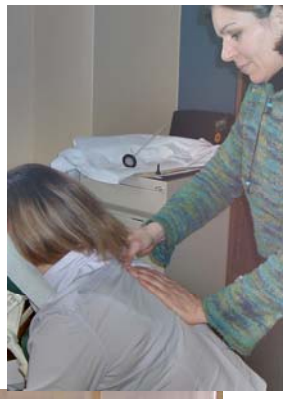
UNIVERSITY OF TORONTO

Health and Safety Annual Report 2005



Incorporating Reports of:

- Environmental Health and Safety
- Health and Well-being Programs and Services

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INTRODUCTION

The Terms of Reference of the Business Board require that the President or his designate prepare and submit to the Business Board an annual report on environmental health and safety activities including activities undertaken to ensure compliance with the *Occupational Health and Safety Act* and the *Environmental Protection Act*.

This report is submitted in conformance with these requirements and summarizes the major activities and the progress made in addressing health and safety issues at the University of Toronto during the calendar year 2005. The report was prepared jointly by the Office of Environmental Health and Safety and Health and Well-being Programs and Services. Appendix A lists the staff of these two units.

1.0 HEALTH AND SAFETY AT THE UNIVERSITY OF TORONTO

1.1 Organization

Through its Safety and Health Policies, the University of Toronto commits to the promotion of the health, safety and wellbeing of all members of the University community, to the provision of a safe and healthy work and study environment, and to the prevention of occupational injuries and illnesses.

The University subscribes to a “line management” philosophy of accountability for Health and Safety and expects that managers and supervisors, whether academic or administrative, will take responsibility and be accountable for the health and safety of those individuals under their direction and those workplaces under their charge. They are expected to advise their employees of the existence of potential or actual workplace hazards, and to ensure that they work safely and in accordance with the Occupational Health and Safety Act and its regulations, and all applicable University policies and procedures.

Managers and supervisors are expected to take every precaution reasonable in the circumstances for the protection of their employees. All members of the University community are expected to demonstrate their commitment towards a safe and healthy work and study environment by acting in compliance with the University’s Health and Safety Policy.

The Vice President, Human Resources and Equity is the Senior Officer of the University with accountability for Environmental Health and Safety. She is supported by the Office of Environmental Health and Safety (EHS), Health and

Well-being Programs and Services and specialist committees responsible for radiation protection, laser safety, asbestos and biohazards management. A network of Joint Safety and Health Committees also provides valuable input to the EH&S agenda through identifying employee concerns, conducting workplace inspections and reviewing incident and accident reports.

A Senior Management Committee on Health and Safety, composed of senior academic and administrative managers of the University, provides advice and assistance to the Vice-President, Human Resources and Equity.

1.2 Office of Environmental Health & Safety

The Office of Environmental Health & Safety (EHS) reports to the Assistant Vice-President, Human Resources. Its mandate is to ensure that an environmentally responsible, safe and healthy work, research and study environment exists at the University of Toronto.

To do this a proactive approach is taken to identify risks and emerging issues and to develop and implement innovative, practical and sustainable processes to manage them, including training and awareness, teaching, provision of expert advice, emergency response procedures and assurance programmes.

The Office of Environmental Health & Safety works in close collaboration with all members of the University community to establish and maintain health and safety systems that maintain a high level of safety while not impeding academic freedom and freedom of research.

The Office provides technical advice and assistance to the University community on health and safety matters, participates in the development and implementation of health and safety policies, procedures and programs, and monitors and audits compliance with University policies, federal and provincial health and safety legislation and permit requirements.

1.3. Health and Well-being Programs and Services

Health and Well-being Programs and Services (HWB), reporting to the Assistant Vice-President, Human Resources, functions as a centralized resource for all employees of the University of Toronto interested in proactive programs related to a healthy workplace or in need of information on occupational health, workplace injury, sick leave, long term disability, workplace accommodation and related issues.

HWB staff work collaboratively with Divisional Human Resource Offices, EHS,

departments and employees to return employees to the workplace in a timely and successful manner following injury or illness. The office also provides leadership to the university community on health and well-being issues in the workplace, including the development of inclusive, fair and proactive approaches in the accommodation of persons with disabilities.

HWB manages the Workplace Safety and Insurance Board program for the university and tracks injury rates and severity. HWB works with academic and administrative departments and EHS to develop targeted responses to identified patterns in an effort to reduce the incidence and severity of workplace injuries.

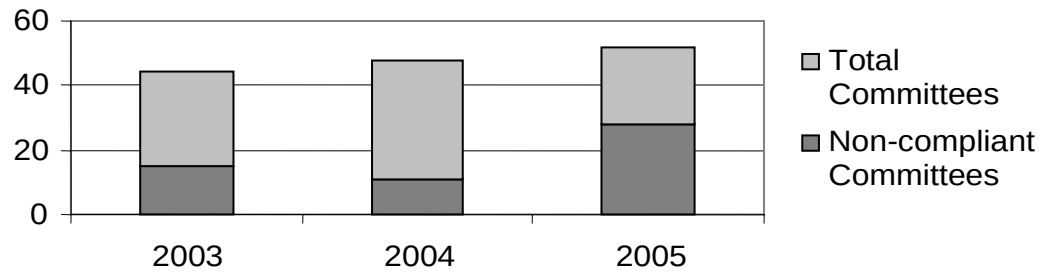
The proactive role of HWB in promoting a healthy workplace is more fully described in the *Human Resources and Equity 2005 Annual Report*, available on the HR website at http://www.utoronto.ca/hrhome.vphr/annual05.pdf.

1.4. Joint Health and Safety Committees

Joint health and safety committees (JHSC's) play an essential role in the maintenance of a safe and healthy work environment at the University. Each committee, consisting of worker and management representatives, discusses and makes recommendations related to workplace health and safety. Committees are required under the Occupational Health and Safety Act of Ontario and must meet at least four times a year. Each committee must have at least two certified members.

At the University 52 joint health and safety committees have been established to represent faculties, departments, buildings and/or employee groups. Committees are consulted in the development and review of health and safety policies and programs and are provided with reports of all accidents involving health care or lost time pertaining to employees they represent.

Figure 1.1 Joint Health and Safety Committees



Appendix B lists the University committees and summarizes the number of times they met in 2005 and the number of certified members on each committee. In 2005, 24 (46%) out of the 52 committees met at least four times during the year. This represents a marked drop from 2004, where 85% of committees met as required. Employee transfers, departures and retirements continue to present a challenge in maintaining full membership and regularly scheduled meetings of committees. In 2006, EHS will initiate discussions with management and employee groups on strategies to highlight the significant role of the committees, to encourage participation on committees (a voluntary effort on the part of non-management employees), and to ensure that the mandate of the committees for meetings, certified members and regular workplace inspections are fully complied with. The declining level of compliance also raises the question of whether the University community would be better served by fewer but more active committees, and this issue will also be addressed in 2006.

2.0 OCCUPATIONAL HYGIENE AND SAFETY

The Office of Environmental Health & Safety provides advice on health & safety issues, evaluates potentially hazardous situations involving chemical, physical and ergonomic stressors. The Office develops and assists in the implementation of programs to protect the health and safety of employees and students, and to evaluate the effectiveness of these programs.

Demands on the professional services of EHS occupational hygienists continue to increase as employees become more aware of health and safety issues. The steady increase in laboratory activities at the University as well as the growth of the academic and administrative communities has also contributed to the increased workload.

2.1. Biosafety

Research and teaching activities at the University that involve the use of potentially hazardous biological agents must be conducted in accordance with the requirements of the University's Biosafety Manual and applicable legislation. The function of the Biosafety organization in EHS is to promote the appropriate standards of biological safety in laboratories and to enable compliance with these standards.

2.2. Biosafety Committee

The function of the Biosafety Committee is to ensure that all activities within the University involving the use of hazardous biological agents are conducted in a safe manner and conform to the requirements of the Biosafety Manual. The membership of the committee is listed in Appendix C.

The Biosafety Committee's major task in 2005 has been to review and update the Biosafety Policies and Procedure Manual to incorporate information from the new Laboratory Biosafety Guidelines recently issued by Health Canada. A subcommittee is working on the revisions. The Office of Environmental Health and Safety is coordinating the process, with assistance from Dr. James Scott, Public Health Sciences, and Dr. Peter Lewis, Vice-Dean of Research, Faculty of Medicine. It is anticipated that the revised Biosafety Manual will be issued in mid-2006.

