UNIVERSITY OF TORONTO

ANNUAL REPORT ON

HEALTH AND SAFETY

2002

Office of Environmental Health and Safety
April 2003

26113

UNIVERSITY OF TORONTO ANNUAL REPORT ON HEALTH AND SAFETY – 2002

TABLE OF CONTENTS

The Occupational Health and Safety Act requires directors and officers of corporations to take all reasonable care to ensure that the corporation complies with the Act and its regulations. The terms of reference of the Business Board require that the President or his designate prepare and submit to the Board an annual report on health and safety activities undertaken to ensure compliance with the Occupational Health and Safety Act and the Environmental Protection Act. This report is submitted in compliance with these requirements.

This executive summary provides a number of measures and performance indices which track trends in our performance, and where possible, provide benchmarks against which we can compare with comparable external employers or groups.

1. ACCIDENTS/INJURIES

There were four (4) critical injuries during 2002; all either broken ankles or wrist and the result of falls.

In 2002, there were 95 allowed health care accidents which is an increase from 86 in 2001 (a Health Care accident is one which requires professional medical attention but involves no time lost from work past the day of the accident). During the same period, there were 50 lost time accidents (allowed and pending as of January 2003), significantly down from 72 in 2001.

The total number of days lost due to accidents in 2002 was 744. This is a decrease from 1017 and 1570 in 2000 and 2001 respectively. The average number of days lost per accident in 2002 was 14.8 (about the same in 2000 but considerably down from the number in 2001). The data presented in this paragraph together with the fact that the number of health care accidents have increased somewhat while the number of lost time accidents have decreased considerably suggests that accident severity has decreased.

Claims Breakdown by Employee Group

Normalizing the number of accidents to the number of employees in each group gives the lost time accident frequency (the number of lost time accidents per 100 staff members in the identified group). It is expressed as a percentage. Using this measure, in 2002, the highest frequency lies in the skilled trades group (15.8%) with the CUPE 3261 group being second at 2.5%, non-union administrative staff at 1% and USWA and others (CAW, CUPE 1230, Police and Academic/Librarian) at <1%. The frequency of the University as a whole for 2002 is 0.5% (0.5 lost time accidents per 100 employee).

Data against which we can benchmark are the following:

- Companies with exceptional, "world class" safety records - less than 0.5% on any one year with a long term average less than 0.25%.
- Canadian and Ontario industrial average - 3%
- Ontario WSIB Rate Group 923 (Janitorial Services) - 3%
- Ontario WSIB Rate Group 927 (Office Workers) - 0.4%
- Ontario WSIB Rate Group 929 (Supply of Non-Clerical Labour) - 8%

The University's perfomance for 2002 at 0.5% (5 lost time accidents per 1000 employees) is good and somewhat better than our peer institutions in Ontario. The standard for world class safety performance is a lost time frequency of less than 5 accidents per 1000 employees in any one year and less than 2.5 accidents per 1000 employees per year as a long term average. This standard was also met in 2002 for certain employee subgroups such as academics/librarians, U of T police, non-union administrative staff, CAW (Operating Engineers), USWA, and CUPE 1230 (see table 4.2). It is significant that the frequency among the CUPE 3261 has decreased from 9.2% in 2000 to 4.5% in 2001 to 2.5% in 2002. While the frequency among the Trades group has decreased from 21.1% in 2001 to 15.8% in 2002, we have targeted this subgroup for 2003.

Claims Breakdown by Type of Accident

Classification of lost time claims by type of accident giving rise to the claim shows that there are four major types of accidents. These are:

- Strains and sprains arising from lifting or overexertion (42%),
- Falls (26%),
- Contact with moving or stationary objects (16%),
- Exposure to chemical,mould,heat, etc. (8%).

Accident Costs

The University paid $1,729,017 in premiums to the WSIB in 2002. Our total accident costs for 2002 under the experience rating program were $377,608 as compared to premiums of $1,563,230 in 2001 and total accident costs of $591,942.

2. REGULATORY COMPLIANCE

Ministry of Labour Inspections and Orders

There were five visits by the Ministry of Labour during 2002: all on the St. George Campus. The visits resulted in 13 orders being issued. None of the visits were part of a routine inspection program by the Ministry, but were initiated either in response to an incident or to a telephone call by an employee.

In October/November, 2002, the union members of the asbestos task force called in the Ministry of Labour to investigate their complaints of the University's non-compliance with its own asbestos control program. This resulted in 10 orders being issued. The orders involved an update of our inventory of friable, asbestos-containing materials in University buildings and a compliance plan with respect to the clean-up and removal or the repair/enclosure of asbestos-containing material in the "steam" tunnel system. Some orders have been completed while we are in the process of complying with the others.

