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So you think you are young and invincible and bad accidents just don't happen to good students or experienced personnel?

Read these stories and think again – remember:

- You are responsible for safety and a safe work environment
- It is your right and duty to stop any unsafe work at LBNL
- In all cases do Integrated Safety Management (ISM)
- Be familiar with the emergency response guide and other important contacts
- Before you start satisfy your basic needs: get space, light, time, tools
- Wear and use the required Personal Protective Equipment (PPE)
- Read the labels and information on lab doors and inside the labs
- Work with a partner whenever possible (esp. in a hazardous environment)
- Respect the no food/no drink signs in the work areas
- Stop your work if you are in doubt – ask people for help or clarification
- Avoid generating trip hazards – keep aisles free
- Clean up after you are done (especially put back chemicals, glues, sharp tools...)
- Inform others about hazards and test setups (use labels, write emails...)
- Read the labels, warning signs, procedures, manuals, MSDS before you start using the tools, equipment, and devices
- Keep your Job Hazard Analysis (JHA) and training up to date
- Don't underestimate routine jobs – don't become complacent: sometimes a lot of experience can prevent you from concentrating and thinking it through
- Some training courses can actually teach you some new science and be quiet entertaining
- Your family, friends, colleagues, and the lab count on you to come home in one piece and prevent accidents happening to others

Story 1: Yale student dies after her hair 'is caught in a machine' at chemistry laboratory

14 April 2011

- **Victim died from accidental asphyxia**
- **A memorial will be held before the end of term**
- **'She was a brilliant student and extraordinary woman'**



Tragedy: Michele Dufault was working late at night with a lathe. She was to graduate next month from Yale

A senior Yale University science student has been killed after her hair got caught in a machine in a freak accident at a campus laboratory. Michele Dufault, 22, died while using a fast-spinning lathe in the student machine shop at Sterling Chemistry Laboratory in New Haven, Connecticut. Dufault, described as a 'brilliant student,' was an astronomy and physics major from Massachusetts and a member of the Yale Precision Marching Band. She was working on a project in the basement of the laboratory where students and staff build or modify research instruments when the tragedy happened. Her hair is thought to have been caught in the machine's rotating drive and dragged her onto it. She died from accidental asphyxia by neck compression, according to the Connecticut medical examiner's office. A New Haven fire official said the department responded to an emergency call at the lab at 2.33am this morning after shocked students discovered Michele slumped over the machine.



Death scene: Yale's Sterling Chemistry Laboratory where Michele died in the basement machine shop

Michele, who was due to graduate next month, was found sitting at a metal lathe with her hair wrapped around part of it. The lathe is used for shaping wood and metal by way of a rotating drive that turns material against cutting tools. Dufault reportedly had no pulse, according to fire officials.

She was a 2007 graduate of the Noble and Greenough School in Massachusetts, which she attended for six years. Head of School Robert P. Henderson Jr told the New Haven Register: 'Michele was an extraordinary young woman, one of the most precocious students who her teachers ever encountered. 'She was simply brilliant. Her mind, her sense of curiosity, her perceptiveness, her sensitivity, and her enjoyment of what she did were extraordinary. 'She was a true intellectual. She was also distinctly humble, seemingly unaffected by her prodigious talent and academic attainments.'

Vice president and secretary Linda Koch Lorimer sent an email to all the students telling them of the tragedy after informing Michele's parents. The couple met university chiefs at the campus and will return before the end of the semester for a memorial service to honour their daughter. Lorimer said: 'By all reports, Michele was an exceptional young woman, an outstanding student and young scientist, a dear friend and a vibrant member of this community. 'We will find ways in the next day to gather to celebrate her life and grieve this loss.'

The lab was closed today and classes cancelled as police and university officials investigated the accident. President Richard Levin announced a safety review of the machine shops and power tools used by the students. He said: 'The safety of our students is a paramount concern. Until the review is completed, Yale College will limit undergraduate access to facilities.'



A metal lathe: Michele was working on a project in a laboratory machine shop when the accident happened.