Other issues being addressed by the committee included:

- Review of the Terms of Reference
- Revision of the Biosafety Certificate Application Form
- Monitoring compliance with Biosafety Guidelines/ Laboratory Inspections
- Biosafety Training
- Shipment of Biological Agents
- Review of Autoclaves and the Treatment of Laboratory Waste
- Addressing Tri-Council Audit recommendations

2.3. Biosafety Certificates

Biosafety containment levels are established to ensure the safe handling of biological hazards in a laboratory setting. The level of containment increases with the level of risk associated with a given biological agent, and includes engineering, operational, technical and physical considerations. Most University laboratories using biological agents operate as Containment Level 1 or 2 laboratories. There are two Containment Level 3 laboratories at the University where researchers work with higher risk organisms; both of these locations are secured against unauthorized entry and have special procedures.

A University Biosafety certificate is required for all research and teaching laboratory activities which require the use of potentially hazardous biological agents. In 2005, the Biosafety Committee approved:

- 39 projects requiring Containment Level 1 laboratory conditions,
- 88 projects requiring Containment Level 2 laboratory conditions, and
- 6 projects requiring Containment Level 3 laboratory conditions.

A total of 202 biosafety certificates were valid during 2005 (as compared to a total of 172 valid certificates in 2004). The increase in biosafety certificates is expected to be an ongoing trend, given the increase in research and teaching activities in the University. Biosafety certificates issued for Containment Level 1 are valid for a period of 2 years. Those for Containment Level 2 and 3 are valid for one year only.

2.4. Importation Permits for Biological Agents

The Public Health Agency of Canada and the Canadian Food Inspection Agency require permits for the import of biological agents used in research laboratories. Both agencies require the principal investigator to submit extensive documentation. The Biosafety officer conducts a physical inspection of the laboratory and completes and signs these documents. In 2005, approximately 20 import documents were completed.

2.5. Biosafety Orientation Seminars

The Office of Environmental Health & Safety conducted biosafety orientation seminars for 365 individuals, providing basic information regarding the potential hazards of laboratory work with biological agents, and the safe work practices and procedures.

2.6. Biosafety Conference, Ontario Universities

In October 2005, the University of Toronto and Ryerson University co-hosted a 2-day Biosafety Conference for the Ontario Universities Biosafety Officer Group. The conference was attended by over 20 individuals from universities across Ontario.

2.7. CANFAR Biosafety Level 3 Facility

The multi-user CANFAR (Canadian Foundation for AIDS Research) Facility was constructed to accommodate research into Human Immunodeficiency Virus (HIV), *Mycobacterium tuberculosis*, and other human pathogens. The Facility was certified by the Public Health Agency of Canada (PHAC) as a Containment Level 3 laboratory in November 2004 and opened officially to laboratory users in December 2005. Throughout 2005, the Facility worked at finalizing a number of operational procedures, such as the emergency response plan, procedures for working alone or after hours and decontamination and disposal procedures. A decision was made to use 1% sodium hypochlorite as a less hazardous alternative to glutaraldehyde as a chemical disinfectant following consultation with the Office of Environmental Health and Safety and Health Canada. Procedures for disposing of waste hypochlorite were developed in consultation with EHS, and will include pumping the liquids into appropriate containers and removal by EHS.

2.8. Biosafety Officer Position - Staffing

The sudden and unexpected death of John Valant, Biosafety Officer, in October 2005 was a sad loss for the University. John had worked at the University for 26 years. The duties of the Biosafety Officer were competently assumed by one of the occupational hygienists (Sandra Deike), in addition to her regular duties and with assistance from the members of the Biosafety Committee. The process to fill the Bio Safety Officer position is in progress.

2.9. Hazard Control Programs

i. Asbestos

The Office of Environmental Health and Safety, Facilities and Services (F&S), and Capital Projects have actively continued to communicate, implement and enforce the requirements of the University's Asbestos Control Program.

The Asbestos Advisory Committee met four times in 2005. The Committee includes management and worker membership and reports to the Vice-President, Human Resources and Equity. It is co-chaired by the Assistant Vice-President, Human Resources and the Assistant Vice-President, Facilities and Services. The committee provides direction on asbestos-related issues at the University, including training of contractors, review of all asbestos incidents on campus, and implementation of the Asbestos Control Program at UTSC and UTM. Appendix D lists the members on the Committee.

In November 2005, a new asbestos regulation (Ontario Reg. 278/05), under the Occupational Health and Safety Act, came into effect. Significant changes have been made, including the addition of non-friable asbestos materials to the asbestos management program, reclassification of some asbestos work, an increase in bulk sampling requirements, a higher level of respiratory protection, more stringent clearance sampling requirements for asbestos removal work, and updating of existing safe work measures for asbestos work. These changes adversely affect costs associated with asbestos removal and time requirements for renovations.

The University is actively involved in implementing these changes. Since November, EHS has begun providing training courses to update managers and employees about the requirements of the new regulation. Project and property managers have incorporated the regulatory changes into their tenders and specifications. EHS, in consultation with the Asbestos Advisory Committee and Facilities and Services, are in the process of updating the University's Asbestos Control Policy and Program to meet the new regulatory requirements.

EHS has continued to provide training to employees who work around asbestos materials and are likely to disturb such materials. Training courses were attended by 159 individuals.

To assist in ensuring compliance with the University's asbestos training requirements, Facilities and Services has also provided several asbestos awareness training sessions for external contractors regularly working in areas where asbestos materials are present.

ii. Noise Control

The Noise Control Program applies to all University employees who work in noise hazard areas or who may potentially develop noise-induced hearing loss as a result of their occupation. EHS continued its program of identification and education of additional employees who are potentially "noise-exposed" at the University. In 2005, training was provided to 39 employees.

A noise assessment of the back-up diesel generators on the St. George campus and the Institute for Aerospace Studies location found noise levels to be as high as 114 dBA. Signage, stating the requirement for the use of hearing protection, was already present at most of the tested sites. The measured noise levels will be posted on these signs.

iii. Lifting Devices

Lifting devices, including cranes, lift trucks, hoists, winches, and scissor lifts, must be inspected, and maintained to ensure they can be operated in a safe manner. The University's Lifting Devices Standard was revised in 2005 and disseminated to department heads to ensure that such devices are inspected annually and that employees are properly trained on how to use the devices safely. In 2006, EHS will develop an inventory of all lifting devices at the University, and coordinate training sessions for employees.

iv. Confined Spaces

A confined space is one which, because of its construction, location, contents or work activity, may result in the accumulation of a hazardous gas, vapour, dust and fume, or the creation of an oxygen deficient atmosphere. A confined space has a limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work but is not designed for continuous occupancy by the employee. The University's Confined Spaces Program outlines the general procedures and precautions necessary for personnel to enter confined spaces and conduct work safely.

The Office of Environmental Health and Safety has continued to provide advice and information to departments and employees on confined spaces at the University. In 2005, 61 employees were provided with training on confined spaces entry.

v. Fall Arrest

Employees requiring access to elevated locations are faced with a potential risk of falling. The University's Fall Protection Standard addresses the requirements for ensuring that such work is conducted safely. In 2005, fall arrest and awareness training was provided to 93 employees.

vi. Lockout/Tagout

The various forms of energy associated with machinery and equipment have the potential to cause severe injuries, including electrocution, burns, chemical exposures, crushing injuries or amputations. Effective processes for locking and tagging out such machinery and equipment are essential to protect employees from the hazards associated with inadvertent or accidental start-up during servicing, maintenance or other activities.

In 2005, EHS coordinated lockout/tagout training for 146 employees. In addition, EHS assisted in the development of lockout/tagout procedures for Facilities and Services employees.

vii. Workplace Hazardous Materials Information System (WHMIS)

All employees who work with or around chemicals or other hazardous materials must be provided with appropriate training to ensure they can work with these chemicals safely. In 2005, EHS continued to provide assistance to individual departments in complying with WHMIS requirements for appropriate labelling, material safety data sheets (MSDS), and worker education and training. The EHS web site includes links to a number of electronic MSDS databases.

In 2005, EHS provided generic WHMIS training to 889 employees and graduate students in a range of departments. To facilitate in-house departmental training, EHS provided WHMIS Train-the-Trainer seminars to 16 employees.

viii. Working in Hot Environments

A hot work environment is one in which conditions in the workplace provide a tendency for harmful body heat storage. The result of the body's inability to deal with the heat burden may lead to heat disorders, disability or even death. The hot work procedures document the responsibilities of various pertinent individuals/groups and provide employees with an overview of the health and safety hazards associated with working in hot environments as

well as alerting them to precautions necessary to prevent heat stress or other problems.

