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By Christopher Rock

Old Laboratory Chemicals – A Hazardous Waste
By Stephen R. Larson

Yes and No. Although it is not yet required by regulation, Tufts Environmental Health and Safety (TEHS) is drafting an I2P2 as part of our annual audit of the Tufts Workplace Safety and Health Program. In January 2012, two reports were issued about I2P2. The first report release by Occupational Safety and Health Administration (OSHA) was a white paper which stated that workplace health and safety in the U.S. would improve if every business developed and implemented a written health and safety program called I2P2. This is a simple document that identifies the responsibility, authority and accountability for identifying hazards in the workplace and taking actions to minimize or eliminate those hazards. In short, this means to “find and fix threats to worker health and safety.” A second report was issued by the RAND Corp. that reported on the effectiveness of the I2P2 regulation that has been law in California for 21 years. The authors of this study state that the I2P2 regulation has failed to improve worker safety in that state.

OSHA has been attempting without success to develop and implement a regulation requiring all employers to write an I2P2 since 1989. In December 2011, OSHA again identified the I2P2 regulations as one of five goals for 2012. On its face, the findings of the RAND study provide additional evidence. However, a more careful review finds that it is ineffective not because of the overall concept but because employers fail to perform certain critical tasks:

- Identify hazards in the workplace
- Implement controls to reduce or eliminate the hazard
- Collect and analyze information on each accident and incident that occurs
- Provide training and technical support to supervisors and employees who enable each to understand the hazards of their job and the methods available to reduce or eliminate those hazards

Many of the faculty, managers, and supervisors at Tufts are well aware of the hazards of the work they supervise and work with each employee to implement protective measures. In addition to the informal training provided by supervisors, Tufts EHS offers over 20 safety training programs to faculty, staff and students.

Working with Tufts Workers Compensation, the Public and Environmental Safety staff investigates all incidents and accidents that occur on the Tufts campuses and off campus as well. In summary, Tufts University will implement good practices that improve the health and safety of the campus community, whether required by regulation or not.

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In our laboratories we often come across a collection of old chemicals that have been saved and subsequently forgotten; sometimes as a result of a purge by a newly appointed Facility member, lab manager, the retirement of an academic, investigators saving chemicals due to replacement costs, or projects that have run their lifecycle that did not dispose of the chemicals in the end. Consequences of these chemicals being left behind can be in any state of deterioration or breakdown and is sometimes extremely dangerous. For example: Picric acid coming in contact with metal forming metal picrates creating a highly unstable explosive or expired Ether forming shock sensitive and explosive peroxides. It is essential that these lost and older chemicals need to be located, identified, and removed from the laboratory. Moreover, if the old containers are unlabeled (fallen off or mixtures in other unlabeled containers) and unknowns our waste contractor will be required to categorize, test and possibly stabilize the chemicals onsite before removal from the laboratory adding significant shipping, disposal costs and degree of hazard. These chemical should never be moved to the Main Accumulation Waste Area until they have been properly identified. However, the Principal Investigator and/or the laboratory staff can provide essential information into identifying the unknown’s that translates into regulatory compliance (29 CFR 1910.1450), safety and significant cost reduction.

Effective laboratory chemical and chemical waste management is an ongoing daily effort by all laboratory staff and requires constant attention supported by well articulated and communicated procedures through training, chemical inventorying, inspections and supervision. Any new experiment, process or chemical that enters the lab should be evaluated to ensure safe handling, storage, and waste removal. TEHS is available to provide guidance and assistance.