Office of Safety, Health & Environment (OSHE), NUS

E.H & S BULLETIN

The Definitive Source for Environmental, Health & Safety

Issue 16: Oct - Dec 2005

Role of PIs as Safety Champions

Opening Address by Dr Peck Thian Guan at CHBE Annual Safety Day, 1st Aug 2005:

Director of Office of Safety, Health & Environment

Good Morning, Colleagues, Students & Guests
I would like to thank Prof Foo for inviting me to your department's inaugural Annual Safety & Health Day.

He has asked me to speak on a very important aspect of the NUS Safety & Health Policy - the role of PIs as safety champions in NUS.

Let me begin with a real story. On 8 April this year, some graduate students in the Ohio State University were unloading bottles of hexane into a storage cabinet. Suddenly, a shelf gave way and bottles of the solvent came crashing down and the solvent was spilled all over the lab. In a matter of minutes, there was an explosion and the whole lab was engulfed in flames. The smoke was overpowering and everyone in the lab and the surrounding area had to be evacuated.

The fire practically destroyed everything in the lab - equipment, samples, and research records which represent years of hardwork. An adjacent lab was also destroyed. The incident was emotionally draining and demoralizing. Fortunately, there were no fatalities.

Such accidents in university laboratories are not uncommon. Even NUS has its fair share of similar incidents, some of them very well publicized in local media.

In the report on the fire of OSU in Chemical and Engineering News (C&EN), the reporters interviewed Safety expert, Dr James Kaufman and asked him for his views on the accident. Dr Kaufman was a retired academician who had also worked for Dow Chemicals.

He said that accidents, e.g. fire in labs, are very common in academic institutions. Such institutions have a 10 to 50 times greater frequency of accidents than does the chemical industry. It's 100 to 500 times greater than in places like Dow and DuPont.

This is because students are not adequately trained in safety. Relating his own personal experience, he said that he learned more about safety in his first day in Dow Chemicals than he had in 25 years of school!

I am sure that many graduates from universities all over the world share that same experience, including those from NUS. My question to all of you is: why must this be the case? Why can't we train our students so that when they enter the industry, they will be well-versed in occupational health & safety?

The chemical and process industry has very high safety standards. In **Shell**, as in many multinational companies, contractors must attend a safety orientation before they are allowed on the plant. An engineer from **SRC** told me that in her company, Safety First means work takes second place. If the condition is not safe, work cannot begin or continue. In **Dupont**, safety is the condition for employment.

Another company with high safety standards is **Merck Sharpe Dohme** in Singapore. They supervised and managed the construction of its multipurpose chemical bulk actives manufacturing facility and pharmaceutical formulation in facility. The company achieved a 10-million work hours without a lost time injury.

With **ExxonMobil**, safety is not only a priority. It is a value that is at the core of the company's culture. To lead in safety and health, a focus on operating excellence is imperative.

As responsible educators, it is important that safety knowledge is imparted to students during their university days. ***We must apply the same high standard of safety in our laboratories as do the industry. The concepts of hazard identification, assessment and controls must be instilled in them from the first day they step into the laboratory.*** So, by the time they graduate, they would not find safety such a foreign concept.

Continued next page

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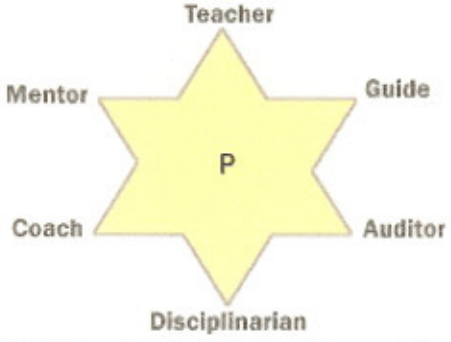
This brings me to the role of PIs as safety champions. ***The PI is the best person to inculcate a safety mindset in our students. They mentor, coach, guide, teach, check and audit laboratory conditions and practices and even disciple those who disregard safety rules and put themselves and their colleagues at risk.*** When mistakes are made, to share the lessons learnt with others so that they in turn would not commit similar errors.



Safety Education in NUS should be part & parcel of the training of our students

You may interested to know that the PI of the lab that caught fire in OSU, Prof Coleman voluntarily contacted C&EN about the incident. He was concerned that a similar accident "could happen to anyone who stores large volumes of solvents and because the accident could have easily resulted in the loss of life." He believes that "it is important to report the details of accidents and fires for analysis and as a way to inform and educate others..." I hope our PIs will also be as open as Prof Coleman in sharing of experiences and also encourage their staff and students to do the same.

PIs should not view safety management as additional work, but they should see it as part and parcel of educating our students and preparing them to enter the industry or academia after they graduate.

I am pleased to note that in the Department of Chemical and Biomolecular Engineering has made significant progress in the managing safety in the department. Final Year of your undergraduate course you do have modules on plant safety and reliability, industrial hygiene, etc. It would be great if a similar module could be added to your postgraduate curriculum. It would be even better if our students can see safety being implemented rigorously in their department as a way of life in NUS.
So, as PIs, what can you do to create a positive safety culture in the laboratory? Here

are some suggestions:

1. Unsafe Behavior is considered unacceptable
2. Everyone feels responsible for safety and do something about it daily
3. People go out of their way to identify unsafe conditions and behavior
4. People intervene to make corrections
5. Reminded someone to work safety is appreciated and considered normal
6. Safe work practices are supported with rewarding feedback from PIs and colleagues
7. Root causes are determined and analyzed for opportunities to improve "the system"
8. Safety is NOT just a priority, it is an integral part of What We Do

Even at a ministerial level, this change of mindset was discussed. I would like to share with you a slide that was presented at the last MOM briefing to Company directors. The first point was mentioned by the Minister of Manpower himself that "those who create risk should manage it". The second point is to stress that there is so much safety officers and OSHE can do - we cannot be there overseeing, inspecting your research work/laboratories 24/7, safety ownership is needed by those doing the work. The final point is on safety management system.

I understand it this would take substantial resources such as time, finance, etc. However I can guarantee to you it is worthwhile because it is the right thing to do.

To guide you through this process, you can tap on some resources such as OSHE, faculty safety officer, etc. Our goal is the same as yours - to enable you to conduct your research safely. At OSHE, we too want to see minimal disruptions to your research work. Our goal is compliance assistance and achievement, no accidents, no closure of laboratories. We are your partners in making NUS a safer place to work, live and play.

I would take the opportunity to explain to you what the University is trying to achieve in creating this safety culture, we have developed a university wide safety management system and now are encouraging departments to develop their own internal ones. I am pleased to note that Prof Foo is working on the department's safety management system. I urge all of you to give him your wholehearted support.

In conclusion, I bring you back to the comment by Dr Kaufman that he learnt more about safety on his first day of work than the 25 years in school. It is my hope and desire (and it should be yours too) that this will not be the case for our students. Through the partnership between PIs and OSHE, our students will have adequate safety training that when they first enter industry, they would have sufficient safety knowledge to see them through the next 25 years or more into their working life.

On that note, I wish you a successful departmental seminar.

Thank you.

Back to the previous page