Yale University

DOROTHY K. ROBINSON
Vice President and General Counsel

Office of the General Counsel
PO Box 208255
New Haven CT 06520-8255

T 203 432-4949 F 203 432-7960
dorothy.robinson@yale.edu

courier
2 Whitney Avenue, 6th floor
New Haven CT 06510

August 17, 2011

VIA FACSIMILE AND U.S. MAIL

Robert W. Kowalski, Area Director
U.S. Department of Labor
Occupational Safety and Health Administration
Bridgeport Area Office
1057 Broad Street, 4th Floor
Bridgeport, Connecticut 06604

Re: Yale University – Letter of Findings
Sterling Chemistry Laboratory

Dear Mr. Kowalski:

I am in receipt, through attorney David Monz, of a letter of findings dated August 15, 2011, in which you conclude that, following a thorough investigation that included extensive interviews of Yale personnel, no specific hazards in the Sterling Chemistry Student Mechanical Instrumentation Shop could be determined.

The letter, however, contains a number of inaccuracies and fails to acknowledge critical information regarding the quality and comprehensiveness of the training given to the students who had access to the shop. This information was provided to the OSHA investigator on several occasions through a number of different sources. I wish to respond in order to correct the record.

Before I do so, I wish to say that Yale University takes the safety of its students as well as its employees with the utmost seriousness. We recognize the limitations of OSHA's jurisdiction to employees. Nonetheless, Yale is committed to ensuring that it maintains a safe environment for all students and staff. In that regard, I also note that the forward-looking recommendations in your letter do not acknowledge existing Yale safety efforts as of the date of the accident, and also do not recognize the enhancements of machine shop safety that already have been implemented following that date. I understand that Mr. Monz shared with you information about these enhancements.

The letter fails to take into account the vitally important fact that a student may not gain access to the Sterling Chemistry Student Mechanical Instrumentation Shop -- a locked facility that was professionally supervised during business hours, and under a buddy system policy after hours -- without having successfully completed a 13-week orientation and safety course, Laboratory in Instrument Design and the Mechanical Arts, CHEM 562 01. (Many students also take the advanced orientation course, Advanced Mechanical Instrumentation, CHEM 564 01.)

The course, which meets for four hours each week in the student machine shop and is taught by an experienced machinist, was described in detail by a number of the interviewees and was reviewed by FDR Safety, a nationally recognized leader in occupational health and workplace safety performance, as part of the University's internal evaluation of the accident. As noted by FDR Safety in its Accident Evaluation Report (previously provided to OSHA):

> "Recognizing that training, awareness, personal protective equipment and safe operating practices are the primary safeguards for operating lathes, the investigation also focused on the process of training and instruction for students.
>
> Undergraduate students who work after hours in the SCL machine shop are required to successfully complete a 13-week orientation and safety course, Chemistry 562L – Laboratory in Instrument Design and the Mechanical Arts. The 13-week process of instruction includes demonstration, hands-on training, and on-going reinforcement of safety, safe operating procedures and safety awareness. Basic safety elements that are covered (and enforced) from day one include the need to wear safety glasses, a prohibition on loose clothing and hair, and no jewelry or hoodies with strings that could become entangled. At the completion of the course, students who have demonstrated sufficient competence to work after hours may be authorized by the Instructor to do so, provided that no student may work in the machine shop after hours alone.
>
> The typical class size is eight students, which allows for close, often one-on-one, supervision by an experienced and knowledgeable instructor. This, in turn, translates to an excellent environment for learning. The integration of safety with functional tasks is exemplary."

FDR Safety Accident Evaluation Report at 2-3. We have also included herewith a summary of the CHEM 562 course that was prepared by FDR Safety as part of its evaluation (attached).

Inexplicably, the CHEM 562 course information, which is of critical relevance, was not referenced in the OSHA letter. For example, in his interview, the CHEM 562 Instructor stated that the 562 course included, among other things, (i) formal training on personal protective equipment and the proper and safe use of such equipment (see Finding c.), (ii) formal instruction on safe operating procedures and ANSI requirements (see Findings d. and e.), and (iii) the establishment of a "two person rule" (see Finding g.) This course information was corroborated by a number of the other interviewees and by FDR Safety in its evaluation.

The Instructor also stated that he conducted both daily inspections of the Student Mechanical Instrumentation Shop, including the machines, and evaluations of personal protective equipment (see Findings a. and b.), although PPE assessments were not documented. Again, the OSHA letter fails to acknowledge these well-established program elements in place at the time of the accident.

