

## OH&S - HOW IT AFFECTS US ON THE GROUND

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### **Abstract**

In NSW, as in the rest of Australia, various Acts and Regulations provide a legal framework for managing health and safety in the workplace. The University environment is arguably one of the most complex to manage, with a variety of faculties, institutes and other organizational units which all have different needs, and constraints, as to how they fulfil the legal and practical requirements of the legislation.

Under the umbrella of the UTS Environmental Health and Safety (EH&S) management system and policy, individual faculties and departments have the scope to develop procedures which are specific to their needs and targeted to risks and activities carried out by their own staff and students. Although the university system puts the onus on managers and supervisors to assess and manage risks in relation to health and safety, it often falls to individual members of technical staff to ensure that these policies are adhered to.

Enforcement of OH&S policies can often result in a losing battle for Technical Support staff in the Department of Environmental Sciences. There are many issues that arise from both laboratory and field based teaching environments.

This paper addresses topics such as:

- 1) Problems with current EH&S policies in the Department of Environmental Sciences.
- 2) Clarification of EH&S enforcement roles for laboratory managers, academics and technical support.
- 3) How to balance the need for compliance with EH&S policies with the practical problems encountered in day-to-day operation of lab and field classes.
- 4) How to keep smiling while we're doing it!

### **Introduction**

#### *Legislative Background*

In New South Wales workplace Occupational Health and Safety (OH&S) is regulated under two pieces of legislation, the NSW Occupational Health & Safety Act 2000 and the Occupational Health & Safety Regulation 2001. In addition, a variety of Standards, Codes of Practice and Guidance notes provide information specific to particular situations and work environments.

In the context of University Science teaching, the most important of these is Australian Standard 2243 - Safety in Laboratories. This Standard comprises ten separate parts dealing with different aspects of laboratory safety. Codes of practice, guidance notes and technical reports produced by regulatory or eminent bodies such

as Worksafe Australia and the WorkCover Authority specify safe practices for particular tasks, workplaces or occupations.

It is under the umbrella of all of these “pieces of paper” that the policies and procedures, which make up an individual institutions responses to their legal responsibilities are formulated. One of the major features of the Act is that it identifies the responsibilities of the employer, the University, for ensuring the health, safety and welfare of staff and students. In fulfilling this responsibility, managers have a duty to provide and maintain so far as practicable, a working environment that is safe and without risks to health.

Penalties for non-compliance can be severe and may include the imposition of monetary fines or prison sentences. These penalties have in the past been imposed on both the employer and employees. Managers, supervisors and those in control of workplaces and classes may be individually liable for all risks to health and safety about which they should have known and for which they should have taken all possible precautions.

### *The University Environment*

The OH&S/EH&S policies of all the major NSW Universities, including UTS, all recognise that management – the Deans of faculties or Directors of Institutes have the key responsibility under the act, and that line managers, whether laboratory supervisors or academics in charge of classes are the ones who should be disseminating policy information to staff and students. It was also clear that individuals are obliged to comply with policy, and to take reasonable care to prevent injury or incident to themselves or others in the workplace.

However, while specifying that supervisors and academics have a role in development of policy and procedure, and informing staff and students of potential hazards or risks, there is very little attention paid to enforcement (as opposed to information), and the role which technical staff take in ensuring a safe workplace both in the laboratory and the field.

### *Department of Environmental Sciences, UTS*

Technical staff in the Department of Environmental Science at UTS provide technical and other support to academics and researchers in a range of situations, including laboratories, and both day-long and extended field trips. Our role in ensuring that the University is fulfilling its legal obligations covers a huge variety of activities.

In the lab, this generally means acting as “lab coat, footwear and water bottle enforcers”, finding vacant wall space to stick OH&S posters (generally known as wallpaper), ensuring that all chemicals are correctly labelled, undertaking ‘PAT’ testing and laboratory risk assessments and developing safe work practices for the various pieces of equipment used by students. In the field these tasks become less well defined, and, in addition to chemical and equipment use and storage include issues such as alcohol consumption, safe driving practices, safe food handling practices, and determining the minimum depth required for a dunny hole.

