Key Laser Safety Practices for Supervisors & Managers

DOE Laser Safety Officer Workshop
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Family of Brands – ILX Lightwave® • New Focus™ • Ophir® • Oriel Instruments • Richardson Gratings™ • Spectra-Physics® • Spiricon®
• Dedication & Session Objective

• Importance of Reporting of Incidents

• Incident Management & Lessons Learned

• Management Role in Laser Safety

• Summary/Wrap Up/Discussion
Dedication – To All our Families and Friends!!
• Provide items for your “tool belt” to help educate management on critical laser safety practices they need to know for supporting your efforts

• Discuss importance of effective incident management and how to use the lessons learned to minimize future risks

• Reinforce the importance of injury prevention & the related costs to our employees and organizations
Importance of Reporting Incidents
• Employees should be required to report work related injuries within **24 hours** to immediate supervisor, HR or site Safety Contact

• Provides for immediate medical attention for the employee

• Reduces employees concerns over financial security, medical treatment and the workers compensation process

• Allows for prompt investigation of accident, determining cause, lessons learned and corrective actions

• **Remember OSHA 8 hour reporting window for serious injuries & fatalities!**

• OSHA defines “Serious injuries” as:
  – Requires hospitalization beyond observation by medical staff
  – Amputations involving bone
  – Workplace death
“Knowledge” of an accident is when:

- Supervisor sees accident or knows that an employee was injured

- Employee or someone on employee’s behalf advises any supervisor, verbally or in writing that a work injury has occurred

- Employee notifies a supervisor they intend to file a claim for a condition, which previously had not been considered work-related

- Employee or employee’s representative (aka Applicant Attorney) notifies company or insurance carrier of a work related injury
Early Medical Intervention - Purpose

- Goal is to provide the most appropriate treatment for the injured worker – ASAP!
- Be proactive, not reactive
- Drive the medical treatment process to the best possible resolution
- Employee should be seen at the local medical treatment facility you have selected for work comp management
- Provide a better chance of early return to work or modified duty
- Employee does have the right to be seen by their primary care physician – check State rules!
What is the Workers Compensation System?

• Designed to provide wage replacement, medical care and rehabilitation benefits to people injured while at work

• Form of social legislation

• Almost always provides exclusive remedy from civil suits

• Protects both employer and employee
  – Employers - protected from punitive damages
  – Employees - does not have to prove whether they are at fault – aka “No Fault System”

• Each State has its own specific requirements, but share some many common practices

• Injury must happen at work… arising out of and in the course of employment. This can include aggravation of a pre-existing condition

• Confirm your state & company requirements with HR or EHS contacts
Incident Management & Lessons Learned
Conducting an Incident Investigation

- Should be led by the immediate Supervisor or Manager, with Site EHS Contact support
- Focus on gathering facts, not rumors!
- Begin IMMEDIATELY after scene has been secured and any medical care is rendered
- Gathering statements from those involved is critical, along with any witnesses
- Take photos for documentation
- Copy of completed analysis form should be reviewed by Supervisor, Manager & Site EHS Contact
- Corrective actions are to be identified & implemented to prevent it from happening again!
- Purpose of investigation is to learn from the incident and improve our safety programs where needed. Communicate lessons learned!
• Employee training – laser, chemical safety, emergency response, electrical safety, etc.

• Documentation – SOP’s, written programs, policies, etc.

• Engineering Controls – interlock systems, security/card access, laser barriers, beam blocks, air filtration systems, etc.

• PPE Requirements – laser safety eyewear, gloves, clothing, footwear, etc.

• Other – housekeeping, internal auditing, resources (people, budget & time)
Management Role In Laser Safety – Prevention!!

Big Scary Laser
Do not look into beam with remaining eye
• However…Only if you have these:
  – Proper planning
  – Proper training
  – Proper assignments
  – Proper scheduling
  – Proper equipment
  – Proper attitudes
  – Proper behaviors
COMMONLY OCCURRING CAUSES OF LASER RELATED INCIDENTS

- Unanticipated eye exposure during alignment
- Misaligned optics and upwardly directed beams
- Available laser eye protection not used
- Equipment malfunction
- Improper methods of handling high voltage
- Intentional exposure of unprotected personnel
- Lack of training with laser equipment
- Lack of protection for ancillary hazards
Where Can Management Impact Safety?