The failure by OSHA to acknowledge the above-referenced program elements that were in place at the time of the accident presents an incomplete and inaccurate picture of the training and safety program in place in the Sterling Chemistry Student Mechanical Instrumentation Shop. The Administration based its recommendations on this selective and incomplete information.

With respect to the relevant ANSI Standard, several points are noteworthy. First, Section 4.7 of ANSI Standard B.11.6-1984, which is referenced in the letter, was removed from the Standard during the revision of B11.6 in 2001 by the B11 Accredited Standards Committee on Safety Standards for Machine Tools, and the revisions were reaffirmed in 2007. It is unclear why the OSHA letter relies on a 1984 standard, which is no longer current. The current reference is ANSI B.11.6-2001 (R2007). (Mr. Taubitz of FDR Safety, who authored the Accident Evaluation Report referenced above, was a member of the ANSI B11.6 Accredited Standards Committee when the Standard was most recently affirmed in 2007.)

Importantly, the current Standard is set forth in Paragraph 6.20.2, which reads as follows: "A powered moving part that constitutes a hazard to personnel shall be safeguarded where possible in accordance with 5.2, or identified with appropriate accident prevention instructions." Section 5.2, entitled risk assessment / risk reduction, establishes a hierarchy of protective measures one or more of which should be implemented: (a) eliminate or control hazard(s) by design; (b) control exposure to hazards by the use of guards or safeguarding devices; (c) provide other safeguarding (e.g., awareness barriers, awareness signals and safeguarding methods); (d) implement administrative controls or other protective measures (including safe work procedures, preventive maintenance, training, retraining, personal protective equipment and warning signs)."[1]

Here, in assessing the compliance of the lathe in question with the relevant ANSI Standard, Mr. Taubitz concluded as follows:

> "The lathe is 1965 vintage and the leadscrew is unguarded. This, however, remains the standard industry design, because guarding interferes with the movement of the carriage and therefore restricts the operator's ability to work along the length of the lathe. Moreover, the lack of guarding is consistent with current OSHA regulations and ANSI standards. Neither OSHA nor industrial design experts have been able to develop industry standard safeguards that effectively prevent entanglement in a leadscrew.
>
> The proper safeguarding for working on lathes is training, awareness, personal protective equipment and safe operating practices."

FDR Safety Accident Evaluation Report at 2. Significantly, as noted above, in evaluating the University's training protocol, Mr. Taubitz concluded that "[t]he integration of safety with functional tasks is exemplary." Accordingly, in Mr. Taubitz's opinion, the University had

---

[1] Under Section 8 of ANSI B.11.6-2001 (R2007), "safeguarding" expressly includes safe work practices.

provided appropriate safeguarding in compliance with the most current OSHA and ANSI standards.[2] We do not read the ANSI standard as a requirement to fabricate and install an aftermarket physical guard on the leadscrew, nor is there a requirement to retrofit a lathe with an aftermarket emergency stop. The lathe in question was equipped with a functioning stop located in a proper position and also had two other means to depower the leadscrew.

Notwithstanding the foregoing, promptly following the accident, the University developed and posted signage in all machine shops throughout the University (copies previously provided to OSHA). Your recommendations again fail to recognize this fact. In addition, the University voluntarily undertook a comprehensive review of all machines and machine shop protocols and is currently in the process of implementing a number of policies and procedures designed to further enhance machine shop safety beyond the ANSI standards already in place.

I am hopeful that the foregoing will provide OSHA with the information necessary to correct the inaccuracies in the August 15th letter in connection with this very tragic event. I am also hopeful that the responsive measures already voluntarily undertaken by the University will serve as a model for other institutions that maintain student machine shops. To that end, please feel free to contact me with any questions or if you require additional information.

Very truly yours,

Dorothy K. Robinson

Enclosures

cc: David Monz, Esq.

---

[2] Although paragraph 4.7, ANSI 11.6-1984 was updated in 2001 and reaffirmed in 2007, the University's approach of implementing administrative controls and other protective measures is fully sanctioned under the outdated language quoted in the OSHA letter of findings under which a "safeguard" must be provided. The Standard goes on to state that "[s]uch safeguards could include physical guarding, use of personal protective equipment and/or emergency stops." The "exemplary" training, along with the appropriate personal protective equipment provided by the University, falls squarely within this safeguarding protocol.