Therefore, the main aims of this paper are to identify ways to ensure that OH&S information is available to both staff and students, and to attempt to find new methods of approach to the role of enforcer, which often falls to the technical support staff.

## Methods

While the Department of Environmental Sciences at UTS deals with both postgraduate research laboratories and undergraduate teaching laboratories, this paper will focus on the latter. The reason being that the technical support staff concerned with the issues addressed in this paper are primarily involved with undergraduate teaching.

Initially, technical support staff from the Department of Environmental Sciences at UTS, held informal discussions (around the morning tea table) to identify our major concerns relating to current OH&S (referred to EH&S at UTS) policies within the department.

A number of spot surveys were conducted to highlight compliance (or otherwise), of OH&S policy in the Department. These surveys involved visual counts of the number of students wearing protective safety clothing (laboratory coats and closed in shoes), as well as those who did not have appropriate clothing for the laboratory environment. Spot surveys were carried out over a two week period and conducted in a number of undergraduate laboratory classes, covering 1<sup>st</sup> year, 2<sup>nd</sup> year and 3<sup>rd</sup> year subjects.

Two questionnaires were then conducted. A total of 26 people were involved in the first questionnaire which covered staff (including academics, technical support, research assistants and postdocs) and postgraduate (including honours, masters and PhD students). A total of 168 people were involved in the second questionnaire covering undergraduate students (including students in the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year of their degrees). Results for these questionnaires were collated, and presented in graph format. No statistical analysis has been carried out on the results.

## Results and Discussion

### *Initial Discussion*

A main aim of this paper was to highlight areas of concern in regard to current OH&S policy and procedure in the Department of Environmental Sciences. Issues and concerns raised by technical support staff are shown in Table one below.

**Table One-** A summary of a discussion among technical support staff (in the Department of Environmental Sciences at the University of Technology, Sydney) in relation to concerns about their current OH&S workplace policy.

| <b>Main Concerns</b>                 | <b>Issues relating to concern</b>   |
|--------------------------------------|---|
| <b>OH&amp;S Enforcement measures</b> | <ul style="list-style-type: none"><li>- No uniform enforcement measures</li><li>- Unclear on exact OH&amp;S policy</li><li>- Unclear on staff enforcement roles</li></ul>       |
| <b>OH&amp;S Compliance</b>           | <ul style="list-style-type: none"><li>- Lack of compliance among students</li><li>- Lack of compliance among staff</li></ul>  |
| <b>Technical Support Role</b>        | <ul style="list-style-type: none"><li>- Our role in informing and enforcement</li><li>- No back up from above</li><li>- Constant headache</li></ul>                             |
| <b>The headaches</b>                 | <ul style="list-style-type: none"><li>- Students forgetting lab coats</li><li>- Wearing open toed shoes (mainly thongs)</li><li>- Water bottles (drinking in the lab)</li></ul> |
| <b>Field Excursions</b>              | <ul style="list-style-type: none"><li>- First Aid kits</li><li>- Students and alcohol</li></ul>   |

## **Spot Surveys**

Results from spot surveys showed that student compliance with OH&S requirements (personal protective clothing) was less than 100%. OH&S compliance ranged from 60-70% in third year subjects to 85% in the first year subject. In general students remember to wear closed in shoes to practical classes, but this trend may have been different if spot surveys were conducted during summer. Reasons that may account for differences in compliance among subjects and years are the amount of scheduled practical classes over the semester and the degree of OH&S enforcement from staff involved.

## **Questionnaires**

### **OH&S in general**

In the last couple of decades occupational health and safety (OH&S) has assumed greater significance for governments, employers, unions, professionals and workers in Australia (Bohle and Quinlan, 2000).

OH&S is more complex than many other initiatives because it deals with changing people's behaviour and attitudes, which generally takes longer to achieve results (CCH Australia, 2002). Within the Department of Environmental Sciences at UTS, attitudes with respect to OH&S information and enforcement vary among both staff and students. This paper highlights some of the different attitudes with respect to OH&S in general, personal protective equipment (PPE) and current staff issues within the department.

