GROWING TOGETHER: ASK OTHER TECH STAFF FOR ADVICE!

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Abstract

In 2003 I obtained development leave to visit some Australian Universities, to investigate the operations in units carrying out activities similar to my own. After initial email contacts with numerous people, universities in ACT and Adelaide were selected. Without exception, all discussions held were helpful.

Amoungst the issues examined were: levels of OHS compliance, regulatory body compliance (OGTR, AQIS, EPA), and alarms, backups, and other safeguards for low temperature storage. This paper reports on my findings.

Introduction

Numerous issues arise in the day-to-day operation of any university school or department. In considering solutions to these issues, such elements as cost effectiveness, simplicity, efficacy and scaleability must be taken into account. In many cases other institutions have encountered, and often solved, the same issues.

After initially contacting universities in relatively close proximity, I decided to broaden my enquiries to include universities in other states. The choice was made based on factors including comparative size to the University of Wollongong (UOW), distance and cost of travel, activities undertaken in the units and information obtained from initial email contact. ACT and Adelaide campuses were selected. Development leave was obtained. Individuals in appropriate units were contacted and meeting times arranged.

The information summarised here is a generalisation, and a compilation of discussions. No-one is quoted specifically. Approximately 20 people in 15 units across 5 universities were involved. This provided broad representation, but it is not presented as comprehensive.

Objectives

Paramount in my discussions with other staff were:

- Access Control to Labs
- OHS Compliance
- Other Regulatory Body Compliance
- Low temperature freezer storage

Each of these sections is detailed below.

Access Control to Laboratories

Preventing unauthorised access to laboratories is a requirement under our general OHS duty of care. It is also necessary to comply with specific legislation covered by the Office

of the Gene Technology Regulator (OGTR),the Environment Protection Agency (EPA) and the Australian Quarantine and Inspection Service (AQIS). In addition, theft of personal and School equipment presents a severe inconvenience and cost to the School.

The School of Biological Sciences at UOW carries out a combination of teaching and research with the same pool of academic staff. Undergraduate teaching labs are in separate buildings to the research labs. Most of the academic offices are in the same building as the research labs, and most offices are nested within the research labs. Traditionally there has been no access control to the building. It was decided to try to rectify this during a recent building refurbishment. Electronic access control was installed on all building entry doors. A PIN is required to gain access into the building beyond the main administration area. Providing access for student consultation with the teaching academics necessitated that the access control be switched off during normal working hours. This effectively placed the situation back where we began.

Units which operate as research only environments, with no 'common' areas in the building have a clear advantage. They can effectively restrict entry, require ID to be carried by everyone, and refuse entry to anyone without satisfactory reasons to be present. Obviously, when designing or refurbishing a building, there is a strong case to keep teaching space and offices separate from the facilities which must be kept secure.

Unfortunately, none of the units with mixed function buildings had a satisfactory solution to access control. Some units were not making any attempt to constrain access during normal hours. The number of regulators which require that access control be in place make this a problem.

After examining other potential solutions is was decided that the best partial solution is access control on individual doors, in areas where security is an issue. Mechanical keypads work well, and don't require that keys be in hand to gain access. (This was found to be an issue for people carrying laboratory gear). Electronic access control, PINs or proximity cards, are a more expensive solution. In Biological Sciences at UOW we have requested that our facilities management group (B&G) investigate the installation of proximity cards on selected doors in our research building. Funding will be sought for this in 2005.

Given the increase in regulation in these areas, it is not an issue that can be ignored for long.

OHS Compliance

Specific OHS legislation varies between states. However, there seems to be a common requirement for every workplace to have an OHS Management System. Once such a system is in place, staff need to be trained to understand and follow the system. At UOW we have a comprehensive OHS management system in place which meets the Workcover NSW criteria for self-insurance for Workers Compensation Insurance. There is a large financial incentive to maintain the self-insurer's licence. The profile of OHS at UOW has risen significantly since self-insurance was undertaken.

In 2003 an audit was done that specifically targetted the Science Faculty, in particular Chemistry and Biological Sciences. Internal and external scrutiny of our systems and our compliance with them was intense.

Even though we passed this scrutiny, there is an ongoing issue to make some of the changes needed to create compliance with our own systems. A change of culture is necessary to get improved practices incorporated in day-to-day operations, and this is proving to be difficult to achieve. Systems are not enough – people must make an effort to comply. Indeed, some recalcitrants may need to be forced to comply.