In 2005, heat stress training was provided to 54 employees.

ix. Slips, Trips and Falls

In 2005, EHS focussed on Caretaking Services employees to increase their awareness of the hazards in their workplaces that could lead to slips, trips and falls, which contribute significantly to their accident statistics. An awareness training session was conducted for all Caretaking employees. Furthermore, slips, trips and falls safety posters were developed and forwarded to Caretaking for distribution to local employee building locations.

x. Laboratory Safety

In 2005, EHS developed a Laboratory Safety Program aimed at minimizing the risks associated with a wide range of hazards associated with laboratory operations. The following elements are included in this Program:

- Responsibilities to lab supervisors and workers
- Proper laboratory design criteria
- Decommissioning of a laboratory facility
- Information and labeling requirements for hazardous materials
- Training and education of laboratory workers
- Proper use of laboratory safety equipment
- Proper use of personal protective equipment
- Written safety procedures for hazardous operations
- Proper disposal of hazardous wastes
- Reporting of laboratory accidents/incidents
- Emergency procedures in the laboratory

A draft document was issued for review by joint health and safety committees covering workplaces with laboratories. The document will be finalized and distributed in mid 2006.

xi. Fume Hood Alarm Monitor Recalibration and Fume Hood Performance Testing

The "Ventalert" monitor and alarm system provides continuous monitoring of the operating efficiency of by-pass fume hoods, and sounds an alarm to warn the fume hood operator of a failure of the exhaust system.

EHS coordinates this program which establishes a protocol for the annual testing and recalibration of all alarm monitors, as well as monitoring of face velocity as a measure of relative performance of these fume hoods. In 2005, approximately 1170 fume hoods were tested and the Ventalerts revalidated. Malfunction reports for inadequate face velocities were issued on 41 fume hoods (3.5%).

xii. Deluge Shower Testing

To ensure that deluge showers and eyewash fountains will function properly in the event of a chemical splash, they must be tested on a regular basis. An annual testing program has been carried out since 1995. At that time the failure rate of tested deluge showers was 18%. This rate has declined to an average of 4%.

xiii. Office Ergonomics

EHS continued to use its "participative" approach for office ergonomics. Staff members attend a seminar where they learn how to adjust their own work areas to fit, taking into account the unique way in which each person performs his or her work. In 2005, 11 Office Ergonomics sessions covering workstation design, posture, lighting and job design, were held at the three main campuses and 122 individuals attended. Follow-up assistance was provided where necessary. Further assistance was provided to 17 individuals at their own workstations.

EHS provided ergonomic advice to managers and employees involved in the renovations of 155 College Street and the Athletic Centre. EHS also provided ergonomic support to Health and Wellbeing Programs and Services on WSIB claims, return to work activities, and job accommodation cases.

xiv. Indoor Air Quality

EHS investigated indoor air quality concerns, ranging from general “stuffiness” to poor temperature control to lack of air movement in the following buildings/departments:

- Human Resources, Robarts Library (ongoing discomfort, inadequate air flow)
- Sports Clinic, Athletics Centre (chlorine odours)
- Faculty of Social Work – Floors 1 to 5 (temperature)
- 155 College – Nursing (odours)
- Mining Building – Room 78 (ventilation, temperature)

- Alumni & Development, 21 King's College Circle (dust, stuffiness)
- Fine Art Dept., 1 Spadina Crescent (odours)
- Political Science, Sidney Smith Hall (headaches)
- International Medical Graduates of Ontario, 2nd Floor, 700 Bay St (discomfort)
- Family & Community medicine, 263 McCaul St. (low humidity)

xv. Mould

The University's Mould Control Program was revised in 2005. Assessments for mould were conducted at the following locations:

- Gerstein Library – 2 below level (pipes)
- Gerstein Library – Journal stacks (windows)
- Benson Building – Mechanical room
- Pratt Building – Room 283B
- Fitzgerald Building – Room 107
- Robarts Library – Room 4038

Where mould is discovered it is removed following the precautions outlined in the mould control program.

xvi. Drinking Water Quality

A number of water quality concerns were investigated and resolved, ranging from issues of discolouration or poor taste. These generally occurred in older University buildings, and involved turbidity or elevated metal levels in the water. Drinking water quality assessments were conducted in the following buildings:

- 263 McCaul St
- 21 King's College Circle
- 1 Spadina Crescent

2.9. Other health and safety concerns responded to by The Office of Environmental Health and Safety:

EHS has continued to respond to increasing requests for workplace hazard assessments, including the following:

- In response to concerns by graduate students an assessment was conducted into the use of materials such as nickel powder and silicone resins in a laboratory in the Rosebrugh building. Recommendations included making improvements to the ventilation, regularly scheduled housekeeping, proper use of personal protective equipment, and revised handling and storage procedures. Many of

these recommendations have been implemented and a new ventilation system is being installed. Nickel work will not resume in the laboratory until the changes to the ventilation system are completed.

- An investigation was conducted because of a concern raised by the Electrical and Computer Engineering Joint Health and Safety Committee. This confirmed that a platform constructed in a laboratory had a load bearing capacity insufficient for human occupancy. The platform is now only being used for storage.

- A Designated Substance Assessment was conducted for crystalline silica contained in silica sand used in the greenhouse area of the Earth Science Centre. Recommendations to improve control measures and minimize exposure to silica have been implemented, including isolation of silica work, implementation of safe handling and storage procedures, proper use of personal protective equipment, and training on safe work measures and respiratory protection.

- An investigation was conducted in response to employee concerns about possible exposure to beryllium in the McLennan Physical Laboratories. Air sampling showed levels of beryllium to be well below the Ontario occupational exposure limit. Further air sampling will be conducted once beryllium work resumes.

- Air monitoring for mercury vapour was conducted at various locations on the St. George campus in response to ongoing concerns by Trade Services employees. The levels of mercury vapour in all the sampled locations were below the Ontario occupational exposure limit, and did not indicate any obvious source of mercury. These results are consistent with previous measurements. Mercury Awareness Training was provided to Trade Services employees.

- A review of the toxicity and potential use of glutaraldehyde as a decontamination agent in the Biosafety Level 3 laboratory, Medical Sciences Building resulted in the decision to use bleach as the decontamination agent rather than glutaraldehyde.

An assessment was conducted of ergonomic issues related to performing a high volume of precision work in the Dental Services Laboratory, Faculty of Dentistry. Recommendations were made for more varied arrangement of work tasks throughout the day and replacement of workstations with ones of better ergonomic design.

3.0 HEALTH AND SAFETY AWARENESS, TRAINING AND EDUCATION

3.1. Training Courses

EHS provided courses on a broad range of topics, including Asbestos, Biosafety, Chemical Safety and WHMIS, Office Ergonomics, Confined Spaces, Fall Protection, Health and Safety for Managers and Supervisors, Lockout, Manual Materials Handling, Mercury Awareness, Mould Awareness, Respiratory Protection, Noise, and Slips/Trips/Falls. The training courses provided by EHS are summarized in Appendix F.

3.2. Express Online Registration and Online Training

In April 2005, with the assistance of Staff Development, EHS launched its web-based Express Registration system for its training courses, to facilitate efficient online registration, to better monitor training activities, and to improve tracking of employee training records. The system will be reviewed in 2006 to ensure that it meets these needs.

A strong need for on-line safety training programmes has been identified by a number of the EHS client groups. EHS is reviewing options for on-line training with a view to introducing programmes in 2006.

3.3. Health and Safety Awareness Events

EHS continued to promote its resources and services by participation in a number of organized University events, including:

- April 2005 – Workplace Health Fair, Robarts Library
- May 2005 – Take Our Daughters and Sons to Work Day
- September 2005 – Faculty Orientation: Beginning Teaching and Research
- September 2005 – SGS Graduate Student Orientation, Hart House
- October 2005 – 2nd Annual Employee Health and Benefits Fair, Faculty Club
- October 2005 – Health and Benefits Fair, UTM

3.4. Other Educational Events

- EHS worked with academic departments to provide tailored courses or workshops as part of their academic programs, including:
- Respiratory Protection - Quantitative Fit Testing, Occupational Hygiene MHSc Students, Gage Occupational and Environmental Health Unit (GOEHU)
- Air Sampling for Formaldehyde during Anatomy Dissection Laboratories, Occupational Hygiene MHSc Students, GOEHU

- Noise Sampling Exercise, Occupational Hygiene MHSc Students, GOEHU
- Chemical Safety and WHMIS training, Pre-Service Ontario Teacher Education Program, OISE/UT

3.5. Ontario Universities Networking

The University of Toronto Office of Environmental Health and Safety represents the University on the Council of Environmental Health and Safety Officers (CEHSO) group, an affiliate group of the Council of Senior Administrative Officers (Council of Ontario Universities). Representatives from the environmental health and safety departments of the participant Ontario universities meet regularly to network and share information and programs on health and safety initiatives.

3.6. University Safety Group Program

In 2003, the University of Toronto along with 15 other Ontario Universities from CEHSO established the University Safety Group. The Workplace Safety and Insurance Board (WSIB) established the Safety Groups Program as an initiative to recognize and reward organizations that incorporate workplace injury and illness prevention measures into their daily business practices.

Each participating University is required to develop an action plan for implementing five new health and safety programs within their organization annually. In addition to the benefits of sharing health and safety information, the University has received financial rebates from WSIB for the successful completion of its annual action plan.