### **Communication**

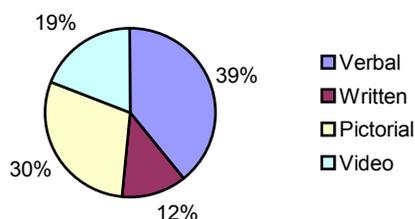
Merely training people in healthy and safe working practices will not often suffice. In many cases it will be necessary to provide forms of publicity which encourage them to take an active role (Personnel Management in Practice Series, 1991). The main methods for informing staff and students about OH&S issues at UTS are through signage, printed documents and verbal communication.

The effectiveness of laboratory signage was therefore an issue of concern. Upon questioning both staff and students whether they had read OH&S signage around the laboratory, 56% had read the material, while 44% had not. This is quite a poor result when the Australian Standard 2243 states that persons using the laboratory facilities should observe the general rules for safe conduct.

In a separate question staff and students were asked whether they thought that OH&S signage worked, and conveyed safety messages accordingly. Results showed that 66% thought OH&S signage worked, while 31% disagreed and 3% of those surveyed believed it depended on other factors.

Signage in the form of posters should be directly applicable and related to the particular work area (Personnel Management in Practice Series, 1991). The benefit of posters is that they can overcome language problems through the use of illustrations and symbols, which is highly useful in the multicultural university environment. One aspect that could result in an increased effectiveness of OH&S signage within DES, as noted by Personnel Management in Practice Series (1991) is that to maintain attention posters should be changed at frequent intervals. This practice is not currently done in the department.

Figure one below shows the results for the question ‘What is the best method for informing people about OH&S?’ The graph shows that verbal communication was the best method chosen by 39% of those surveyed. Followed by pictorial (30%), video (19%) and written information (12%). Other suggestions included the signing of a legal document, leading by example, experience and undertaking a quiz.



**Figure one-** Response to questionnaire question ‘What is the best method for informing people about OH&S?’ Values shown are as a percentage of 262 responses. Note that some questionnaire participants chose more than one option.

As part of the NSW Occupational Health & Safety Act (2000) employees have the right to be informed about potential hazards in the workplace and be directed as to preventative measures to minimise these hazards.

The main method of informing people at OH&S requirements within DES is through verbal communication, and results reflect that this has been effective. One method that has not been explored by DES is the use of video material. Personnel Management in Practice Series (1991) suggests for videos to have maximum impact on OH&S they should convey a sense of reality.

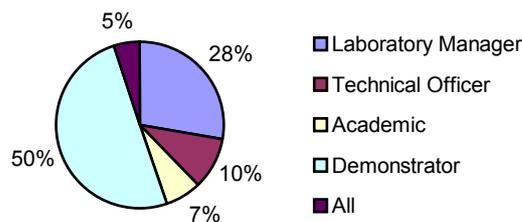
With the contentious issue of OH&S enforcement being raised by technical support staff, a number of questions in relation to current OH&S enforcement status were included in the questionnaires. 85% of people surveyed were aware that OH&S is a legal requirement in the university workplace, with 15% of people unaware.

### **Enforcement**

The majority of people thought that current enforcement of OH&S policy and procedures was appropriate (74%), with 19% suggesting that OH&S was not emphasized enough, and 7% suggesting that it was over emphasized within DES teaching laboratories.

One current enforcement downfall in DES is the disciplinary procedure when a student does not have appropriate protective clothing for practical classes (primarily laboratory coat and closed in shoes). From the staff and students surveyed, 53% thought it would be appropriate for students not to be allowed to enter the laboratory without appropriate protective clothing. 44% disagreed, and 3% said it depends on the situation. Current enforcement needs to be tightened.

Figure two shows the response to a question ‘Who should be the main enforcing body in the Department of Environmental Sciences?’ The pie graph shows that the majority of people surveyed thought that demonstrators should be the primary bodies enforcing OH&S procedure in the laboratory. This was followed by the laboratory manager (28%), technical officer (105) and academic (7%). A following 5% of people thought that everyone should play a role in ensuring OH&S policy and procedure is followed in undergraduate teaching laboratories.