A visit was made by the Ministry of Labour to investigate an employee's concern regarding the temperature levels at the main information desk in the Robarts Library. This information desk is relatively close to the main entrance of the Library and during the winter months the cold outside air enters the Library through the doors and causes discomfort to those working at the information desk. No orders were written but the University was advised to investigate the situation further and to ensure that the temperature at the desk is maintained within an acceptable range.

Two visits were made by the Ministry of Labour to the Koffler Student Services Centre. The first visit was the result of a worker experiencing respiratory problems, possibly as a result of exposure to mould. An order was issued and remediation was conducted in three areas of the centre. The second visit involved an order to the Joint Health and Safety Committee to conduct meetings at least once every three months; this has been done.

Canadian Nuclear Safety Commission

Due to the number and activity of the University's radioactive materials, as well as the relatively high number of users/locations and frequency of staff turnover, the Canadian Nuclear Safety Commission designates the University of Toronto a ***"high risk"*** workplace. This designation creates a centre of attention for the regulator and attracts more frequent inspections and audits of the University's facilities by external inspectors/auditors.

In 2002, there were six inspections conducted by the regulator at the University of Toronto. A few action notices were issued and these included some evidence of food in a laboratory, inappropriate signage and insecured laboratories; the university was successful in quickly addressing all issues noted during the six inspections.

Inspections

The following safety inspections were carried out during 2002 by Environmental Health and Safety (EHS):

- Inspections of friable asbestos fireproofing in the Edward Johnson Building to meet the requirements of the Ontario regulation respecting asbestos in buildings (external consultant used),
- Inspections (and repair if necessary) of all laboratory deluge showers (contracted to trades services),
- Inspections of some laboratory fumehoods and servicing of some "alarm" flow monitors. Any necessary repairs of fume hoods are performed by Utilities staff.

- Regular and ongoing inspections of all radioisotope laboratories as per the requirements of our Consolidated Radioisotope Licence.

In addition, EHS conducted a review and assessment of the usage and exposure to eleven "designated substances" in the Faculty of Dentistry. These are substances which have been designated by the Ministry of Labour for special regulation. Recommendations were made with respect to implementation of a control program to deal with spills of mercury and lead.

3. JOINT HEALTH AND SAFETY COMMITTEES

Appendix1 summarizes the status of compliance of each committee with respect to two specific provisions under the Occupational Health and Safety Act of Ontario. Each committee is required by law to have at least two certified members and to meet at least 4 times a year. The certification process is administered through the Workplace Safety and Insurance Board and requires at least 2 days of health and safety training.

Two new committees were formed in 2002 – Admissions and Awards and School of Graduate Studies . Of the 38 committees reporting, about a third (1/3) have had significantly fewer than the required number of meetings. In may cases these deficiencies are remedied during the year, an example being the training of certified members. The major deficiency is the lack of sufficient meetings. Environmental Health and Safety is working with divisional mangers and committees to remedy these problems.

The most positive note is that the number of certified members has continued to increase from 53 in 1999 to 72 in 2000, 100 in 2001 and 135 in 2002. The increase in the number of certified members has been in large part on the worker side and is due to the actions of the Steelworker's union. The situation has also improved on the management side., although it is more difficult to recruit management representatives who are willing to take the certification training.

4. MAJOR HEALTH AND SAFETY CONCERNS

The Office of Environmental Health and Safety responded to a number of concerns raised by University staff during 2001. Among the most significant of these were the following:

Asbestos issues

Since mid-2001, there have been a number of asbestos-related incidents which have resulted in potential exposures to students and staff. In response to these incidents and at the request of union representatives, the University established a joint union-management task force which has been reviewing various components of the University of Toronto Asbestos Control Program. The mandate of the task force was to investigate best practice in comparable institutions and in the private sector, review current training programs and make recommendations for improvement, as well as recommend procedures and processes for ensuring compliance with the asbestos control program by University staff and external contractors. The task force expects to complete its work by mid-2003.

In September/October, 2002, testing had identified the presence of asbestos in the dust in some mechanical rooms and in the dust on the floor of the underground "steam" tunnels linking many buildings; this is probably the result of poor repair and/or clean-up practices over the past decades. Presently, any activity in these areas (there are approximately 1100 mechanical rooms and about 2 and ½ miles of tunnel) that might disturb the "accumulated, asbestos-containing dust/debris" has to be handled under Type 2 or Type 3 asbestos conditions (this means that special precautionary measures are required; these can be cumbersome and costly). The prudent solution is to properly clean the affected areas -- this will also be costly. The plan of action for the mechanical rooms is to properly inspect each of these rooms and to hire a team of asbestos removal workers to be on-site and to clean-up each contaminated room over a period of time. The plan of action for the "steam" tunnels is to define a protocol for cleaning them and to test the viability and success of the protocol over a ½ mile section of the tunnel. Once success is determined, funding will be requested for a complete tunnel clean-up on the most expeditious basis possible.

