

Accelerator Division EH&S Highlights October 2002

Material Handling Initiatives

- Jlab Material Handling Safety Representative (MHSR), Manny Nevarez, assisted Hall C with a new jib crane installation for the beam dump area. This device is a factory design, with a Jlab upgraded support bracket (from 10" x 10" to 30" x 30" x 2"). It was load tested successfully.
- The MHSR also assisted the FEL with the design and installation of a new lifting system for the gun area that encompassed attaching a one ton chain fall to an 8" I beam using a 5 ton beam clamp. Suresh Chandra did the engineering analysis and the load testing was successful.
- Lastly, the MHSR is assisting with the design of the SNS CM lifting fixture.

1 MW Stop Work Investigation

A stop work was initiated in the 1 MW Test Stand area due to a worker, involved in heat controller fabrication, was observed testing equipment without adequate protections in place. An investigation was initiated and a draft report has been distributed for management review. Investigation results will be summarized in the November 2002 highlights.

OSHA Fall Protection Training

Several EH&S Department staff attended OSHA fall protection training in Virginia Beach. There were two key issues raised in the training:

1. The OSHA instructor identified 3 components of a good safety program:
 - Development
 - Implementation
 - Commitment

These 3 components tie in well with our Jlab philosophy of line management integration of safety. The instructor emphasized that the commitment component is most important, and that it is essential that the front line supervisors are key players in ensuring commitment to the safety program.

Creativity in finding suitable tie-offs: OSHA requires that a tie-off be able to withstand 5000 lbs per person tied off. This can be difficult in unusual work areas, such as areas behind magnets, on roofs, etc. In the Test Lab, it is feasible to use the crane hook as a tie-off. HOWEVER, the crane must be locked out by the worker using the hook as a tie-off. This practice is also of value in the Experimental Halls, where the crane hook may be the only available tie-off point.

Scaffold Incident Outside the Test Lab

A worker was found on scaffolding outside the Test Lab in early October. The scaffold, which is required to be inspected at a minimum each time it is erected, had an outdated inspection check sheet from 2001. The responsible management quickly intervened and corrected the problem.

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Respirator Approval and Use

Non-approved respirators were found in the Test Lab addition last week. It's a not well-understood fact that OSHA strictly regulates respirator use in the workplace. Only NIOSH approved respirators may be used, even if the respirator is used for nuisance dust. So, why are unapproved respirators sold at Home Depot, etc.? Because they are intended for home use.

All respirators used at Jlab must be received through the Safety Lab. This "bottleneck" is of value for several reasons:

- IH staff can review the respirator application to ensure that a disposable mask provides adequate protection for the worker
- A NIOSH approved respirator is provided with training on proper use
- A medical respirator approval is scheduled if needed



Clues for determining if respirator is not NIOSH approved:

1. Only 1 elastic strap: NIOSH disposables have 2 straps: 1 above ear, 1 below the ear
2. NIOSH approval number will be on the respirator or packaging. (Enlarge here to read fine print that says this is not a NIOSH approved respirator)

Injector Test Cave Partitioning

TOSP was signed off for the Injector Test Cave: allowing for the operation of the south side of the cave independent of the north side. The principal scientist is Marcy Stutzman.

Department of Energy Laboratory Accreditation Program (DOELAP)

A DOELAP review will occur November 19-20, 2002. We are required by law (10CFR835) to have a DOELAP approved dosimetry program, including performance assessment and review of our program every two years.

FEL Support

PSS certification completed for new CARM configuration (RF interlock). A TOSP for the FEL was signed which allows them to run the gun and/or cryomodules without shield blocks on the truck ramp. Compensatory measures include interlocked radiation probes at the truck ramp door and postings at the top of the truck ramp, as well as both gun drop and RF drop in case radiation levels approach 100 mrem/hr.

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VTA Upgrade

Installation is complete with exception of 3 RF switchboxes, which are not required for production tests. Punch list items are being resolved. Four VTA personnel are trained on PSS operation. All documentation is completed and signed.