**Figure two-** Response to questionnaire question 'Who do you think should have the main role of enforcing OH&S in the laboratory and field environments?' Values shown are as a percentage of 188 responses.

Employees in NSW are required to take reasonable care for the health and safety of persons who are at their workplace (CCH Australia, 2002), therefore ultimately everyone should play a role in OH&S enforcement in the undergraduate teaching laboratories in DES.

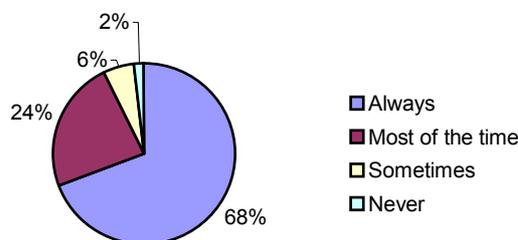
Unfortunately though the employee role of OH&S enforcement at UTS is not clearly defined within the undergraduate teaching laboratories in DES. Who is ultimately responsible for enforcing OH&S regulations among undergraduate students is an issue that needs to be resolved.

### Protective Clothing in the Laboratory

While the majority of practical classes run within DES would be classed as non-hazardous, personal protective equipment (PPE) is still required. It is noted in the UTS EH&S (2004) document that PPE should only be used as a last resort and should be used in conjunction with other control measures including safe work practices.

Laboratory coats are compulsory in all undergraduate teaching laboratories in DES. Of the 194 candidates surveyed, 95% owned their own laboratory coat. Looking solely at staff members, and postgraduate students, the figure decreased to 81%.

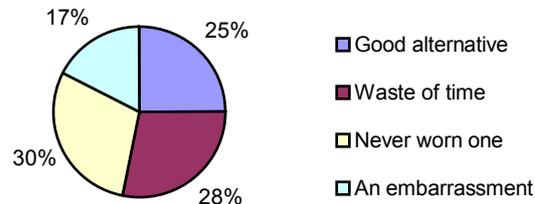
Figure three shows the amount of time those people surveyed spend wearing a laboratory coat in the laboratory environment. A large majority of people always wear their laboratory coat while working in a laboratory. The 2% that stated they never wear a laboratory coat were staff members in the Department of Environmental Sciences.



**Figure three-** Response to questionnaire question 'How often do you wear a lab coat in the laboratory environment?' Values shown are as a percentage of 194 responses.

Within the department plastic laboratory coats are issued to those students who do not bring their own laboratory coat to the practical class. As part of the questionnaire

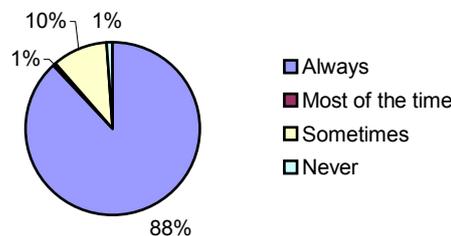
people were asked their opinion of the use of plastic laboratory coats. Figure four shows that 30% of those surveyed had never worn one, while 28% thought they were a waste of time, 17% considered them an embarrassment, and 25% thought they were a good alternative to their own laboratory coat. With the large majority of people thinking that plastic laboratory coats are a waste of time, this may be an issue that could do with improvement.



**Figure four-** Response to questionnaire question 'What do you think of plastic lab coats?' Values shown are as a percentage of 213 responses. Note that some questionnaire participants chose more than one option.

Closed in shoes are also compulsory in undergraduate teaching laboratories in the department. There are problems in the DES with students attending practical classes without appropriate footwear. In the Australian Standard for laboratories (AS 2243) it is stated that open toed shoes should not be permitted in the laboratory.

Figure five shows that 98% of people surveyed stated that they wear closed in shoes either always or most of the time while in the laboratory environment.



**Figure five-** Response to questionnaire question 'Do you always remember to wear closed in shoes in the laboratory?' Values shown are as a percentage of 194 responses.