Into 2003 we will continue to address the many issues related to asbestos and its presence at the University of Toronto.

Office Ergonomics

In 2001, EHS conducted over 30 ergonomic assessments of chairs, computer workstations, and environmental factors such as lighting and glare. In addition, EHS delivered ten seminars on "Office Ergonomics" that dealt with issues such as workstation design, posture, lighting and job design. This is an ongoing problem due to the fact that many older workstations do not meet current ergonomic standards and the fact that resulting repetitive strain injuries can be severely debilitating and very costly. A major amount of work was done in the Faculty of Dentistry, particularly the patient reception area where there was a complete redesign and renovation in 2002.

Indoor Air Quality

Indoor air quality concerns range from temperature, humidity and air movement to contaminant build-up in occupied spaces. Investigations were conducted during the year in a number of buildings, including Lash Miller Building, Robarts Library, Rotman School of Management, Earth Sciences Centre and the Koffler Student Services building.

Mould

Mould may become a problem in areas which are poorly ventilated with a source of moisture. Mould symptoms are primarily respiratory and allergic reactions. Significant mould problems were identified in Phase V Residence at U of T at Mississauga, McLennan Physical Laboratories, Koffler Student Services building and the Visitor's centre in the basement of Knox College. Remedial work to remove visible mould is performed, however unless the source of water is removed the problems will likely recur.

5. OTHER MAJOR ISSUES

Chemical Waste Management

In November 1999, the University's central chemical waste transfer facility was demolished by the University to accommodate the construction of a parking garage for the Bahen Centre for Information Technology building. The impact on the University has been a 300% increase in the average monthly chemical waste disposal costs coupled with a 40% reduction in service in collecting chemical waste from the 1500 laboratories on the St. George campus. The average monthly costs for chemical waste disposal rose from $8100 prior to demolition of the facility to $24,100 per month, averaged over the last three years. Over the past three years, it has been estimated that the University has paid over $575,000 in *additional costs* over regular disposal charges.

These disposal costs will continue to increase due to:

- Expected industry increases in disposal costs of a minimum of 10%
- Two large new research buildings of the CCBR and the Leslie Dan Pharmacy Building being commissioned in the next 5 years is expected to increase the amount of chemical waste produced by approximately 20%
- the double cohort is expected to increase enrolment by an estimated 8% and this is expected to also impact on waste by increasing waste production.

EHS will explore ways of decreasing these costs.

PCB Waste Management

The University maintains a central PCB waste storage site at the Institute for Aerospace Studies. Currently, the inventory at the storage site includes 204 drums of PCB-contaminated materials. The Ontario Ministry of the Environment has mandated that all PCB waste be disposed and the sites decommissioned by owners by 2005.

The University is in year four of a seven-year plan, to eliminate the current PCB waste inventory stored at the Institute for Aerospace Studies. The costs for PCB disposal are still prohibitive on a large scale, however projects involving the disposal of smaller amounts of wastes have become a more viable option. It is expected that the University will be able to comply within the current budget restraints by the 2005 deadline. This assumption is based on the disposal costs to remain relatively stable as they have been over the past three years.

Radioactive Waste Management

In March 2002, the only radioactive waste disposal facility in Canada, AECL Canada in Chalk River Ontario, raised its disposal rates for low-level radioactive waste disposal from $1,170/m^3$ to $10,266/m^3$, or an increase of 880% in one year. Rates are expected to rise by approximately 10% a year.

Although the amount of waste being produced by research has not changed, over the past five years the Environmental Health and Safety Office has phased-in implementation of a program involving more efficient packaging of solid waste and the delay and decay program in eliminating short-lived isotopes from the waste stream. However in the next five years with the double cohort and commissioning of two major research buildings (CCBR and Leslie Dan Pharmacy), the amount of radioactive waste will increase. It is estimated that within five years, the cost of disposal of low-level radioactive waste will increase by an additional $170,000.

"Biomedical/Pathological" and "Sharp" Laboratory Waste

Up until last year, 'biomedical / pathological' and 'sharp' laboratory waste generated at the University of Toronto was steam sterilized / autoclaved on site to inactivate biological agents, and then it was transported to the Keele Valley landfill where it was buried. Two events have significantly impacted the disposal of laboratory waste: the Ontario Ministry of Environment introduced additional regulations under the Environmental Protection Act, and the Keele Valley landfill closed its gates permanently and the waste is trucked to Michigan.

The additional regulations include a concept known as "the derived from rule" which essentially states that 'biomedical / pathological' waste remains 'biomedical / pathological' waste until it is destroyed (i.e., by incineration) or it is rendered non-hazardous by a validated, documented process such as steam sterilization.