Accident Statistical Analysis

Scott Schwahn developed a tool to analyze accidents over the past 10 years in an interactive fashion. Available data can provide overviews of years, months, types of accidents (e.g., hands, backs, etc.), subtype (e.g., contusions, fractures, burns, etc.), Lab Division, lost days, and restricted days, all weighted by 100 FTE. Scott prepared a Tech Note on the process.

External Regulation Consultation

Two contractors were on site for about four days during the first two weeks in October. They reviewed our current practices and procedures, and evaluated our facilities and programs for infrastructure needed to move under external regulation by OSHA and the NRC.

High dose rate events in the Hall A

High dose rate events occurred in the Hall A on Friday, Oct 4, and on Saturday, Oct 5th. The events resulted in dump protection ion chambers terminating beam in excess of about 1 μ A. Evidently misalignment of the Hall A target ladder created elevated radiation levels in the hall that were sensed by the high range ion chambers. It is interesting to note the elevated airborne radiation levels and elevated site boundary dose associated with this event. Attempts to exceed about a microamp were followed by off scale ion chamber readings, elevated readings on the Hall A dome CARM, elevated readings at Radiation Boundary Monitor 3 (adjacent to Hall C), and an increase in airborne radioactivity readings in Hall A. Activation in Hall A target area has increased sharply. In the twelve hours from midnight 10/8 to noon of the same day, residual radiation levels increased from a maximum of 100 mrem/hr on contact to 4 R/hr in the same area. It is now a High Radiation Area near the target chamber. Keith Welch is collecting data in Hall A to relate airborne radioactivity production to the buildup of contamination in certain areas.

Instrumentation, Calibration and Repair Diagnostics

Pavel completed the write-up for an invention disclosure (Degtiarenko and Dotson) describing a new robust and sensitive beam position monitor for use sensing beam position relative to the window on the beam dump face.

LOTO Event in VTA

At approximately 10:30 am Thursday, October 4, 2002, a contract employee connecting a relay control circuit for the Vertical Test Area (VTA) personnel safety system (PSS) found that an AC circuit appeared to be energized even after lock out/tag out of what was presumed to be the appropriate set of circuit breakers. The causes for this event were: 1) Jefferson Lab Management did not identify or provide equipment specific training on the special circumstances required for LOTO of the dewar 3, 7, and 8 magenta beacon AC power; 2) The SSG contract technician did not properly verify the presence/absence of

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voltage on the LOTO circuit until the work was already started; and, 3) The AC circuits for the manually enabled magenta beacons in the VTA were not properly installed, documented, or labeled. There were 5 corrective actions taken, all of which were completed within a week of the event. The full report can be viewed online at http://docushare.jlab.org/Get/File-6393/VTA_Radiation_Alarm_Summary.doc.

EH&S Tracking System

System modifications made

- Added tailored data entry layouts for EH&S Inspections, Accidents/Incidents, and Assessments [includes line self assessments and independent assessments].
- Accidents/Incidents and Assessments records include hyperlinks to reports summarizing the events/reviews.
- Home Page now includes a graph depicting the total number of open action items for EH&S Inspections, Accidents/Incidents, and Assessments.

Training was given to the SRF group leaders on the tracking system functions and how to use it.

Administration Division Notes for EH&S Committee

For meeting of 11/1/2002

Facilities Management

(New title for Plant Engineering Department)

Chiller Project

A pre-performance meeting with the subcontractor, Webb Technologies, was held 10/17/02. Discussions included EH&S issues and implications. Webb has worked at JLab extensively in the past, though not on this scale. This project entails replacement of the chiller equipment in the Test Lab basement and installation of chilled water piping to accelerator-site service buildings. Safety training of ~30 subcontractor personnel is scheduled for the week of 11/4/02. (Project Manager, Debra Brand)

ARC

HF Training

Several universities' laboratories in the ARC use hydrofluoric acid. Though the quantities are small by JLab standards, and it's handled under fume hoods, the acute toxicity of HF makes it essential that people who use it or are potentially exposed to it know its hazards and emergency procedures in the event of exposure. Melissa Mills determined that there was interest in having Medical Services conduct a slightly modified version of the HF training provided to JLab staff, and she coordinated the session. The event was well-attended, including representatives from ODU's campus EH&S department.