In 2005, the University completed the following initiatives as part of its Safety Group plan:

- Slips, Trips and Falls Awareness for caretaking employees
- New Employee Safety Orientation for Facilities and Services employees
- Lifting Devices Safety Program
- Laboratory Safety Program
- Non-Ionizing Radiation Safety Program

4.0 RADIATION PROTECTION SERVICE

The mandate of the Radiation Protection Service (RPS), a group within the Office of Environmental Health and Safety is to ensure the safe use of all substances and devices which emit ionizing or non-ionizing radiation including the authorized and safe procurement, usage, storage, and disposal of radioactive materials and devices at the University. This includes the use of nuclear substances and radiation devices in our academic research facilities, research irradiators, industrial radiography by outside contractors, x-ray generating equipment, lasers electromagnetic, static electric and magnetic fields, radiofrequencies and microwaves.

The Radiation Protection Service supports the University Radiation Protection Authority (UTRPA) which has overall responsibility for the protection programmes for ionizing and non-ionizing radiation at the University of Toronto. The Members of the UTRPA are appointed by the Vice-President, Human Resources and Equity. It formally reports to the Governing Council through the President. Appendix E lists members of the UTRPA.

The University Radiation Protection Authority met twice during 2005 and discussed the Canadian Nuclear Safety Commission (CNSC) Type 2 Inspection, the CNSC Security Audit and the extensive commissioning and decommissioning requirements for laboratories at CCBR, Leslie Dan, UTM, and UTS.

In 2005 the RPS trained 1122 members of the University community on Radiation Safety and conducted more than 900 on-site investigations to assess risk and compliance, not including follow-up evaluations.

Operational monitoring of performance by the RPS incorporates both leading and trailing indicators of performance and these are shown in Appendix G.

4.1. Ionizing Radiation

i. Nuclear Substances and Radiation Devices Licenses, Permits and Compliance

In order to be able to use radioactive sources the University must apply for and be granted Nuclear Substances and Radiation Devices Licenses by the Canadian Nuclear Safety Commission. The University manages 3 federally issued Licenses for the use of nuclear substances and radiation devices. These include the *Consolidated Nuclear Substances and Radiation Devices License*, a *Developing and Testing License*, and the *Waste Nuclear Substances License*. To meet the requirements of these licenses the RPS administers a permit system for individual researchers and administers controls on their use.

There are 250 permit holders across the University. In accepting a permit, the permit holder assumes the responsibility of a “supervisor” as defined under the law and agrees to abide by the terms and conditions of the permit.

The University radiation protection program is also subject to the regulations and requirements of the Ontario Ministry of Labour, Ontario Ministry of Environment, Metropolitan Toronto By-Laws, Environment Canada, and Health Canada in addition to the regulations under the Canadian Nuclear Safety Act.

Two audits were performed during 2005 by the Canadian Nuclear Safety Commission; one related directly to security of the nuclear substances and radiation devices and the second to the implementation of the overall radiation protection program.

The security audit resulted in 14 Action Notices, 10 of which have been successfully completed and are considered closed by the CNSC. The remaining Action Notices are essentially complete, requiring the completion of linking an alarm system on some radiation sources to the Campus Police and the decommissioning of one radiation source.

The second major audit was a Type 1 Inspection, which took place between November 29 and December 2, 2005. This Inspection resulted in one Directive and one Action Notice, with several concerns noted under each of these. The Radiation Protection Service has responded to the CNSC and has commenced implementing the improvements required. [The response to this inspection report was forwarded it to the CNSC on March 15, 2006].

An inspection by the Ontario Ministry of Labour resulted in 6 orders, all relating to one x-ray machine. All issues have been successfully addressed.

ii. Academic Research Activities

The RPS is responsible for the radiation safety aspects of academic research activities in over 1000 locations on all 4 campuses, as well as off-campus radiation usage in locations under the control and authority of the University. This responsibility includes 85 Radiation Devices, 80 X-ray machines, the calibration of 150 contamination meters annually, and the control of highly radioactive materials in irradiators and industrial radiography sources. Considerable effort is required to maintain the records of purchasing of sources, inventory control, permit tracking (250 Permits) and revisions to permits (89). Dosimetry and exposure assessment involves procuring and tracking 1120 Thermo-luminescent Dosimeters (TLDs), conducting 27 bioassays on potentially exposed people, tracking approximately 4500 exposure reports and leak testing of radioactive sources (61). The RPS is also responsible for ensuring that commissioning and decommissioning of laboratories is conducted in a safe manner.

iii. Education and Training

All users of radioactive materials must attend a Radiation Safety course and successfully complete a written examination prior to being authorized to use radioactive materials. A certificate of training is provided and an inspection of the specific risks and safe handling precautions for the user's laboratory is performed. In this way, the newly authorized user is aware of the University's expectations prior to using these hazardous materials.

The RPS also offers specific training for:

- Use of irradiators, which contain hazardous radioactive sources
- Use of x-ray generating devices
- Summer and Special Project Students
- Other University staff such as Housekeepers, Facilities and Services staff, Campus Police etc, who may potentially come into contact with radioactive sources or devices while carrying out their duties.

During the last 2 years the RPS has provided refresher training to greater than 90% of Permit Holders and authorized users. This refresher training is a requirement of the CNSC and UTRPA.

Training demands continue to grow as shown in the table below.
(See also Appendix F).
We anticipate increasing training demands in the year ahead.

Table 4.1. Radiation Protection Training Demands

	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Radiation Protection Course Attendees	179	201	216	265	207	206
Trained Summer/Project Students	83	86	76	61	82	88
Refresher Training Attendees	-	-	-	-	152	209
Laser Safety Training Attendees	-	-	-	-	112	113
Irradiator Training Attendees	-	-	-	-	-	25
X-Ray Training Attendees	-	-	-	-	-	3
Radiation awareness training –Trades + Utilities	NA	NA	NA	30	30	85
Radiation awareness training -Housekeepers	NA	NA	NA	NA	NA	300
Radiation training – Certified JH&SC committees	NA	NA	NA	5	5	7
Trained Staff Total	262	289	292	361	588	1122

In response to increasing training requirements and to improve communication with our clients, the RPS has prepared web-based Radiation Protection calculations and training modules which have been posted on the RPS website.

Awareness training for those with potential exposure to radioactive materials such as non-users in open concept laboratories, housekeeping and trades/facilities staff and Campus Police, is offered on a regular basis.

A dedicated EHS training room at 256 McCaul Street is under construction and will be available in Q2 2006.

iv. Industrial Radiography

Radiography sources of considerable energy are used to identify hidden reinforcing steel bars, plumbing, or conduit within the concrete prior to renovation work. The Radiation Protection Service has developed an Industrial Radiography Program to minimize the potential hazard from this type of work.

During 2005, Industrial Radiography Permits were issued for 10 assessments including the Wallberg, Lash Miller, Dentistry, Bahen Centre (3), UTSC (3), and at 35 Charles Street.

iv. Bioassay for Human Subjects

This year the Radiation Protection Service was again successful in obtaining competence certification (Certificate of Achievement from Health Canada) for thyroid bioassay and urinalysis bioassays for tritium and Carbon-14 in human subjects. This program provides inter-laboratory comparison between several sites and is a Quality Assurance program evaluated by Health Canada annually.
The frequency of the bioassay monitoring is dictated by the radioisotope and its chemical and radiological behaviour in the body.

4.2. Non Ionizing Radiation

The RPS is responsible for safety relating to non-ionizing radiation at the University, recognizing growing concerns with the potential hazards of Lasers, electromagnetic fields, static electrical and magnetic fields, as well as radiofrequency (wireless communication) fields. Information, training, recommendations and program elements have been prepared and are posted on the Radiation Protection website. Direct Laser safety training included 113 new workers during 2005. Awareness sessions in non-ionizing radiation were provided for the training of Certified Workers and other staff, numbering 392 in 2005. Assessment of static magnetic fields has also been performed in the new research area of Lash Miller.

The RPS is supported by the Laser Safety Committee. It is the function of this committee to oversee this Laser Safety Program and to take all steps necessary to ensure the safe operation of lasers within the University. The LSC met once in 2005 and discussed medical surveillance for laser workers, refresher training for PIs and an updating of the terms of reference for the committee.
The Laser Safety Program was revised to reflect CSA and ANSI requirements, the laser inventory (particularly Class 3b and 4 lasers) was updated and inspections of these facilities commenced.

Laser safety training and inspections are now conducted internally which has eliminated the expense of using external consultants ($15,000 pa), while providing more focused and timely service to the University.

Before working with lasers, a written examination must be successfully completed by the prospective user. This is followed by a preliminary inspection of the laser facility by the laser safety officer.

