

Good Practice—Proactive Steps to Improve Safety

2

According to the National Institute for Occupational Safety and Health (NIOSH), construction workers experienced 135,350 injuries and illnesses in 2007 and had an incident rate of 190 per 10,000 workers. That Days Away, Restricted or Transferred (DART) rate of 1.9 can be compared to DOE's construction DART rate of 0.6. Within construction, contact with objects and equipment resulted in 35 percent of the injuries and illnesses. (<http://www.bls.gov/news.release/pdf/osh2.pdf>)

Recently, management at Thomas Jefferson National Accelerator Facility (Jefferson Lab), the Idaho National Laboratory Integrated Waste Treatment Unit (IWTU), and the Advanced Mixed Waste Treatment Plant (AMWTP) took a proactive approach to reducing the number of work-related injuries at their sites.

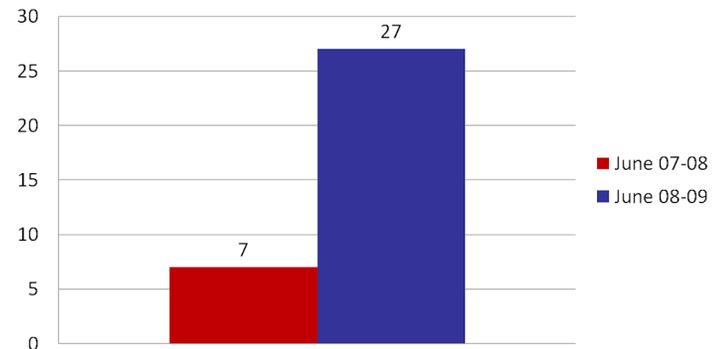
A June 24, 2009, submission to the DOE Lessons-Learned database described the management-initiated program at the Jefferson Lab that emphasized reporting all medically related events that occurred onsite. The intent of the program was to increase both the quality and quantity of usable site safety information to find out why injuries occur and what could be done to prevent them. (Lesson ID: JLab COE 274)

Using management meetings, site newsletters, and safety minutes at meetings with workers, management encouraged the reporting of all medically related events, regardless of their severity. The result was an almost 400 percent increase in reported events from the previous year.

Figure 2-1, taken from the Lessons-Learned submittal, shows that only 7 first-aid cases were reported between June 2007 and June 2008. However, in the year following initiation of the new reporting program (i.e., between June 2008 and June 2009), 27 such cases were reported. The information reported was a valuable tool for preventing additional (or more significant) injuries.

Figure 2-2, also taken from the Lessons-Learned submittal, shows the various types of injuries reported, with the preponderance being hand and finger injuries. The reported injuries resulted from activities such as moving equipment, pulling cable, using screwdrivers, and handling cut metal without gloves. Based on the results of this program, management provided each division with a breakdown of its individual events and appointed

Comparison of Reported Medical Events



- Significant increase in reporting year over year. Site feedback is that this is due to management reporting emphasis (Director news columns, Upper Management reinforcement at large meetings, site newsletters, etc.)
- Increased reporting helps to address problems before escalation.

Figure 2-1. Comparison of reported hand/finger injuries before and after Jefferson Lab program implementation

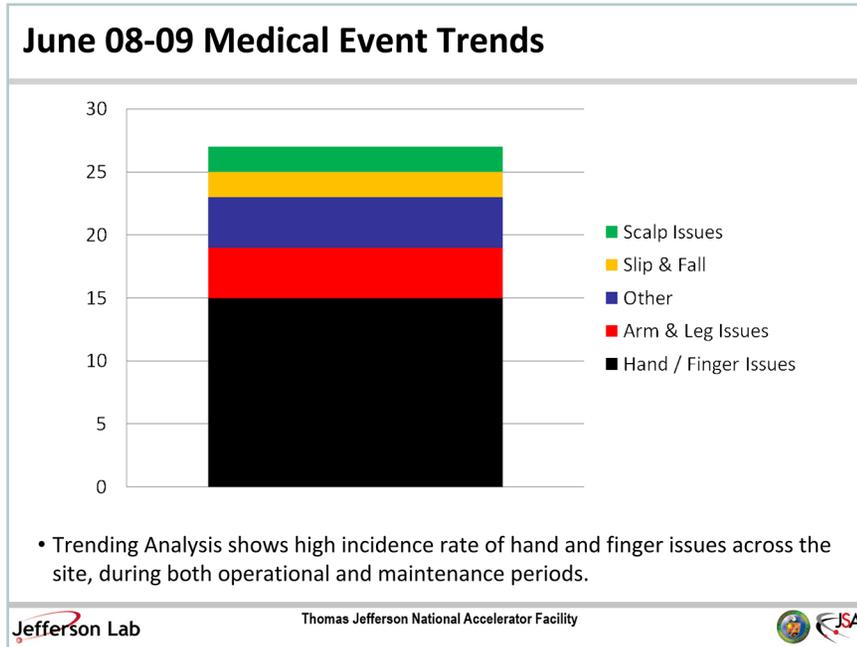


Figure 2-2. Number of reported injuries by injury type identified at the Jefferson Lab