The Ontario Ministry of Environment requires that each autoclave used for the sterilization of 'biomedical / pathological' waste must have a valid Certificate of Approval. Maintaining this status requires strict documentation and efficacy testing using a biological indicator to verify that the waste is rendered non-hazardous (i.e., that all bacteria, viruses, animal cells are killed).

The Biosafety Office has been working with Facilities & Services to develop and implement a revised scheme for the disposal of 'biomedical / pathological' laboratory waste, needles & blades, glass and other sharp or pointed waste. Negotiations are underway with a specially licensed contractor for the removal of this waste. The waste will be transported to a local facility where it will be steam sterilized in an autoclave that has a valid Certificate of Approval from the Ontario Ministry of Environment. Following mechanical shredding, the inactivated waste will be transported to a landfill in southwestern Ontario. This will preclude the need for transboundary shipments of our laboratory waste.

This solution for 'biomedical / pathological' and 'sharp' laboratory waste disposal exposes the University of Toronto to the least liability. However, it comes with significant cost implications. It has been determined that disposal costs will increase dramatically, from about $.075/Kg, to approximately $.55/Kg. In each of the past few years, Facilities & Services paid a portion of the annual disposal cost. Waste volumes are projected to increase with the completion of the CCBR and Pharmacy buildings and due to the influx of the double cohort.

1.0 INTRODUCTION

This report summarizes the major activities and the progress made in addressing health and safety issues at the University of Toronto during the calendar year 2002. The report has been prepared by the Office of Environmental Health and Safety (EHS).

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 undertaken to ensure compliance with the Occupational Health and Safety Act and the Environmental Protection Act. This report is submitted in compliance with these requirements.

2.0 ORGANIZATIONAL ARRANGEMENTS FOR HEALTH AND SAFETY

It is the duty of senior management of the University and the Governing Council and its Boards to take all reasonable care to ensure that the University complies with the Occupational Health and Safety Act and regulations. This means that they must be able to demonstrate that they have exercised “due diligence” in carrying out these duties.

The definition of "due diligence" provided by the Supreme Court of Canada hinges on the employer being able to demonstrate two things:

- a proper system has been developed to prevent the occurrence of the offence, and
- reasonable steps were taken to ensure the effective operation of the system.

Ultimate responsibility for safety within the University lies with the line of supervision. Supervisors and managers are legally responsible for health and safety in the workplaces under their control. They are assisted in this task by various staff support groups and a number of joint health and safety committees which are mandated by law. Staff of the Office of Environmental Health and Safety attend as many of local joint health and safety committee meetings as possible in order to provide technical advice and assistance, to coordinate common programs, and to monitor the effectiveness of the committees.

There are also within the administrative structure a number of central regulatory committees. These are the University of Toronto Radiation Protection Authority, the Biosafety Committee and the Laser Safety Committee. The functions of these Committees are to oversee and regulate specific hazards related to ionizing radiation, infectious biohazardous agents and lasers. The chairs of these committees sit on the Senior Management Committee on Health and Safety which reports to the Vice-President, Human Resources.

The Office of Environmental Health and Safety reports to the Vice-President, Human Resources and has as its purpose to *"enhance research, teaching and learning at the University by fostering a healthy and safety work and study environment and by promoting employee health and well-being"*. In addition to providing specialized central health and safety services to the University community, the Office participates in the development and implementation of policies procedures and programs, and monitors and audits compliance with health and safety legislation and University policies.

Table 2.1 lists the staff of the Office as of June 2002.

TABLE 2.1

ENVIRONMENTAL HEALTH AND SAFETY STAFF

Interim Director	J. N. Chris. McNeill B.Sc., M.Eng., CIH, ROH
Business Officer	Rosalyn Figov, B.A., M.A.
Secretaries	Shamin Ramjit Cyrilene Beckles
Biosafety Officer	John Valant, B.Sc.
Disbility Claims & Accommodation Consultant - WSIB	Meg Durham
Manager, Environmental Protection, Hazardous Materials	Elizabeth Krivonosov, B.A.Sc., DIH, P.Eng., CIH, ROH
Chemical Technicians	Rob Provost, B.Sc. Mario Reyes, B.Eng.
Radiation Service Technicians	Luis Ponte Peter Smith
Co-ordinator, Occupational Hygiene and Safety	Margaret Fung, B.Sc., MHSc., CIH
Occupational Hygienists	Sandra Deike, B.Sc., MHSc. Michal Zitnik, B.Sc., MHSc.
Manager, Radiation Protection	Ray Ilson, B.Sc., M.Eng., CIH, CRSP
Radiation Safety Officers	Sandu Sonoc, BSc., MSc., PhD Valerie Phelan, B.Sc., M.Sc. Zenobia Siddiqui, B.A.Sc.
Manager, Occupational Health Services	Jacqueline Thompson, RN, COHN, COHN(C), COHN (US)
Occupational Health Nurse (part time)	Glenna Hilborn, RN, COHN(C)
Occupational Health Physician (part time)	Gabor Lantos, B.Eng., MBA, MD, P.,Eng

Health and safety is best assured in the workplace when supervisors, managers and employees are aware of and committed to fulfilling their responsibilities, where they are given the proper training, information and tools to do so, and where employees have a meaningful input into the identification and resolution of health and safety concerns. The system of joint health and safety committees provides for the latter, and the Office of Environmental Health and Safety is targeting its efforts on education, development of control programs for specific hazards, the provision of information to staff, and auditing the implementation of University programs, policies and procedures within the various divisions.