4.3. Increasing Regulatory Surveillance

We are seeing an increasing level of scrutiny from regulators with respect to radiation safety.

The CNSC is becoming more and more prescriptive in the requirements for compliance with the regulations, particularly with security issues regarding nuclear substances and radiation devices. The University should anticipate increased costs for such security and a need for increased diligence to meet these requirements.

The Ontario Ministry of Labour is currently placing greater emphasis on x-ray safety, which until now has received little regulatory attention.

The Canadian Nuclear Safety Commission and the Ontario Ministry of Labour have expressed increasing concern regarding the security of industrial radiography sources and exposure to operators, the public and the environment from these sources.

The RPS has been informed by the Ontario Ministry of Labour that they will be targeting lasers as a priority concern. With the considerable research activity involving lasers throughout the University, the resources available to maintain the high standards of safety expected of the University are strained.

We anticipate that wireless communications (radiofrequencies, microwaves) may be the next emerging concern in radiation protection and will be given priority for action by the Radiation Protection Service of the Ontario Ministry of Labour.

5.0 WORK-RELATED INJURIES AND ILLNESS

5.1. Types of Injuries and Days Lost

The University is required to report to the Workers Safety and Insurance Board all injuries and illnesses that are 'critical injuries', require a health care appointment or result in lost time.
Table 5.1 below indicates the number and types of claims as well as the number of days lost for the period 2001 to 2005.

Table 5.1. Work Related Injuries and Illness

	1999	2000	2001	2002	2003	2004	2005
# of Critical Injuries	6	3	0	4	4	3	0
# of Health Care Accidents	72	82	86	95	79	61	92
# of Lost Time Accidents	70	83	72	50	59	67	54
# of Days Lost	777	1017	1570	744	901	1689	717
Average Days Lost Per Accident	11.1	12.3	21.8	14.8	15.23	24.12	13.3

5.2. Critical Injuries

Critical injury has a specific definition under the Occupational Health and Safety Act. A critical injury is one that is of a serious nature that:

- places life in jeopardy;
- produced unconsciousness;
- results in substantial loss of blood;
- involves the fracture of a leg or arm but not a finger or toe;
- involves the amputation of a leg, arm, hand or foot, but not a finger or toe;
- consists of burns to a major portion of the body; or
- causes the loss of sight in an eye

There were no critical injuries in 2005.

5.3. Health Care Accidents

A Health care accident is one that requires professional medical attention but involves no time lost from work past the day of the accident. There were 92 allowed health care accidents in 2005, which was an increase from 61 claims in 2004.

5.4. Lost Time Accidents and Accident Severity

Table 5.1. above shows the historical data on the number of lost time accidents compensated by the Workplace Safety and Insurance Board (WSIB) and the number of days lost from 2001 to 2005. There were 54 allowed lost time accidents in 2005 compared to 67 lost time accidents in 2004. The total lost time due to accidents in 2005 was 717 days. This is a marked decrease from 2004 when the University had 1689 days lost to work related illness and injury. The average number of days lost per accident in 2005 was 13.3 (a decrease of almost 9 days from 2004).

Table 5.2 **below** is a listing of the 2004 and 2005 incidents categorized by length of absence. In 2005, the University had fewer accidents that resulted in employees taking more than a month off work to recover.

Table 5.2. Length of Absence

Length of Absence	# of Claims in 2004	Total Lost Days in 2004	# of Claims in 2005	Total Lost Day in 2005
1 day	12	12	11	11
2-5 days	22	71	21	58
6-10 days	9	75	7	57
11-15 days	3	39	3	38
15-30 days	8	174	6	169
31-60 days	7	312	4	173
61-90 days	4	306	1	78
90-165 days	5	696	1	133
TOTAL	70	1689	54	717

5.5. Claims Breakdown by Employee Group

Table 5.3. Claims Breakdown by Employee Group for the Period 2001 to 2004

# of Lost Time Accidents by Employee Group					Group	% Lost-Time Accident Frequency* by Employee Group				
2005	2004	2003	2002	2001		2001	2002	2003	2004	2005
32	29	34	23	24	**CUPE 3261**	4.5	2.5	4.10	3.30	3.73
2	8	6	9	12	**Trades**	21.1	15.8	9.52	13.33	3.13
1	5	0	0	2	**CAW (Operating Engineers)**	3.5	0.0	0.00	6.41	1.20
3	1	2	1	1	**CUPE 1230**	1	1	0.44	0.24	0.71
0	2	1			**CUPE 2484**			3.45	6.45	0.00
2	2	2			**OPSEU (Police)**			4.26	4.00	4.26
1	4	1			**HERE 75 (89 Chestnut)**			1.02	4.88	1.25
11	15	6	9	23	**USWA**	1.0	1	0.12	0.31	0.21
2	2	3	7	8	**Admin (non-union)**	1.5	1.5	0.26	0.26	0.25
0	2	4	1	2	**Academic/Librarian**	1	1	0.12	0.06	0.00

Table 5.3 above shows the breakdown of lost time claims by employee group. CUPE 3261 continued to have the most lost time claims in the University with 60% of all claims in 2005. CUPE 3261 is comprised of caretaking and grounds staff at the St. George, Mississauga, Scarborough, and Hart House, and animal care workers in Medicine and Zoology.

The rate of accidents per 100 employees in any employee group provides an accident frequency seen in Table 5.3. It is expressed as a percentage. Using this measure, in 2005, the highest frequency of lost time accidents exists in Campus Police (4.26%) followed by CUPE 3261 (3.73) and the skilled trades group at 3.13%.

Figure 5.1. Accident Frequency per Employee Group, 2001 to 2005

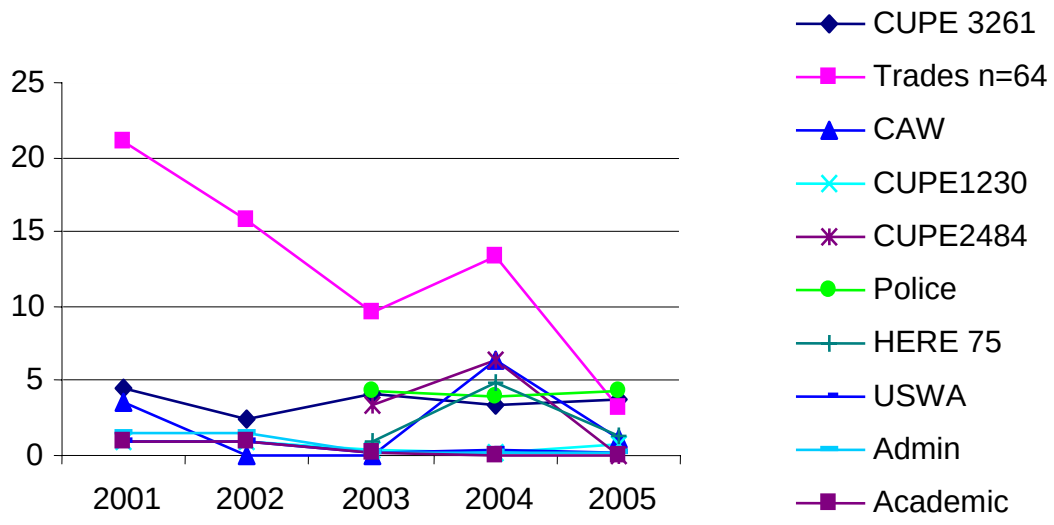


Figure 5.1, above, indicates that with the exception of Trades, the University's accident frequency has remained relatively stable over the last five years. The Trades group has experienced a significant decline in lost time accident rate (LTAR) over the past five years, from a LTAR of 21 in 2001 to 3 in 2005. Much of this improvement is attributed to a strong emphasis on line management accountability and greater involvement by front line supervisors in health and safety issues. Supervisors received training on management skills and supervisory responsibility as well as on safety topics of importance to their trades. A greater emphasis has been placed on accident investigation to learn from our experiences. Finally, safety is now integral to key performance indicators tracked by the Trades group.

The Caretaking Pilot Project, in which Health and Well-being Programs and Services is examining the impact of automated equipment use on job satisfaction, may contribute to a decline in illness/injury frequency and lost time in that department.

Table 5.4. Claims Breakdown by Type of Accident for 2004

Lost-Time Accidents by Cause	# of Lost-Time Accidents	Accident Type	# of Lost Days	Days Lost by Cause
30%	16	Falls	271	35%
50%	27	Strains/Sprains	344	45%
17%	9	Contact	154	20%
2%	1	Exposure	1	0%
2%	1	Other	1	0%

Classification of lost time claims by type of accident shows that there continue to be three (3) major types of accidents (Table 4 above): These are:

- Strains and sprains arising from listing or overexertion (50%)
- Falls (30%)
- Contact with moving or stationary objects (17%)

These three account for 97% of all WSIB claims.