Respondents were asked whether they thought they would be more likely to forget their closed in shoes during the summer period, when temperatures are higher. 39% of people thought it would be a more likely occurrence, while 61% believed it would make no difference.

While results show a high percentage of students attending practical classes with the appropriate footwear, compliance should be 100%. Stricter enforcement is needed.

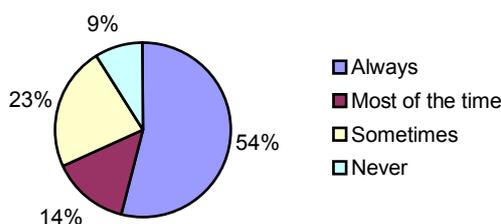
### Issues for staff

OH&S policy and procedure as mentioned previously brings with it many contentious issues. Within the Department of Environmental Sciences some issues that result in mixed opinions are; students bringing water bottles into the laboratory, the withdrawal of medications from first aid kits, alcohol on student excursions, and the use of

laboratories as tutorial rooms. The following results refer only to questionnaires given to staff members and postgraduate students.

With respect to the first issue of students and water bottles, questionnaire results show that 86% of people surveyed believe that students should not be allowed to bring water bottles into the laboratory. Furthermore 83% of those surveyed agree that eating and drinking should not be permitted in a laboratory. While water bottles are trendy for today, in the laboratory they create potential contamination issues.

Carrying a first aid kit while out in the field is good work practice. Of those people surveyed 54% stated that they always take a first aid kit with them in the field (Figure six), whether it be for the purpose of research or undergraduate excursions.



**Figure six-** Response to questionnaire question 'How often do you take a first aid kit with you in the field?' Values shown are as a percentage of 22 responses.

Until recently first aid kits issued within the Department of Environmental Sciences carried medications such as painkillers and antihistamines. Due to legal issues these medications are no longer provided. As part of the questionnaire participants were asked whether they thought having no medication in first aid kits would cause a problem. Results show that 52% believed there was potential for problems, while 48% thought it would not cause problems if people were made aware they would have to be responsible for providing their own medication.

Alcohol is very much a part of society and social activities, but when and where is alcohol consumption appropriate on undergraduate excursions? Of those surveyed 45% stated that they have consumed alcohol while out in the field with the majority of consumption occurring after work has been completed.

Arguably, all students participating in undergraduate excursions as part of their degrees in DES are of legal drinking age (over 18). The consumption of alcohol can greatly influence a person's state of mind and ability to act, thus presenting an opportunity for problems. Staff and postgraduate students were asked to convey their views on the issue. Results show that while 86% of staff/postgraduate students thought that alcohol should not be banned from undergraduate excursions, 55% identified alcohol as an issue.

The use of laboratory space as tutorial rooms brings with it the question as to whether compulsory protective clothing should still apply. Of the staff and students who filled in questionnaires, 53% suggested that you should still wear laboratory coats even when a tutorial is conducted in laboratory space. Many different activities are carried out in undergraduate teaching laboratories with the DES, ranging from sediment analysis, the use of chemicals and animal dissections. Because you can never be too sure about what activity has been carried out previously in the laboratory, it is good practice to always wear a laboratory coat even for a tutorial.

## Conclusion

The main areas identified as issues with respect to current OH&S policy with the Department of Environmental Sciences at UTS are;

- methods for informing students of OH&S requirements,
- staffing roles in OH&S enforcement, and
- student OH&S compliance.

## Looking towards the future

Proposals for future OH&S policy and procedure within the Department of Environmental Sciences undergraduate teaching laboratories include;

- Clarification on the hierarchy enforcement roles among staff.
- The production of a short 5 minute video covering the main OH&S student requirements, that will be shown to students at the beginning of every year.
- Ensuring that strict OH&S enforcement begins with students in their first year of university and is maintained throughout their degree span.
- New policy that states students must put on their lab coat before entering the laboratory door.
- Replacing plastic laboratory coats with a collection of spare cotton laboratory coats, which students can borrow in exchange for their student ID cards.
- Strict enforcement that students not wearing closed in footwear will not be permitted to enter an undergraduate teaching laboratory.

## References

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