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Findings, recommendations of laser incident investigation team presented at briefing

By Public Affairs Office
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Fred Tarantino, left, principal associate director for Los Alamos' nuclear weapons program, listens as Rita Henins of Occurrence Investigations (PS-7) responds to a question from the audience at Wednesday's briefing in the Administration Building Auditorium.

"This [was] a sobering event, but it illustrates how even the best of us can make mistakes sometimes," said Fred Tarantino, principal associate director for the nuclear weapons program, at a briefing Wednesday about a laser incident this summer in which a student suffered an eye injury. "It [also] illustrates the value of [safety] processes and procedures."

Speaking to employees in the Administration Building Auditorium at Technical Area 3, Tarantino positioned the July 14 incident as the last event in a series that led Lab Director G. Peter Nanos to suspend operations and order a comprehensive analysis of risks, hazards, and safety and security procedures. Not only did "the laser incident affect all [Lab employees]," Tarantino continued, "all of us can learn from it to help make Los Alamos a safer place."

The incident occurred while an undergraduate student was collaborating with a Lab scientist on an experiment involving two Class IV lasers: a particle-generating laser to suspend particles in an evacuated target chamber and a laser-induced breakdown spectroscopy (LIBS) laser to vaporize the suspended particles. The principal investigator asked the student to bend down beside him to observe the suspended particles; as the student bent down, she saw a flash and subsequently noted a reddish-brown substance floating in her left eye.

The internal investigation team -- which included four experienced laser users and three Department of Energy certified accident investigators -- concluded that the student suffered a retinal traumatic hole caused by pulsed laser light. Tarantino said that doctors independently confirmed the injury's cause and timing, despite rumors that it occurred previously or due to a flash lamp light.

Tarantino's summary of the internal investigation team's findings, included the following:

The accident resulted from violating basic laser safety procedures. Neither the principal investigator nor the student wore laser eye protection; furthermore, they looked directly down the laser beam path.

The employees involved failed to immediately report the accident and secure the accident scene, thus compromising the subsequent investigation. Tarantino noted, "Organizations with very good safety cultures ... have rapid and redundant [incident] reporting mechanisms. Being able to report safety issues very quickly shows that they are important to the organization."

Management performance monitoring failed to identify and correct at-risk behaviors, requirement violations and work-control deficiencies. The directorate and division involved had a recent history of serious safety incidents and near misses; however, corrective actions were either ineffective or not completed.

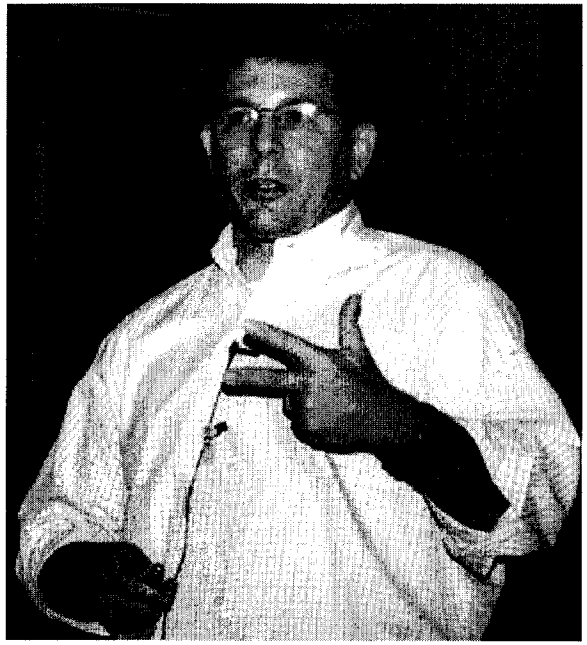
The execution of Integrated Work Management (IWM) failed to produce detailed work descriptions and the associated hazard analyses and controls that would have mitigated the potential optical radiation hazard. As a case in point, no hazard control plan or integrated work document captured the principal investigator's nonstandard configuration of the two Class IV lasers.

According to Tarantino, this incident highlights the need to strengthen the Lab's management-performance-monitoring process. "Safety is a human behavior [and requires] analysis of human behavior, management and processes," said Tarantino, He added that managers must have precursor data on small and large accidents alike to anticipate and prevent safety incidents.

Tarantino called on Lab employees to achieve peer-to-peer safety accountability. It is only once "employees start caring about the safety of other employees," Tarantino said, "that you start to drive accidents out of the workplace."

Tarantino's briefing will be rebroadcast beginning Monday on LABNET Channel 10. Go to the LABNET Channel 10 schedule at http://www.hr.lanl.gov/TIO/labnet10.htm online for viewing times.

--Brooke Kent



Tarantino summarizes some of the findings of the team that conducted an internal investigation of the July 14 laser incident in which a undergraduate student researcher's eye was injured. Photos by Ed Vigil, Public Affairs