3.0 HEALTH AND SAFETY COMMITTEES

3.1 Divisional Joint Health and Safety Committees

The Occupational Health and Safety Act requires employers to establish and maintain joint (worker and management) health and safety committees in the workplace. The committee is an advisory

group of worker and management representatives, and is considered to be the backbone of the internal responsibility system (a cooperative effort regarding workplace health and safety which encourages participation and self-regulation by employers, supervisors and workers). The workplace partnership to improve health and safety very much depends on this committee; it meets regularly to discuss health and safety concerns, inspect the workplace on a regular basis, and make recommendations to management respecting workplace health and safety.

Because the University is a large, decentralized institution, a number of joint committees have been established based on criteria such as employee group or union, faculty, department or building. These are local committees reporting to a senior academic or administrative manager such as a Dean, Department Chair or Director, who is responsible for supporting the committee and meeting the regulatory requirements with respect to committee composition and meetings.

Appendix 1 lists the committees and summarizes their status of compliance with respect to two specific provisions under the Occupational Health and Safety Act of Ontario. Each committee is required by law to have at least two certified members and to meet at least once every three months (4 times a year).

While many committees have had at least the required number of meetings, about 30% have had significantly fewer. EHS has produced a "Handbook of Operational Procedures for Joint Health and Safety Committees" which will be provided to JHSCs in early 2003; this together with our work with the responsible managers and the JHSC themselves in 2003 will ensure that they are aware of their obligations.

3.2 Senior Management Committee on Health and Safety

The Senior Management Committee on Health and Safety is not a joint committee under the Health and Safety Act. It is a management committee whose major function is to approve regulations and other actions related to the Occupational Health and Safety Act, the Environmental Protection Act, other pertinent legislation and policies on health and safety approved by the Governing Council. Its membership is given in Appendix 3. The chairs of the Radiation Protection Authority, the Biosafety Committee and the Laser Safety Committee sit on the Senior Management Committee. The Committee is chaired by and provides advice to the Vice-President Human Resources.

The Committee met three times in 2002. Major issues discussed included the following:

- Accident statistics and appropriate benchmarking data,
- Revisions to the Health and Safety Policy
- Work Well Audit
- Certification training for management members of joint health and safety committees,
- Revisions to the University Smoking Policy

The committee also received regular reports from the Radiation Protection Authority, the Biosafety Committee and the Laser Safety Committee about problem areas the manner in which they were being dealt with.

3.3 Central USWA Health and Safety Committee

This committee has been formed under the terms of the collective agreement with the United Steelworkers of America and it is composed of three representatives from USWA and three from the University. This committee met six times in 2002.

Major issues considered by the committee were:

- Ongoing problems with workstation ergonomics and repetitive strain injuries,
- Mould and air quality problems in various buildings,
- The establishment of new joint health and safety committees
- Safety issues associated with deferred maintenance
- Asbestos - particularly monitoring of external contractors

4.0 WORK-RELATED INJURIES AND ILLNESS

4.1 Table 4.1 below indicates the number, types of accidents and the number of days lost for the period 1999 to 2002.

Table 4.1

	1999	2000	2001	2002
# of Critical Injuries	6	3	0	4
# of Health Care Accidents	72	82	86	95
# of Lost Time Accidents	70	83	72	50
# of Days Lost	777	1017	1570	744
Average Days Lost per Accident	11.1	12.3	21.8	14.8

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;
- produces 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 four (4) critical injuries during 2002; all either broken ankles or wrist and the result of falls.

Health Care Accidents

A Health Care accident is one which requires professional medical attention but involves no time lost from work past the day of the accident. There were 95 allowed health care accidents in 2001, which is an increase from 86 in 2001.

Lost Time Accidents and Accident Severity

Table 4.1 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 1999 to 2002.

There were 50 lost time accidents in 2002 (allowed and pending as of January 2003), significantly down from 72 in 2001.