Risk Management

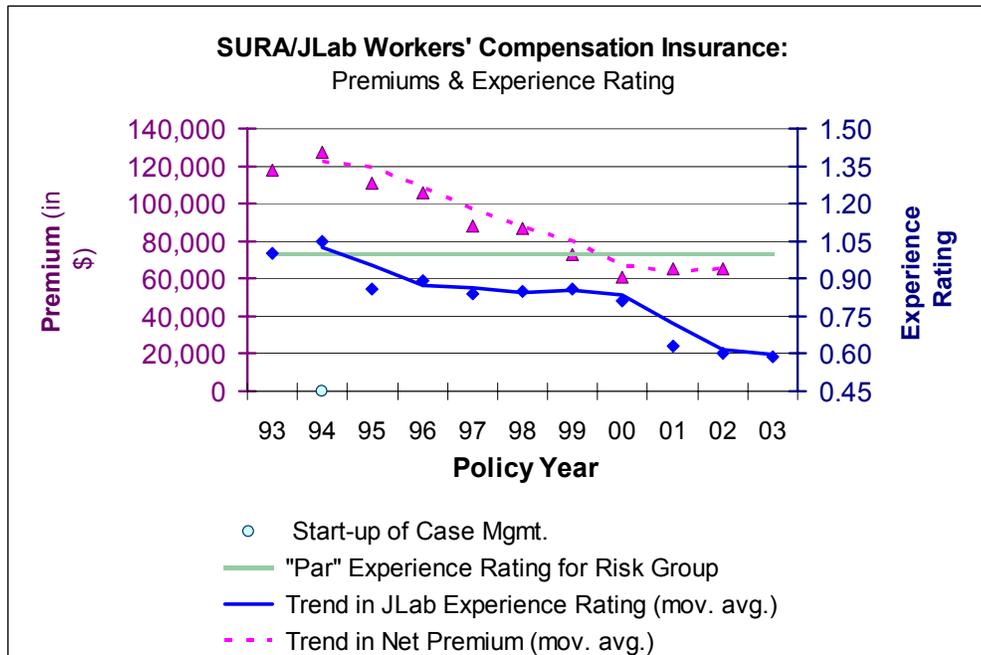
Loss-Control Site Visit

On October 31, a loss-control representative from JLab's primary insurance carrier (RoyalSunalliance) was on site for our more-or-less annual check-up visit. The representative, Gerald Honeyblue, had not been to JLab before, and knew little about us prior to his visit (and some advance reading on our website). The timing of his visit suggests that he was also conducting some "surveillance" on behalf of the underwriter in advance of policy renewal.

Nonetheless, he indicated a high level of satisfaction with our EH&S approach and results. He was impressed with the fact that EH&S metrics are part of our contract performance measures and the commitment from management that implies. From his vantage point, we understand our hazards, and we are getting good outcomes.

Experience Rating

Speaking of good outcomes, our Workers' Compensation experience rating (a premium multiplier factor) has decreased again – only slightly from 0.60 to 0.59, but decrease is the operative word. The lower this number is, the less our insurance premiums cost.



EH&S Training

Several electrical-safety training projects are underway. Two on-line Power Point options are now available. One is:

“Contractor Electrical Safety Orientation,”

http://www.jlab.org/div_dept/train/webbasedtraining.html

The other is an adaptation of a LLNL module: “High Voltage in R&D.”

[file:///M:/training/High Voltage/HighVoltage.html](file:///M:/training/High%20Voltage/HighVoltage.html)

A coordination group will soon meet to advise the EH&S Training Subcommittee and course developers on how best to add more content/topics and plan for transition to interactive media. There is a groundswell of interest and desire for relevant electrical safety training.

Emergency Management

Melissa Mills has been inspecting all of the emergency kits on site for complete and current contents. She has also been updating the Director’s Command Staff and Facility Manager’s emergency binders. In addition to normal changes in people, titles, and phone numbers, the recent changes in responsibilities for Emergency Management have ripple effects in a number of locations in the EH&S Manual and E.M. documentation.