Table 5.4 above also shows the breakdown of days lost by accident type. The major contributors to lost days are strains and sprains with 344 (45%) lost days. Falls led to 271 (35%) of all lost days. Contact with moving or stationary objects contribute to 154 (20%) of the lost days. This breakdown of lost days by accident type has remained fairly consistent over the last several years. Health and Well-being and the Office of EHS will work together to identify accident/injury trends and develop targeted interventions to reduce and prevent workplace injury and illness.

5.6. Accident Costs

The University pays the Workers Safety and Insurance Board (WSIB) a premium each year based on the number of employees at the university. At the end of each year, the University pays a surcharge or receives a rebate depending on the number and severity of the injury claims in comparison to other similar organizations and the costs of the claim.

In 2005, the University was in the undesirable position of incurring a surcharge due to the cost of claims in 2004. As documented in the 2004 report, 4 claims resulted in significant lost time days. In these 4 cases, the incidents were unrelated to the specific work of the employees but occurred on University property. The University is actively appealing the decisions of two of the claims and seeking cost relief as a

result of complicating factors.[1] A review of Table 5.1, Work Related Injuries and Illness suggests that 2004 was an unusual year and not representative of the University's typical overall performance in this area.

6.0 OCCUPATIONAL DISEASE PREVENTION PROGRAMS

Occupational disease prevention relates to the actual or potential impact of biological, chemical, and physical hazards on workers. Based on legislation or specific identified risk factors certain worker groups are provided with baseline health evaluations, ongoing medical surveillance and provision of prevention strategies and of appropriate vaccines as indicated. The major medical surveillance programs in effect in 2005 are described below

6.1 Mercury Surveillance

A sample group of Facilities and Services staff participated in a mercury surveillance program last year. The surveillance was implemented after two staff raised concerns about mercury exposure. Following extensive investigation, no source was found nor have any test results indicated mercury exposure in the workplace. The surveillance was completed in March, 2005. A second mercury surveillance program was initiated in the fall to follow up on concerns expressed by a group of staff that did not participate in the first program. Initial test results indicate no mercury exposure in the workplace.

6.2 Asbestos Surveillance Program

The asbestos surveillance program was initiated in 2004. Following distribution of information about the voluntary medical surveillance program to managers and front line employees, a small number of employees have begun to participate.

6.3. CANFAR Level III Lab Medical Surveillance Program

The University opened a level III research lab in 2005. Every person who conducts research in the lab is required to participate in the medical surveillance program, which includes surveillance and immunization. In preparation for this, Health and Well-being Programs and Services and the Director and Principal Investigators of the CANFAR Level III Lab agreed upon a protocol. There has been full compliance from those involved.

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[1] In the WSIB Operational Policy Manual, 12-Oct-2004, describes the Accident Cost Adjustments or Second Injury and Enhancement Fund (SIEF) in this way: "If a prior disability caused or contributed to the compensable accident, or if the period resulting from an accident becomes prolonged or enhanced due to a pre-existing condition, all or part of the compensation and health care costs may be transferred from the accident employer in Schedule 1 to SIEF."

6.4. Zoonotic Diseases

Animal care workers undergo surveillance for exposure to Q Fever (exposure to sheep) psittacosis (exposure to birds) and Simian B Herpes (exposure to non-human primates). Immunization for Rabies, Hepatitis A and Hepatitis B are provided as required.

6.5. Laser Workers

Baseline histories and eye examinations are performed on workers using Class 3B and 4 Lasers.

6.6. Workers in Noise Hazard Areas

Audiograms are performed on employees who are risk of noise induced hearing loss due to the environment in which they work.

6.7. Influenza immunization

Influenza immunization clinics are held each year at all three campuses. UTM campus organized a clinic in conjunction with the Peel Public Health department.

6.8. Tuberculosis

Annual screening is offered to employees in University workplaces where a risk has been identified: dental clinics, student health services, animal care workers, campus police services and some research laboratory personnel.

7.0 HEALTH PROMOTION

The Occupational Health staff promotes healthy living by identifying hazards (e.g. sun related hazards) and strategies to protect ourselves from those hazards (e.g. distributing information and sunscreen to all grounds workers and campus police). In addition staff provides information sessions and develops programs to maintain and enhance the health of employees in the University of Toronto. Recently the Occupational Health Nurse led a workshop on healthy heart practices, which drew an oversubscription.

Health and Well-being Programs and Services staff also participated in a University-wide employee health and benefits fair at the Faculty Club, and a Health and Safety Fair in the Robarts Library.

The Health and Well-being Programs and Services held a “Healthy U Day” on each campus in early June. Workshops on a variety of issues such as stress management, menopause and work, creating positive work environment and blood pressure information attracted both faculty and staff. The office also participated in the Achieving Work-Life Balance Month. An information seminar on Depression in the Workplace given by Dr. Louise Hartley, FSEAP was attended by close to a hundred employees from throughout the University. Other initiatives included biweekly massage clinics, continuation of the walking groups, and weekly yoga classes.

8.0 ADVICE AND CONSULTING ON OCCUPATIONAL HEALTH MATTERS

In addition to initiatives organized by the occupational health staff, a clinical service is provided to any employee requiring occupational/medical assistance or advice. Employees access this service by making confidential appointments with the nurse or the physician.
Other Health and Well-being Programs and Services staff responsible for long-term disability, sick leave and WSIB consult with medical team members to assist in planning or strategizing in complex cases or in facilitating referrals on behalf of employees to external medical providers.

Table 8.1.Summary of Occupational Disease Prevention Activities by Number of Participants

Influenza Vaccinations	522
Immunizations (TB, Hep B etc)	119
Serology – Blood Tests	99
Audiograms	167
Other Procedures and Assessments	143
Health Risk Assessments	86
Vision Tests	118
Blood Pressure Tests	103
Other Lab Tests	92
Chest x-ray follow-ups	14
Pulmonary Function Tests	40

9.0 ENVIRONMENTAL PROTECTION SERVICES

Within the Office of Environmental Health and Safety, the Environmental Protection Services (EPS) supports research and teaching activities by managing an hazardous waste disposal program for chemical and radioactive wastes. EHS also responds to major chemical spills, and provides training, information and advice relating to disposal of hazardous materials, including regulated requirements.

Approximately 300 students and staff, on the St. George campus, were trained in the proper handing of both chemical and radioactive waste. A spill response group of four people was trained to handle chemical spills at the Scarborough Campus.

9.1. Chemical Waste Management

The University's central chemical waste transfer facility was closed in November 1999 and subsequently the University has experienced a 200% increase in the average monthly chemical waste disposal costs, as chemical waste is now collected by an external waste disposal contractor from all buildings generating chemical wastes. The average monthly costs for chemical waste disposal rose from $8,100 prior to demolition of the facility, to $17,000 per month, (averaged over the last three years). With the increasing costs of disposal of hazardous wastes, the Office of Environmental Health and Safety will reconsider the advantages of moving back to a more centralized facility to consolidate wastes prior to shipment for disposal and the feasibility of constructing a facility.

In 2005 the contract with Chemical Waste Contractor, Clean Harbors, was extended until April 2006. The chemical waste volumes in 2005 increased by 30% over 2004 levels. This increase is partly attributed to increased awareness of the importance of disposing of waste properly which has resulted in an increasing number of laboratory chemical disposals as well as cleanouts done as laboratories are relocated.

In November 2004 a Waste Chemical Storage Area was commissioned on the seventh floor of the Lash Miller building allowing solvents from the building to be bulked more safely.

Table 9.1. Volumes of Hazardous Waste Generated at U of T

Year	Waste Generated	Number of Drums Shipped
2005	92,000	1115
2004	70,000	930
2003	77,000	1055
1999 (Using Central Waste Management Facility	65,000	400

EPS works with U of T Recycling to recycle more than 3400 kg of batteries, including alkaline and lead acid batteries. The success of this program has resulted in an increasing number of battery drop off points on campus.

We continue to monitor two sites on campus for environmental impact following removal of underground storage tanks (UST) which formerly contained fuel oil.

EPS staff handled 15 spills during 2005 on the St. George campus ranging from broken bottles of solvents and acid to several calls for elemental mercury spills. Several staff and students were instructed, over the phone, on how to properly handle small spills involving broken thermometers.

9.2. PCB Waste Management

PCB waste awareness has increased on campus and EPS has been more involved in maintenance projects and sampling oils from possible PCB containing electrical equipment. PCB waste on Campus comprises mostly fluorescent light ballasts which are packaged and disposed of directly from the University.

PCB containing ballasts currently stored in drums in a secure sea container at the Scarborough campus will be disposed of in the spring of 2006. This will involve disposing of the remaining ballasts, and subsequent cleaning and testing of the sea container to confirm that it is PCB free. The container will be retained as a safe and secure place to store ballasts which may be found in future renovations. The container will no longer be licensed for long-term (>90 day) storage of PCBs.