The total number of days lost due to accidents in 2002 was 744. This is a decrease from 1017 and 1570 in 2000 and 2001 respectively. The average number of days lost per accident in 2002 was 14.8 (about the same in 2000 but considerably down from the number in 2001). Another statistic worth noting is the distribution of lost days; fifty-five (55) percent of the individuals returned to work within 5 days, 67% within 10 days and 80% within 15 days. Individuals have returned to work more quickly in 2002 than in the previous years (data for 2000 and 2001 -- not shown). The data presented in this paragraph together with the fact that the number of health care accidents have increased somewhat while the number of lost time accidents have decreased considerably suggests that accident severity has decreased.

4.2 Claims Breakdown by Employee Group for the Period 2000 to 2002

Table 4.2

# of LOST-TIME ACCIDENTS by EMPLOYEE GROUP			GROUP	LOST-TIME ACCIDENT FREQUENCY* by EMPLOYEE GROUP		
2002	2001	2000		2000	2001	2002
23	24	44	CUPE 3261	9.2%	4.5%	2.5%
9	12	8	TRADES	14.5%	21.1%	15.8%
0	2	3	CAW (Oper.Eng.)	4.5%	3.5%	---
1	1	3	CUPE 1230	2.5%	<1%	<1%
0	0	0	POLICE	---	---	---
9	23	20	USWA	1.0%	1.0%	<1%
7	8	4	ADMIN. (Non-Union)	1.5%	1.5%	1%
1	2	1	Academic/ Librarian	<1%	<1%	<1%

* Frequency is the number of lost-time accidents per 100 staff members in the identified group.

Table 4.2 above shows the breakdown of lost time claims by employee group. The majority of lost time claims arise among the CUPE 3261 group (46%). CUPE 3261 is comprised of caretaking and grounds staff at St. George, Scarborough, Erindale, and Hart House, and animal care workers in Medicine and Zoology.

Normalizing the number of accidents to the number of employees in each group gives the lost time accident frequency in Table 4.2 above. It is expressed as a percentage. Using this measure, in 2002, the highest frequency lies in the skilled trades group (15.8%) with the CUPE3261 group being second at 2.5%, non-union administrative staff at 1% and USWA and others at <1%. The frequency of the University as a whole for 2002 is 0.5% (0.5 lost time accidents per 100 employee).

Data against which we can benchmark are the following:

- Companies with exceptional, "world class" safety records - less than 0.5% on any one year with a long term average less than 0.25%.
- Canadian and Ontario industrial average - 3%
- Ontario WSIB Rate Group 923 (Janitorial Services) - 3%
- Ontario WSIB Rate Group 927 (Office Workers) - 0.4%
- Ontario WSIB Rate Group 929 (Supply of Non-Clerical Labour) - 8%

The University's performance for 2002 at 0.5% (5 lost time accidents per 1000 employees) is good and somewhat better than our peer institutions in Ontario. The standard for world class safety performance is a lost time frequency of less than 5 accidents per 1000 employees in any one year and less than 2.5 accidents per 1000 employees per year as a long term average. This standard was also met in 2002 for certain employee subgroups such as academics/librarians, U of T police, non-union administrative staff, CAW (Operating Engineers), USWA, and CUPE 1230 (see table 4.2). It is significant that the frequency among the CUPE 3261 has decreased from 9.2% in 2000 to 4.5% in 2001 to 2.5% in 2002. While the frequency among the Trades group has decreased from 21.1% in 2001 to 15.8% in 2002, we have targeted this subgroup for 2003.

4.3 Claims Breakdown by Type of Accident for the Period 2000 to 2002

Table 4.3

LOST-TIME ACCIDENTS by CAUSE	# of LOST-TIME ACCIDENTS	ACCIDENT TYPE	# of DAYS LOST	DAYS LOST by CAUSE
26%	**13**	FALLS	**53**	**7%**
42%	**21**	STRAINS/SPRAINS	**374**	**50%**
22%	**11**	CONTACT	**130**	**17%**
8%	**4**	EXPOSURE	**185**	**25%**
2%	**1**	OTHER	**2**	**<1%**

Classification of lost time claims by type of accident giving rise to the claim shows that there are four major types of accidents (Table 4.3 above): These are:

- Strains and sprains arising from lifting or overexertion (42%),
- Falls (26%),
- Contact with moving or stationary objects (16%),
- Exposure to chemical,mould,heat, etc. (8%).

These four account for 98% of all claims.

Table 4.3 above also shows the breakdown of lost days by accident type. The major contributors to lost days are strains and sprains (21 claims, 50% of the lost days), exposure to mould/chemical (4 claims, 25% of the lost days) and contact with moving or stationary objects (11 claims, 17% of the lost days).

4.4 Accident Costs

The University paid $1,729,017 in premiums to the WSIB in 2002. Our total accident costs for 2002 under the experience rating program were $377,608 as compared to premiums of $1,563,230 in 2001 and total accident costs of $591,942.