EH&S Reporting Activities for October 2002

- As of October 31st, there have been [84](#) days without a lost-time injury. The Lab record is [455](#) consecutive days without a lost-time injury. There were no recordable injuries to JLab or contractor staff in October.
- EH&S Reporting provided an October 11th Core Managers' meeting briefing on injury reporting. Several 2002 JLab staff injuries were not promptly reported to supervision and Medical Services. Reminders on JLab injury reporting procedures were provided for use in the JLab "On Target" newsletter and On Target Briefs" publication.
- Jefferson Lab EH&S FY 2002 "Quality Performance in Environment, Health, and Safety" performance measure results with supporting text (see attached summary) were prepared in accordance with our Performance Based Contract, Appendix B. The FY 2002 EH&S point total of 89.8 is the lowest since JLab started performance measure tracking in FY 1996. The major cause for the EH&S reduction is the January 2002 Accelerator Division back injury. The FY 2002 EH&S point total would have been 97.4 without this injury that resulted in 219 lost or restricted workdays.
- EH&S Reporting is working with Plant Engineering to develop a program to standardize containers used for collecting trash and recyclable materials.
- **Occurrence Reporting**
 - The ORPS Final Report was prepared, approved by management, and submitted for the late July Test Lab event involving management concern over a missing Lockout/Tagout device. The DOE Site Office has approved the Final Report.
 - An October 4th Test Lab Vertical Test Area (VTA) "near miss" event was reported as an "Off Normal" (lowest of the three ORPS levels) occurrence. An Accelerator Division technician was upgrading the VTA Personnel Safety System (PSS) when supposedly deenergized wires had a small electrical arc. The worker did not receive an electrical shock. An Accelerator Division investigation of the event is being conducted.
- **DOE External Regulation**
 - Jefferson Lab external regulation activities continued to be coordinated by the Office of Assessment. October activities included extensive reviews of worker safety and radiation protection aspects. Outside SURA consultants visited Jefferson Lab in October to develop regulatory transition cost estimates. These cost estimates were requested by the Office of Science and are due in early November.

➤ **Work Smart Standards (WSS) Set**

- Proposed changes to the WSS Set are in various stages of review, including the proposed addition of a local terrorist response plan.
- EH&S Reporting is working with the Policy and Manuals Group to ensure new or modified hazards or standards become addressed appropriately in the EH&S Manual.

➤ **National Environmental Policy Act (NEPA)**

- 16 GeV and FEL Upgrade Environmental Assessment (EA)
 - The DOE Site Office is finalizing the team charter.
 - Proposed Action/Project Information Checklists are being prepared. The initial draft checklists for the CHL Facility Expansion and the new Shipping and Receiving/Warehouse Building are available for line management input.
- EH&S Reporting is working with other laboratory staff to address other NEPA items.

**Physics Division
EH&S Activities
October, 2002**

For the Month – Finalizing new installations, testing, commissioning new experimental apparatus, and beam readiness for the experimental equipment in the three experimental halls was a major division priority.

Experimental Readiness and Work Control Documents

Reference Jefferson Lab EH&S Manual Chapter 3120 – Experimental Review, and Chapter 3320 - Temporary Work Permits.

Two Experiment Readiness Certificates were prepared and issued for the run groups of new experiments: Hall A: E01-001 and Hall C: E00-006.

Also, an operational safety procedure, a temporary operational safety procedure and three standard operating procedures were prepared.

Inspections

Reference Jefferson Lab EH&S Manual Chapter 5100 - Internal Inspections.

Five scheduled formal inspections identified 12 new recordable action items. Since observed eight of the items have been closed. Division EH&S staff were accompanied on inspections of the experimental halls, physics storage building and experimental equipment laboratory by Office of Assessment Director, Jim Murphy. The division area safety wardens: Brian Kross and Mike Syptak, and Steve Wells participated in scheduled inspections of their area.