Every unit visited is currently working towards achieving OHS targets. The units that were further advanced had one key thing in common. They had one or more staff committed to OHS improvement. I observed that when a lone individual within a unit is trying to have an impact on OHS they have a difficult job. OHS compliance is further advanced in units where there is a commitment from senior management. This aids in 'persuading' all staff that they should comply with the systems in place. With support from senior management, resourcing, particularly staff resourcing, will be available. Staff resourcing is important. Researchers who must adopt new practises can be given one-on-one guidance or even assistance, in getting their lab groups to comply. It was noted that in many units the existing (general) staff are taking on the responsibility locally for introduction of OHS procedures.

In short, the units with the highest degree of OHS compliance have senior management support and specific resourcing of OHS.

Regulatory Body Compliance

My school is involved in research and teaching that occassionally uses radioactive materials, genetically modified materials, and imported, quarantineable materials. This work is overseen by the EPA, OGTR and AQIS respectively, requiring controls over and above the existing OHS system.

These three groups are in the process of revising their rules. There is an aim to produce a level of standardisation based on the current AS/NZS standards for physical containment. These new guidelines are taking a long time to finalise given the requirement for drafts, periods for comment, and redrafts. All laboratories working under these bodies will probably be required to make changes. This will affect procedures and possibly building infrastructure.

All units will probably be affected. Even relatively newly constructed buildings become non-complying as the regulations change.

There should be a degree of stability in the requirements when these groups have made the changes that are currently in progress. There are no cheap or easy solutions to compliance. The infrastructure required to operate in the science fields is expensive.

Low temperature freezer storage

Management of low temperature storage, and specifically -80 degree freezers, is an ongoing issue in my school. There is a heavy requirement for the storage. The freezers are large, usually with many users sharing space within each freezer. The very low temperature is used to preserve biological materials with minimal deterioration. It has

less instrinsic hazards than storage in liquid nitrogen, is generally easier to maintain, and has the capacity for storage of more and larger items. Specimens in storage can be the product of months of field work, and/or years of effort in the laboratory. They are valuable and often effectively irreplaceable.

These freezers can break down, and they are vulnerable to general power failures. My school has suffered two major freezer losses in 12 months. The issue needs to be addressed.

This particular aspect of my leave was extremely advantageous for my school. Investigation of other units' freezer management suggested the following approach to protecting freezer contents.

Two alarm systems are needed. One is a local, audible alarm which notifies the building occupants that a freezer's internal temperature is rising. Out-of-hours this will be ineffective. The other alarm signals direct to B&G or security (part of the building management system). One or both of these alerts you to the problem, which allows time to respond if relocation of stored materials is an option.

A carbon dioxide backup system permits the temperature of the freezer(s) to be kept low without power, for a limited period of time. An asphyxiation hazard is created when a room has C02 released into it. Separate control systems must be in place to deal with this.

In the case of power loss, rather than a freezer breakdown, the problem is possibly more widespread. The opportunity to relocate stored items to another freezer is unlikely to exist. Only one unit was observed to have a 'spare' freezer and to have successfully prevented it from coming into use. The best solution is a source of backup power. A diesel generator, regularly tested and serviced, is required. There are considerable cost implications, including the generator itself, ongoing maintenance, and making the electrical supply to the building(s) switchable. The generator(s) could be used to support other buildings if required. If so, costs could be shared.

Connection to backup power requires that all unnecessary items must be disconnected from the supply. There must be load shedding to match the drop in supply. The capacity of the generator determines the amount of shedding required. There is the possibility of maintaining power to other critical items, for example, incubators or laboratory fridges.

I am currently planning a strategy to seek the funding which will be needed to get the various components of the system put in place.

Miscellaneous

In addition to the specific objectives examined, there were numerous small matters that were observed or mentioned that sparked interest. A number of these have been incorporated into operations at UOW.

Future Directions

Other areas of interest, to be explored with input from other universities are:
OHS training needs analysis and record keeping
Career progression for technical staff

Preparation of Safe Work Procedures for lab and field work.

Conclusion

The objectives of the development leave were satisfied. A large amount of useful information was available. The amount of information was so large that information overloaded is a risk. There has been considerable benefit to UOW from the information brought back.

A great potential exists for productive interaction and information exchange between staff in different units and different universities. Time is the limiting factor. Time needs to be invested to make the contacts with relevant people. Travel to other campuses enhances the experience, but it is not essential. Technology provides us with ready means of remote communication. The effort is worth it, if you can organise yourself to accommodate it. You may have a good idea which would a benefit everyone else if they learned it. You may be given a really good idea for something that you have been working on, or you may see something solved which you can apply in your own workplace. At worst, you can get some small comfort from discovering that other people are facing with the same issues as you and that there is no a ready solution.

Ask someone else how they solved it.