5.0 OCCUPATIONAL HEALTH SERVICES

The mandate for the Occupational Health Service includes:

1) Occupational disease prevention
2) Client support
3) Health promotion (individual and/or group)
4) Advice and consulting on occupational health matters

Table 5.1 summarizes the numbers of clients associated with each of the four mandates. The numbers in parentheses represent the percentage of client visits related to a specific mandate

Table 5.1

Summary of Client Visits to the Occupational Health Service

Mandates	1997	1998	1999	2000	2001	2002
Occupational Disease Prevention	693 (78%)	677 (79%)	803(80%)	1615(90%)	1135(78%)	1249(82%)
Client support	194(22 %)	178(21%)	198(20%)	143(8%)	170(12%)	264(18%)
Health Promotion Information Sessions			3 Back 2 Stress	21 (2%) 3 Back 1 Stress	148 (10%) .Back .Stress .Infectious Disease Information	185 (not included in total)
Total Visits	887	855	1001	1779	1453	1513

5.1 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 appropriate vaccines as indicated.

Major medical surveillance programs in effect in 2002 were:

Tuberculosis

Annual screening completed for workers in dental clinics, student health services,animal care workers, campus police services and some research laboratory personnel.

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.

Laser Workers

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

Influenza Immunization

Influenza immunization clinics were held in the fall of 2002, and 589 individuals participated.

Tables 5.2 and 5.3 summarize the medical surveillance and immunization programs.

5.2 Client Support

Client support includes the following:

- counselling and referral related to anxiety, depression, workplace conflicts, chemical misuse and/or family issues

- providing advice and information on musculoskeletal joint complaints, workplace/environmental exposures to chemicals and pathogens.
- Assisting in the reintegration of employees into the workplace, monitoring health status and providing counsel.

These are primarily staff-initiated contacts with the Health Service and referrals are made when appropriate to other internal or external resources such as the Employee Assistance Program.

5.3 Health Promotion

The Occupational Health Service continued to promote healthy lifestyles by identifying hazards, planning strategies and implementing programs to meet the community needs. Individual and group information sessions were directed at reducing health risks and/or maintaining the health of each employee in the University of Toronto.

Group sessions involving 62 employees were held on Back Awareness, Stress and Wellness, and Infectious and Communicable Diseases.

Table 5.2

Summary of Medical Surveillance Programs

PROGRAM	NUMBER OF PARTICIPANTS
Animal Care Workers	55
Human Genetics	2
Laser Surveillance	12
Audiometric Testing	197
Mercury Surveillance	0
Student Health Services	12
Campus Police Pre-Placement	6
Nursing - Tuberculosis	5

Table 5.3

Summary of Immunization Programs

Immunization /Testing	Number of Participants
Screening for Tuberculosis (Faculty of Dentistry & Student Health Services)	140
Influenza	**589**
Rabies	15
Tetanus/Diphtheria/Polio	18
Hepatitis A	9
Hepatitis B	**79**
TOTAL	**850**
Serological tests completed (frequently as part of health reviews or medical monitoring)	**259**
Stored sera obtained and cryogenically Maintained (off campus) in a confidential manner.	53

5.4 New Organizational Structure

Effective in 2003, the Occupational Health Service, Workplace Safety and Insurance Board (WSIB) Administration and Disability Claims and Accommodation Services (DCAS) were combined to create a new unit:- Health and Well-Being Programs and Services. This new unit will work to enhance return-to work planning, accommodation for employees with disabilities and assistance to LTD and WSIB claimants.

6.0 OCCUPATIONAL HYGIENE AND SAFETY

The major functions of this unit are to provide advice on health & safety issues, to evaluate potentially hazardous situations involving chemical, physical and ergonomic stressors, to develop and assist in the implementation of programs to protect the health and safety of employees and students, and to evaluate the effectiveness of these programs.

6.1 Ministry of Labour Visits/Orders

There were five visits by the Ministry of Labour during 2002: all on the St. George Campus. The visits resulted in 13 orders being issued. None of the visits were part of a routine inspection program by the Ministry, but were initiated either in response to an incident or to a telephone call by an employee.

Asbestos Issues

In October/November, 2002, the union members of the asbestos task force called in the Ministry of Labour to investigate their complaints of the University's non-compliance with its own asbestos control program. The Ministry conducted an investigation and issued the following orders:

1. comply with our own asbestos control program forthwith
2. comply with Ontario's asbestos regulation forthwith
3. update our records on 11 buildings by 16th December 2002
4. inspect to determine the condition of asbestos-containing materials in the same (11) buildings by 16th December 2002
5. update our records on all other buildings by 7th February 2003
6. inspect to determine the condition of asbestos-containing materials in all other buildings by 7th February 2003
7. clean-up and remove the fallen, asbestos-containing material in the "steam" tunnel system
8. prepare and submit to the Ministry of Labour, a compliance plan with respect to #7 above by 31st December 2002
9. repair, seal, remove or permanently enclose any asbestos-containing material in the "steam" tunnel system, that will continue to fall because of deterioration
10. prepare and submit to the Ministry of Labour, a compliance plan with respect to #9 above by 31st December 2002

Order numbers 1,2,3,4, 8 and 10 have been completed (even though we requested and obtained an extension to January 8th 2003 for order numbers 3 and 4). We requested and obtained an extension for order numbers 5 and 6 and we are presently in the process of complying with order numbers 7 and 9.