Story 2: Deadly UCLA lab fire leaves haunting questions

March 01, 2009



Sheri Sangji celebrates her graduation from Pomona College in May with her family

UCLA's Molecular Sciences Building was mostly closed for the holidays on Dec. 29 as research assistant Sheri Sangji worked on an organic chemistry experiment. Only three months into her job in the lab, the 23-year-old Pomona College graduate was using a plastic syringe to extract from a sealed container a small quantity of t-butyl lithium -- a chemical compound that ignites instantly when exposed to air. As she withdrew the liquid, the syringe came apart in her hands, spewing flaming chemicals, according to a UCLA accident report. A flash fire set her clothing ablaze and spread second- and third-degree burns over 43% of her body. Eighteen excruciating days later, Sangji died in a hospital burn unit. "It is horrifying," said her sister Naveen, 26, a Harvard medical student. "Sheri wasn't out doing something stupid. She was working in a lab at one of the largest universities in the world. She gets these horrific injuries and loses her life to these injuries and we still don't know how it happened or why it wasn't prevented."

Sangji's death was more than a tragic workplace accident. It also raised serious questions about the university's attention to laboratory safety. "It was totally preventable," said Neal Langerman, a San Diego consultant and former head of the American Chemical Society's Division of Chemical Health and Safety, whose members were given a detailed account of the incident by a University of California safety official. "Poor training, poor technique, lack of supervision and improper method. This was just not the right way to transfer these things," Langerman said. "She died, didn't she? It speaks for itself."

Two months earlier, UCLA safety inspectors found more than a dozen deficiencies in the same lab, Molecular Sciences Room 4221, according to internal investigative and inspection reports reviewed by The Times. Among the findings: Employees were not wearing requisite protective lab coats, and flammable liquids and volatile chemicals were stored improperly.

Chemical Safety Officer Michael Wheatley sent the inspection report to the researcher who oversees the lab, professor Patrick Harran, as well as to the head of the Chemistry and Biochemistry Department and a top UCLA safety official. The report directed that problems be fixed by Dec. 5. But the required corrective action was not taken, records show, and on Dec. 29 all that stood between Sangji's torso and the fire that engulfed her was a highly flammable, synthetic sweater that fueled the flames.

Under scrutiny:

The California Division of Occupational Safety and Health is investigating, as are the Office of the State Fire Marshal, the National Institute for Occupational Safety and Health and the U.S. Chemical Safety and Hazard Investigation Board. A spokeswoman for Cal/OSHA, the lead agency, said she could not comment on the investigation. UCLA officials say they are cooperating with all of the agencies. "We consider this a profoundly tragic accident, and the campus community is still reeling from the loss of Sheri as a member of the Bruin family," said Kevin Reed, vice chancellor for legal affairs.

Harran, the organic chemistry professor for whom Sangji worked, said he could not comment on the accident because of the pending investigations. But he said he's heartbroken. "Words cannot convey my grief or that of those who work in my lab, and our pain cannot possibly compare with the immeasurable anguish felt by Sheri's family," he wrote in an e-mail. "Sheri's death is a tragedy that has left her friends, colleagues and co-workers here in our department devastated."

UCLA has launched a comprehensive review of lab safety protocols and has stepped up inspections and shortened the time allowed to correct serious violations. Chancellor Gene Block also established a campuswide lab safety committee and ordered enhanced accountability measures. Such efforts are of little comfort to Sangji's family. Her parents, Shaukat Sangji, a small-business owner who lives in Toronto, Canada, with his wife, Maimoona, a Montessori schoolteacher, were too distraught to be interviewed, said Naveen, who relayed an e-mail message to The Times from her father. "They say time will heal, but I know for sure nothing can heal this," he said. "This has completely destroyed our lives forever."

Born and raised in Pakistan, Sheharbano "Sheri" Sangji followed her older sister to Pomona College, a small, top-tier liberal arts school in Claremont, in 2003. Their parents and younger brother moved to Canada. "Sheri always loved science and fell in love with chemistry," Naveen said, but she also was interested in the rights of women and immigrants, environmental policy and law. She decided to become an attorney, with an eye toward a career that would blend her interests. "She was brilliant, just so impressive," her sister said.