Environment, Safety, Health and Quality (ESH&Q) liaisons to assist in determining the changes needed in work planning, task hazard analyses, and use of personal protective equipment (PPE).

Contractor management at IWTU also took a proactive approach to reversing an adverse safety trend. Based upon an adverse trend of first-aid and on-the-job injuries (non-ORPS-reportable) at the work site, the contractor called for a 24-hour safety stand-down on June 30, 2009.

About 190 craft workers (e.g., iron workers, carpenters, electricians, pipefitters) attended a 2-hour “safety pause” to discuss

the adverse safety trend and provide feedback on improving safety at the job site. Work at the site was then curtailed for the remainder of the day, and workers were sent home. When they returned to work on the following day, they attended an “All Hands Meeting” followed by tool box discussions about the contractor’s corrective action/safety plan to reinforce management’s safety expectations. In addition, an intensive housekeeping effort was undertaken to identify and eliminate all hazards in the workplace.

AMWTP contractor management also proactively called a safety “stand-up” on July 6, 2009, to help workers regain their safety focus after the July 4th holiday weekend. This has become a routine function after major holidays at AMWTP. During the “Safety and Conduct of Operations Briefing,” they discussed areas requiring additional safety focus, such as the following.

- “Big 4” Injuries — Slips/trips/falls, hand injuries, strains and sprains, and contusions
- Vehicle Safety — Speed, seat belts, fatigue, and unapproved terrain
- Heat Stress — Cell entries, sunburn, and dehydration
- Insect Stings and Snake Bites
- Lessons Learned from other DOE sites

Some threats to overall safety, along with suggested mitigating actions, were discussed at the AMWTP meeting, including the following.

- Distractions (individual focus)
- New Work Phase Startup (peer-to-peer focus)
- New Employees (ask questions)
- New Work Teams (step back if something is not understood/ does not feel right)



Good Conduct of Operations practices and Human Performance Improvement (HPI) techniques were emphasized during the stand-up, including HPI principles and tools to help anticipate and prevent active errors at the job site.

IWTU and AMWTP contractor management believe that the stand-down/stand-up and safety discussions with the various craft workers, as well as their feedback, will result in fewer accidents. In addition, taking a proactive approach to safety can result in monetary savings. For example, Jefferson Lab management estimated that at least \$1,000 per year would be saved through the avoidance of lost work time and the prevention of minor, first-aid-type accidents.

Worker feedback was the topic of a 2002 Lessons Learned, *Injuries Driven to Zero when Lessons Learned Roundtable Involves Workers*. (Lessons Learned ID: 2002-NV-NTSBN-035) A manager at the Nevada Test Site found that manager-to-worker communication was not very effective in reducing worker injuries because workers did not feel part of the process when information was presented “top-down.” The manager instituted a roundtable discussion of lessons learned at each weekly safety meeting. Each worker at the roundtable had an opportunity to discuss a lessons learned at home or at work that had occurred during the previous week. After including workers in these discussions, the manager saw the injury drop to zero for 8 consecutive months.

The July 22, 2009, *Safety Daily Advisor*, distributed by Business and Legal Reports (BLR), identified the following simple steps to involve employees in preventing workplace accidents.

1. **Ownership**—Give workers responsibility for such actions as planning and conducting inspections, analyzing their own data on work hazards, and developing safety checklists.

2. **Leadership**—Set an example by taking the same precautions, and wearing the same PPE, as you expect your workers to do. Be on the lookout for potential hazards and point them out to your workers.
3. **Understanding**—Explain the “why” of safety so that employees will realize that hazards put their personal health and safety at risk.
4. **Commitment**—Strive to get a commitment from every employee that safety is the number one priority.
5. **Goals**—Set clear, firm standards for workplace behavior and enforce them.
6. **Competence**—Train employees so that they will have the information and develop the skills that enable them to work safely and avoid accidents.
7. **Feedback**—Praise employees who identify and correct hazards or report problems they cannot fix.
8. **Teamwork**—Use every opportunity to encourage workers to play an active role in workplace safety and accident prevention.
9. **Responsiveness**—Respond promptly to identify hazards and take immediate steps to correct them.
10. **Persistence**—Remember, and have your workers remember, that accident prevention is an ongoing challenge that must be focused on every day—always improving, setting new safety objectives, and making steady progress toward achieving them.

