- The FET piping has also been vacuum pumped and is ready for circulation. Circulation should be initiated the week of 4 February 1991.

- L'Air Liquide engineers are scheduled to arrive on 7 February. They will install the turbines and CEBAF/CVI/LAL will initiate cooldown to 4K incorporating the entire system required for the FET.
- Four standard sections of transfer line are in the south linac and are being prepared for installation.
- Work on the south linac supply tee is also in progress.
- Final leak check on the 10,000 liter dewar is continuing. Due to a leaking rupture disc, water was introduced to the system and it appears that we are pumping water at 4.8 torr.

WBS 8

Accelerator Enclosure:

- Continued correcting punch list items; 99% of the original list has been corrected.

End Stations:

- Continued backfilling beam lines A and C and around the counting house as weather permitted.
- Continued placing concrete walls in Hall A. Three sections are complete to elevation 45.5'.
- Continued placing concrete walls in Hall C. Eight sections are complete to elevation 24.5'.
- Started constructing the concrete slab for truck access tunnel A.

Design Document Control

Design documents obtained from outside sources containing "copyright" or "proprietary" require special attention. Before copying or disseminating such documents, a written waiver must be obtained from the supplier to avoid legal ramifications.

Accelerator Division Support Services

Stockroom:

- Withdrawal activity for the week: \$58,109.35
- Total month expenditures: \$739,530.75!!
- Completed inventory of WBS 3 material at Bluecrab.

External Fabrication:

- Delivered six recirculator precision magnet mount assemblies to CEBAF machine shop.
- Beam viewer parts for WBS 5 will be awarded next week for 125 assemblies.
- Forty-seven assemblies of the $\pm 12V$ and $+ 5V$ DC power supply were awarded 31 January (WBS 4).

Training

- A new training bulletin covering February and March has been distributed. Some of the courses it details are:

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|--------------------------------|----------------------------------|
| CEBAF Safety Orientation | 6 February (repeated on 6 March) |
| Radiation Protection | 8:30 - 9:25 |
| Emergency Mgmt. & Hazard Comm. | 9:30 - 10:25 |
| ODH | 10:30 - 11:10 |
| Lock and Tag | 11:15 - noon |
| Procurement User Orientation | 20 February, 9:00 - 11:00 |
| Sole Source Procurement | 22 March, 9:00 - 10:30 |
| Forklift Certification | 12 February, 8:30 - 10:30 |
| Crane Operator | 14 February, 8:30 - 10:30 |
| Basic Radiological Health | 11 February, 8:30 - 11:30 |
| ME CAD System Update | 25 February, 9:30 - 11:30 |