In 2005, plans were made to decommission six more PCB containing transformers.

9.3. Radioactive Waste Management

In March 2002, AECL Canada in Chalk River, Ontario, the only radioactive waste disposal facility in Canada, raised their disposal rates for low-level radioactive waste, 880% in one year. These rates are expected to rise by approximately 10% a year and we anticipate that waste volumes generated by the University will also increase. Currently the University is paying $2,900 per drum for disposal of our radioactive waste.

The University's "decay-in-storage" program for short half-life radioactive wastes has resulted in significant financial savings (greater than $1 million), as well as significant environmental benefit due to the diversion of radioactive waste materials from the long-term storage facilities to the regular non-hazardous waste disposal facilities. Short half-life materials are collected from laboratories and stored in a secure facility until they have decayed to safe levels when they can then be disposed of as regular non-hazardous waste. Costs for disposal of radioactive materials continue to increase, reinforcing the benefits of this proactive program. Each bottle that is diverted to a non-hazardous waste stream represents a saving to the University of approximately $100.We continue to investigate ways of reducing the volumes of waste materials generated.

In July 2005 a new more powerful compactor was installed in the Radiation Storage Facility which resulted in a 25% decrease in the volume of compacted drums sent for disposal.

10.0 Ministry of Labour Orders

The Ministry of Labour orders issued to the University and their status on December 31st, 2005, are summarized as follows:

Issued	DESCRIPTION OF ORDERS	STATUS
Dec 2005	Health Sciences Building 155 College Street ▪ Employer to form a joint health and safety committee (Note: Faculty of Nursing and Faculty of Medicine employees already represented on the Nursing and Medicine Joint Health and Safety Committees) ▪ Employer to post the Act in the workplace ▪ Monthly workplace inspections to be conducted	Complied with December 2005
Feb 2005	McLennan Physical Laboratories (MP), 255 Huron Street ▪ The interlock system on the x-ray machine to be repaired ▪ The lighted sign outside of the x-ray room indicating when the x-ray machine to be provided with a brighter bulb ▪ Properly install the electrical wiring for the lighted warning sign ▪ Results of the personal dosimetry for x-ray workers to be send to the Ministry of Labour	Three orders complied with March 2005 Order regarding dosimetry complied with April 2005

APPENDIX A

OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY

Director, Environmental Health and Safety	TBA*
Administrative Assistant	Shamin Ramjit
Administrative Assistant	Harjit Bains
Coordinator, Hazardous Waste Management	Robert Provost BSc.
Chemical Technician	Mario Reyes BEng.
Radiation Service Technician	Luis Ponte
Radiation Service Technician	Peter Smith
Manager, Occupational Hygiene and Safety	Margaret Fung BSc., MASc., CIH
Biosafety Officer	TBA
Occupational Hygienist and Safety Specialists	Sandra Deike BSc., MHSc. CHRSP
Occupational Hygienist and Safety Specialist	Michael Zitnik BSc., MHSc
Occupational Hygienist and Safety Specialist	Elizabeth Chung BSc., MHSc.
Manager, Radiation Protection	Ray Ilson BSc., MEng., CIH, CRSP
Radiation Safety Officer/Laser Safety Officer	Sandu Sonoc BSc., MSc., PhD
Radiation Safety Officer	Tanya Neretljak BSc., MSc/Ayoob Ghalami
Radiation Safety Officer	Hector Rocca BSc., MSc

HEALTH AND WELL-BEING PROGRAMS AND SERVICES

Manager, Health & Wellbeing	Myra Lefkowitz, MSW
WSIB Administrator	Anne Chreptak
Disability and Accommodation Consultant	Kirsty Forrest Marton
Disability and Accommodation Consultant	Francilla Charles
Counsellor	Anna Maria Petrone
Occupational Health Nurse	Glenna Hilborn, R.N. OH.N.
Consulting Physician	Gabor Lantos, PEng. MBA MD

*Note: Peter Nicoll was appointed Director, Environmental Health and Safety, effective February 1, 2006.

APPENDIX B

JOINT HEALTH AND SAFETY COMMITTEES

#	Committee	# Meetings	# Certified Members	#	Committee	# Meetings	# Certified Members
1	Trades/Utilities	11	11	27	Medical Sciences Building	5	6
2	Police	2[1]	4	28	Tanz Building	0[3]	0
3	Library (CUPE 1230)	4	2	29	Architecture, Landscape & Design, Fac. of	2[1]	1
4	CUPE 3261	7	11	30	Dentistry, Faculty of	3	6
5	USWA	4	2	31	Forestry, Faculty of	3	1
6	U of T at Missisauga	6	3	32	Law, Faculty of	4	2
7	U of T at Scarborough	4	6	33	Rotman School of Management	4	2
8	Faculty of Applied Science & Engineering	0	2	34	Music, Faculty of	4	3
9	Aerospace Studies, Inst. of	4	2	35	Nursing, Faculty of	4	2
10	Chemical Engineering	3	2	36	OISE/UT	5	4
11	Civil Engineering	4	3	37	Pharmacy, Faculty of	2[1]	2
12	Electrical & Computer Engineering	4	3	38	Physical Education & Health, Faculty of	7	5
13	Materials Science & Engineering	0[1]	0	39	Social Work, Faculty of	4	2
14	MIE/IBBME	4	2	40	1 Spadina Crescent	3	2
15	Sidney Smith Hall	0[1]	1	41	21 King's College Circle	4	1
16	Botany, Dept. of	3	0	42	215 Huron Street	2[1]	2
17	Chemistry, Dept. of	4	2	43	Admissions & Awards	4	2
18	Economics, Dept. of	2[2]	2	44	Borden Buildings	4	2
19	Geology, Dept. of	2[1]	0	45	School of Continuing Studies	3	1
20	McLennan Building	4	2	46	School of Graduate Studies	3	3
21	Zoology, Dept. of	4	4	47	Koffler Student Services	3	5
22	Medicine, Faculty of	3	7	48	Robarts Library Complex	4	4

23	500 University Ave	3	2	49	Simcoe Hall/Visitors Centre	3	3
24	Best Building	0[3]	0	50	89 Chestnut Residence	3	4
25	Banting Building	0[3]	1	51	Early Childhood Learning Centre	0[1]	3
26	FitzGerald Building	1[1]	3	52	Hart House	3	1

[1] Committee undergoing membership turnover/changes
[2] Building under renovation, department temporarily relocated to Sidney Smith
[3] Building representatives sit on the Faculty of Medicine committee until building committees established

APPENDIX C

UNIVERSITY OF TORONTO BIOSAFETY COMMITTEE (31ST DECEMBER 2005)

Dr. Andrew Bognar (Chair)	Medical Genetics & Microbiology
Local Biosafety Coordinators:	
Dr. Catherine Bergeron (Tanz Building)	Centre for Research in Neurodegenerative Diseases
Dr. Martha Brown (MSB, CCBR)	Medical Genetics & Microbiology
Dr. Sela Cheifetz (Dentistry & FitzGerald Bldgs)	CIHR Group in Matrix Dynamics
Dr. John R. Coleman (Earth Sciences Building)	Department of Botany
Dr. Fang Liu (Centre for Addiction & Mental Health)	Department of Psychiatry
Dr. Alexander Marks (Best Institute)	BBDMR
Dr. Maurice Ringuette (Ramsay Wright Bldg)	Dept of Zoology
Dr. Stephen Ross (Pharmacy Bldg)	Faculty of Pharmacy
Dr. James Scott (Gage Bldg, Banting Inst. and other Buildings Without an Assigned Coordinator)	Department of Public Health Sciences
Dr. Julie Silver (UTSC)	Department of Microbiology
Dr. J. Timothy Westwood (UTM)	Department of Biology
Members, Ex-Officio:	
Ms. Christina Sass-Kortsak	Assistant Vice-President, Human Resources
Dr. Peter Lewis	Vice Dean, Research, Faculty of Medicine
Ms. Audrey Cheung	Director, Research Grants, ORS
Dr. Rachel Zand	Director, Ethics Review Office
Ms. Margaret Fung	Manager, Occupational Hygiene and Safety EHS
TBA	University Biosafety Officer, EHS

APPENDIX D

ASBESTOS ADVISORY COMMITTEE (31ST DECEMBER 2005)

Ms. Christina Sass-Kortsak (Co-Chair)	Assistant Vice-President, Human Resources
Mr. Ron Swail (Co-Chair)	Assistant Vice-President, Facilities & Services
Mr. Doug Colby	Certified Worker Co-Chair, Trades/Utilities JHSC
Mr. Ron Dmytrenko	Member, Trades/Utilities JHSC
Mr. Rudy Won	Certified Member, CUPE 3261 JHSC
Mr. Tony Kopteridis	Member, Trades/Utilities JHSC
Mr. Nick Zouravlioff	Director, Capital Projects
Mr. Jim Derenzis	Director, Facilities Management, UTSC
Mr. Paull Goldsmith	Assistant Director, Facility Resources, UTM
TBA	Manager, Environmental Hazards and Safety, F&S
TBA	Director, Environmental Health and Safety