You can see a movie here: http://amo-csd.lbl.gov/downloads/lab_safety_windows.wmv

NOTE: You are dealing with powerful machines, tools, and chemicals !

...there are destructive forces at work

Example 1:

On Jan. 7, 2010, Texas Tech University (TTU) graduate student Preston Brown was working to synthesize and characterize an energetic material (nickel hydrazine perchlorate) when an explosion occurred. Brown lost three digits on his left hand, severely lacerated his right hand, perforated his left eye, scratched his right eye and had superficial cuts to the parts of his body that were exposed.



Example 2:

On June 28, 2010, an explosion caused by hydrogen gas in a University of Missouri biochemistry research lab injured four researchers and destroyed the laboratory.



NOTE: Accidents can result in a shutdown of labs – it really happened!

...how will you or your coworkers finish the research and get a degree when you cannot enter the lab anymore ?

Example 1:

Safety Is a Concern in Shutdown Of the Operations at Los Alamos

July 18, 2004, A series of safety accidents, not just security lapses, prompted the director of Los Alamos National Laboratory to halt nearly all operations there on Friday.

Los Alamos, one of the nation's two nuclear weapons laboratories, is under heavy criticism because of the disappearance on July 7 of two computer data storage devices containing classified information from its weapons physics division.

But, in broadening a shutdown of classified work on Thursday to include the entire laboratory on Friday, G. Peter Nanos, the laboratory's director, cited safety and environmental concerns as well as security issues. "In no case will I authorize a restart until I'm absolutely convinced that each organization will not risk further compromise of safety, security and environment," Mr. Nanos wrote in a memorandum to employees on Friday.

The latest injury occurred Wednesday, two days before the shutdown, when a 20-year-old woman suffered eye damage from a laser beam. The woman, a student intern who was not identified, had just finished working on a series of experiments involving a pulsed ultraviolet laser, but lingered in the laboratory.

Example 2:

After Serious Accident, SLAC Experiments Remain Shut Down and DOE Report Faults Lab's Safety Oversight

February 2005, All the accelerators and storage rings at SLAC have been shut down since 11 October, when an electrical accident at the laboratory severely injured an electrician working for a subcontractor. SLAC director Jonathan Dorfan ordered the shutdown immediately after the accident, and he has decided that all experimental facilities should remain closed pending the findings of a Department of Energy accident-investigation board and implementation of the remedies it mandates.

SLAC is funded by DOE. The investigation board, headed by DOE's Richard Stark, was charged with investigating the proximate and root causes of the accident. The board's report was released on 15 December. It expresses some harsh judgments about safety oversight and procedures at the lab. Among its conclusions is the finding that "SLAC's emphasis on the scientific mission as a means to secure funding from the [DOE] Office of Science and compete with other laboratories reached [the field-supervisor] level as direction to 'just get the job done.' "

The most visible competition in which SLAC is at present involved is the rivalry between the laboratory's flagship BaBar experiment and the very similar Belle experiment at the KEK laboratory in Tsukuba, Japan (see Physics Today, May 2001, page 17). Both ongoing experiments, dedicated to the investigation of fundamental symmetry violation in the decay of B mesons, are based on novel electron-positron storage ring colliders called asymmetric B factories. BaBar's collider, named PEP-II, is filled with high-energy electrons and positrons from SLAC's 3-km-long linear accelerator.

BaBar and Belle both began taking data in 1999, and each group is loath to fall behind its rival in the accumulation of data. The accident report suggests that SLAC has been cutting safety corners in the pursuit of maximal data acquisition. "The significant breakdown in the enforcement of health

and safety requirements is indicative of a work environment where occupational safety and health policies, programs, and procedures are not fully implemented,” says the report. “The [site engineering and maintenance department], in particular, has not balanced the priorities of accelerator operation and worker protection.”