An OSHA construction e-tool, *Safety and Health*, provides information on accessing a number of OSHA regulations related to construction safety. Among the regulations listed are the following related to hazard elimination and control.

1. Ensure machines and tools are in safe working order and in compliance with relevant standards [[29 CFR 1926.20\(b\)\(3\)](#), [29 CFR 1926.550\(a\)](#), [29 CFR 1926.951](#)].



2. Institute engineering and work practice controls to eliminate health hazards [29 CFR 1926.55, 29 CFR 1926.103, 29 CFR 1926 Subpart Z].
3. Perform housekeeping to remove hazards posed by scrap and debris in work areas [29 CFR 1926.25, 29 CFR 1926.852, 29 CFR 1926.152(c)(5), 29 CFR 1926.900(k)(5)].
4. Provide appropriate personal protective equipment when other controls are infeasible [29 CFR 1926.28(a), 29 CFR 1926 Subpart E].
5. Guarantee safe means of egress [29 CFR 1926.34].

The e-tool can be accessed at <http://www.osha.gov/SLTC/etools/construction/shprogram.html>.

Taking a proactive approach to identifying the underlying cause of worker injuries, including minor injuries that require only first-aid, can assist management in determining the changes necessary in work planning to address the causes of such injuries and reduce the potential for their occurrence. Also, a safety stand-down/stand-up, combined with meetings with workers to elicit feedback on safety issues and encourage accident prevention, is a proactive approach that can assist management in identifying causes of minor accidents and taking steps to address them.

KEYWORDS: Good practice, management, stand-up, stand-down, injuries

ISM CORE FUNCTIONS: Analyze the Hazards, Develop and Implement Hazard Controls, Provide Feedback and Continuous Improvement



OPERATING EXPERIENCE SUMMARY

The Office of Health, Safety and Security (HSS), Office of Analysis publishes the *Operating Experience Summary* to promote safety throughout the Department of Energy (DOE) complex by encouraging the exchange of lessons-learned information among DOE facilities.

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Commonly Used Acronyms and Initialisms

| Agencies/Organizations | |
|------------------------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ANSI | American National Standards Institute |
| CPSC | Consumer Product Safety Commission |
| DOE | Department of Energy |
| DOT | Department of Transportation |
| EPA | Environmental Protection Agency |
| INPO | Institute for Nuclear Power Operations |
| NIOSH | National Institute for Occupational Safety and Health |
| NNSA | National Nuclear Security Administration |
| NRC | Nuclear Regulatory Commission |
| OSHA | Occupational Safety and Health Administration |

| Units of Measure | |
|------------------|--|
| AC | alternating current |
| DC | direct current |
| mg | milligram (1/1000th of a gram) |
| kg | kilogram (1000 grams) |
| psi (a)(d)(g) | pounds per square inch (absolute) (differential) (gauge) |
| RAD | Radiation Absorbed Dose |
| REM | Roentgen Equivalent Man |
| TWA | Time Weighted Average |
| v/kv | volt/kilovolt |

| Job Titles/Positions | |
|----------------------|---------------------------------|
| RCT | Radiological Control Technician |

| Authorization Basis/Documents | |
|-------------------------------|------------------------------|
| JHA | Job Hazards Analysis |
| JSA | Job Safety Analysis |
| NOV | Notice of Violation |
| SAR | Safety Analysis Report |
| TSR | Technical Safety Requirement |
| USQ | Unreviewed Safety Question |

| Regulations/Acts | |
|------------------|---|
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| D&D | Decontamination and Decommissioning |
| DD&D | Decontamination, Decommissioning, and Dismantlement |
| RCRA | Resource Conservation and Recovery Act |
| TSCA | Toxic Substances Control Act |

| Miscellaneous | |
|---------------|--|
| ALARA | As low as reasonably achievable |
| HEPA | High Efficiency Particulate Air |
| HVAC | Heating, Ventilation, and Air Conditioning |
| ISM | Integrated Safety Management |
| MSDS | Material Safety Data Sheet |
| ORPS | Occurrence Reporting and Processing System |
| PPE | Personal Protective Equipment |
| QA/QC | Quality Assurance/Quality Control |
| SME | Subject Matter Expert |