• General Safety as topic on regular staff meeting agenda
• Emphasize the importance of reporting hazards
• Communicate with EHS contact on projects that have safety risks
• Complete required inspections on manufacturing equipment & process areas
• Employee Safety performance tracked in employee review process
• Investment in safety does pay …
  – Recent studies have shown that for each $1 investment = $6 ROI avg.
  – Reduction in injuries = production, quality & morale increases
Where Can Investment In Safety Provide Benefits?

- Minimize or eliminate human & financial cost
- Supports creating a strong & positive workplace culture
- Maintains valuable resources to meet or exceed customer expectations in productivity and quality
Laser Hazards - What do we usually look at?

- Laser
- Beam delivery
- People
- Environment
- Process
Laser Safety Example – Hazards & solutions needed?
LASER SAFETY BASICS
• Class 1-4 hazard rating system
• Higher the class, higher the danger
• IF RED LAB LIGHT IS ON ….. STAY OUT!!

EYE & SKIN HAZARDS
• Damage is determined by where energy is focused
• Severity depends on power & duration of exposure
• Injuries to either organ can be minor or serious
  – Burns
  – Partial or total vision loss

COMMON HAZARD CONTROLS
• Appropriate laser safety eyewear provided!
• Ask questions of Supervisor or designated Laser Safety contact
• Never look directly into beam
• Interlock systems on labs or equipment
• Remove unnecessary reflective objects from work area
• Never allow body parts to intercept beam or reflection
• Only authorized staff can use laser system or product
• Repairs by authorized staff only!!
Recommended Laser Safety Administrative Practices

• Laser eye exam required for anyone who works directly with laser/s operating at Class 3b or above

• Review and signature by all employees who work with lasers of a company Laser Safety Awareness Review document. Copies of the included review documentation form are to be retained with HR

• Appropriate level of general laser safety review coordinated by the responsible supervisor/manager as part of new hire/position transfer orientation process. This includes review of the laser safety portion of your company General Safety handbook

• Annual refresher training on “Laser Safety Awareness” for all those who work directly or indirectly with lasers or laser systems
Key Performance Metrics for Safety

• **Trailing Indicators**
  - Frequency vs. cost per employee
  - Cost per claim
  - Percentage of lost time vs. medical only
  - Cost per unit of production/sales
  - Incident rates (restricted workdays/lost-time days/OSHA Recordable)

• **Leading Indicators**
  - Number of laser safety audits
  - Timeliness of incident reporting
  - Percentage of employees trained or training hours
  - Behavioral safety observations
  - Number of laser equipment inspections
• Support to Voluntary or Required Safety Support Roles
  – Deputy Laser Safety Officers
  – Safety Committees
  – CPR/First Aid & AED Responders

• Help recruit from various key departments
  – Operations
  – Engineering
  – Facilities

• These employees can potentially be trainers for important topics
  – Laser Safety
  – Fire Safety Procedures
  – Evacuation & Emergency Response
  – Electrical & LOTO Safety
External Support Resources - Examples

- Insurance Loss Control consultation
  - Workers Comp & Property carriers
  - Maximize what you are already paying for!

- Training and education information
  - Internet locations providing
    - Free Safety Power Point Slides!!
    - Regulatory compliance information
    - Awareness and motivation materials

- Network with professional organizations
  - ASSE
  - Red Cross
  - National Safety Council

- Government resources
  - OSHA Consultation
  - Dept. of Energy
Wrap Up & Discussion

• Food for thought from today:
  – Why is early reporting of incidents so critical?
  – What are at least 3 key items to determine when conducting any incident investigation?
  – Key Laser Safety Practices for Management (how can they best help you in your Laser Safety role?)
    • Provide resources – internal & external
    • Support appropriate administrative & engineering controls
    • Determine & manage appropriate safety metrics

• Other questions, comments?

• Thanks for your attention and participation!!