APPENDIX E

UNIVERSITY OF TORONTO RADIATION PROTECTION AUTHORITY (31ST DECEMBER 2005)

Dr. David Hampson (Chair)	Member	Pharmacy
Dr. Maurice Ringuette (Vice – Chair)	Member	Zoology
TBA	Member	Immunology
Dr. Sela Cheifetz	Member	MRC Group, Peridontal Physiology
Dr. Alan Cochrane	Member	Medical Genetics and Microbiology
Dr. Herbert Gaisano	Member	Clinical Sciences
Dr. Angela Lange	Member	Life Sciences, UT Mississauga
Dr. Michael Pharoah	Member	Dentistry
TBA	Member	Pharmacology
Prof. Julie C. Silver	Member	Life Sciences, UT Scarborough
Dr. David Williams	Member	Biochemistry
Mr. Ray Ilson	Ex-Officio	Environmental Health and Safety
Mr. Robert Provost	Ex-Officio	Environmental Health and Safety
TBA (Director EH&S)	Ex-Officio	Environmental Health and Safety
Ms. Christina Sass-Kortsak	Ex-Officio	Human Resources
Ms. Shamin Ramjit	Rec. Secretary	Environmental Health and Safety

APPENDIX F

SUMMARY OF TRAINING PROVIDED BY EHS IN 2005

COURSE	DESCRIPTION	# of COURSES	# of ATTENDEES
Respiratory Protection	This half-day seminar combines classroom-style presentation with practical instruction in the proper selection, use and care of respirators.	17	94
Understanding Noise	This two-hour seminar provides "noise exposed" employees with information regarding the effects of noise and the control of noise hazards.	4	39
Working in Confined Spaces	This half-day seminar provides employees with an overview of the health and safety hazards associated with working in confined spaces, and focuses on the precautions which must be followed when entering and working in confined spaces.	5	61
Fall Protection	This 4.5 hour classroom and workshop session provides employees with an overview of the hazards associated with working at heights, how to identify situations where fall protection is necessary, and how to properly select, inspect and use personal fall arrest systems.	11	101
Working in Hot Environments	This 2-hour seminar presents an overview of the hazards associated with working in hot environments and the precautions to be taken to prevent injuries and other problems due to heat stress.	3	54
Lockout/Tagout	This 3-hour seminar provides employees with an overview of the types of energy hazards associated with machinery and equipment, and the types of measures and procedures to isolate, lock and tag out such potentially harmful energy sources.	10	146
Mercury Awareness	This 1.5 hour seminar provides an overview of the potential hazards associated with exposure to mercury and the controls used to prevent mercury contamination.	3	23
Asbestos: Evaluating and Controlling the Hazard	This one-day seminar provides employees with classroom-style instruction about the hazards of asbestos and the work procedures to follow when working with or in close proximity to asbestos-containing materials.	4	32
Small Scale, Short Duration Asbestos Activities (Classroom)	This half-day classroom session provides employees with the information on asbestos procedures for safely conducting Type 1 and Type 2 asbestos activities.	5	45
Small Scale, Short Duration Asbestos Activities (Workshop)	This half-day workshop session provides employees with practical training on conducting Type 1 and Type 2 asbestos activities.	6	45
Asbestos Regulation Update	This two-hour seminar provides attendees with an update of the new asbestos regulation effective November 2005.	3	37
Mould Awareness	This 2-hour seminar provides an overview of the potential hazards associated with common mould species found in indoor environments and the controls used to prevent mould contamination.	3	29

Chemical Safety and WHMIS (Workplace Hazardous Materials Information System)	This 1-3 hour seminars provide basic information on the potential hazards of working with chemicals, the safety practices and procedures that can reduce the risks, and the elements of the WHMIS system. EHS provides training to summer employees (mainly students) and participates in seminars organized by departments.	20	889
Chemical Safety and WHMIS Train-the-Trainer	This one-day seminar provides individuals with the knowledge and tools to conduct chemical safety and WHMIS training to employees in their own department.	1	16
Occupational Health and Safety Orientation for Employees	This one-hour session provides an overview of the rights, roles and responsibilities of all employees for workplace health and safety, and a description of common hazards in the workplace. It provides them with an overview of pertinent health and safety-related legislation and policies, and the health and safety resources at the University.	3	305
Occupational Health and Safety for Managers and Supervisors	This one-day seminar emphasizes the role and responsibilities of managers/supervisors with respect to health and safety. Included is an overview of health and safety at the university, the responsibilities of the various workplace parties, pertinent legislation and policies, and health and safety resources at the University.	4	79
Office Ergonomics	This two-hour seminar is designed to increase awareness of some of the common causes of fatigue and discomfort while working at video display terminals, to introduce relevant ergonomic principles and to provide examples of how to apply this information to the workplace.	11	122
Office Safety	This half-hour session provides attendees with a basic awareness of common hazards in an office environment, including office ergonomics, electrical hazards, and general safety hazards.	1	200
Manual Materials Handling	This half-hour session provided employees with an awareness of the types of hazards associated with manual handling of materials in their workplace and measures to prevent injuries.	4	299
Slips, Trips and Falls	This one-hour session provides employees with an overview of slips, trips and fall hazards, how to identify such hazards and the safety precautions to prevent such accidents.	3	195
Biosafety Orientation	This one to three-hour seminar provides the basic information about biological hazards and the control measures for working safely with biohazardous agents.	8	365
Workplace Inspections	This two-hour program provides employees with sufficient knowledge to enable them to identify hazards with a view to correcting them.	1	4
Ionizing Radiation Protection Course (Laboratory)	Successful completion of this 8 hour course and examination provides Principal Investigators, graduate students, technical staff and other users with training on radiation hazards, safety procedures, regulations and authorization to use sources of ionizing radiation	12	206
Ionizing Radiation Protection Course (Undergraduates)	Successful completion of this 4 hour course provides undergraduate students (summer, special projects) with training on radiation hazards, safety procedures, and authorization to use sources of ionizing radiation under direct supervision	6	88

Laser Safety Course	Successful completion of this 8 hour course and examination provides laser owners, supervisors, and users with training on lasing radiation/other hazards, safety procedures, registration conditions and regulations, and authorization to use laser generating equipment	7	113
Refresher Training (laboratory)	Successful completion of this one hour course and examination provides updated information on the current requirements of the University and regulatory bodies	19	209
Irradiator Training	Successful completion of this one and a half-hour course provides information on safe use of the irradiators/x-ray generating devices and current requirements of the University and regulatory bodies	5	28
Radiation Awareness Training for Facilities and Services Staff (Housekeeping, Trades, Utilities, Certified Workers)	This two hour course provides staff with an overview of the potential hazards of ionizing and non-ionizing radiation which they may encounter in their work. The RPS programs and requirements are explained, the precautions taken, and the known results of assessments presented.	12	392
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TOTALS		188	3820

APPENDIX: G

OPERATIONAL STATISTICS FOR RADIATION PROTECTION SERVICES

Operational Statistics	1999	2000	2001	2002	2003	2004	2005
Active Radioisotope Permits	248	261	235	260	257	255	250
Revisions to Permits	NA	NA	73	77	89	95	89
Exposure Dosimetry of staff	1000	800	800	1185	1100	1150	1120
Nuclear Energy Workers	11	14	13	17	11	12	14
Thyroid Bioassay Program	42	51	37	44	33	30	27
Urinalysis Bioassay Program	5	5	5	5	2	6	-
Leak tests on sealed sources	NA	NA	NA	59	60	56	61
Ionizing Radiation Laboratory Inspections		403	226	342	362	613	752
Radiation Protection Course Attendees	147	179	201	216	265	207	206
Trained Summer/Project Students	123	83	86	76	61	82	88
Refresher Training Attendees	-	-	-	-	-	152	209
Laser Safety Training Attendees	-	-	-	-	-	112	113
Irradiator Training Attendees	-	-	-	-	-	-	25
X-Ray Training Attendees	-	-	-	-	-	-	3
Lasers Inspected	-	-	-	-	-	48	99
X-ray Machines Inspected	-	-	-	31	32	35	36
Radiation awareness training –Trades + Utilities	NA	NA	NA	NA	30	30	85
Radiation awareness training -Housekeepers	NA	NA	NA	NA	NA	NA	300
Radiation training – Certified JH&SC committees	NA	NA	NA	NA	5	5	7
Radiation meters calibrated	NA	NA	NA	129	85	115	109
Trained Staff Total	270	262	289	292	361	588	1122