Robarts Library

A visit was made by the Ministry of Labour to investigate an employee's concern regarding the temperature levels at the main information desk. This information desk is relatively close to the main entrance of the Library and during the winter months the cold outside air enters the Library through the doors and causes discomfort to those working at the information desk. No orders were written but the University was advised to investigate the situation further and ensure that the temperature at the desk is maintained within an acceptable range.

Koffler Student Services Centre

Two visits were made by the Ministry of Labour to the Koffler Student Services Centre. The first visit was the result of a worker experiencing respiratory problems, possibly as a result of exposure to

mould. An order was issued and remediation was conducted in three areas of the centre. The second visit involved an order to the Joint Health and Safety Committee to conduct meetings at least once every three months; this has been done.

6.2 Hazard Control Programs

Asbestos Control Program

Since mid-2001, there have been a number of asbestos-related incidents which have resulted in potential exposures to students and staff. In response to these incidents and at the request of union representatives, the University established a joint union-management task force which has been reviewing various components of the University of Toronto Asbestos Control Program. The mandate of the task force was to investigate best practice in comparable institutions and in the private sector, review current training programs and make recommendations for improvement, as well as recommend procedures and processes for ensuring compliance with the asbestos control program by University staff and external contractors. The task force expects to complete its work by mid-2003.

In September/October, 2002, testing had identified the presence of asbestos in the dust in some mechanical rooms and in the dust on the floor of the underground "steam" tunnels linking many buildings; this is probably the result of poor repair and/or clean-up practices over the past decades. Presently, any activity in these areas (there are approximately 1100 mechanical rooms and about 2 and ½ miles of tunnel) that might disturb the "accumulated, asbestos-containing dust/debris" has to be handled under Type 2 or Type 3 asbestos conditions (this means that special precautionary measures are required; these can be cumbersome and costly). The prudent solution is to properly clean the affected areas -- this will also be costly. The plan of action for the mechanical rooms is to properly inspect each of these rooms and to hire a team of asbestos removal workers to be on-site and to clean-up each contaminated room over a period of time. The plan of action for the "steam" tunnels is to define a protocol for cleaning them and to test the viability and success of the protocol over a ½ mile section of the tunnel. Once success is determined, funding will be requested for a complete tunnel clean-up on the most expeditious basis possible.

The previous section (Ministry of Labour Visits/Orders) refers to a number of ministerial orders issued with respect to the asbestos concerns of the union members of the asbestos review task force; these orders include the update of asbestos inventories, inspection to determine the condition of asbestos-containing materials and a plan to clean-up and remove fallen, asbestos-containing materials and to repair, seal, remove or permanently enclose any asbestos-containing materials in the steam tunnel system that will continue to fall because of deterioration.

In addition to compliance with the orders, the following initiatives have been put in place:

- meetings with project managers in Project Management , Design and Construction to reinforce the need to ensure that contractors are complying with the University's asbestos control Program.
- testing and/or cleaning mechanical rooms where work activity might disturb "accumulated, asbestos-containing dust/debris on equipment/pipe/duct surfaces.
- requested proposals to clean the tunnels.
- the creation of a new position in Facilities and Services (Manager, Environmental Hazards and Safety) .

Into 2003 we will continue to address the many issues related to asbestos and its presence at the University of Toronto.

Noise Control Program

The Noise Control Program applies to all University employees who work in noise hazard areas or

who have the potential to 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.

Workplace Hazardous Materials Information System (WHMIS)

In accordance with Ontario right-to-know legislation, University departments are required to implement WHMIS in workplaces where chemicals or other hazardous materials are handled. In 2002, 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.

Working in Hot Environments

The program documents the responsibilities of various pertinent individuals/groups and provides employees with an overview of the health and safety hazards associated with working in hot environments and alerts them to the precautions which should be taken to prevent injuries and other problems due to heat stress. Examples of such areas are the steam tunnels, parts of the central steam plant, and small mechanical rooms in attics of some older houses. EHS is in the process of instituting medical surveillance for staff who are required to work in these hot environments.

Laser Safety Program

The Office of Environmental Health and Safety (EHS) in conjunction with the University's Advisory Committee on Laser Safety has developed a laser safety program in accordance with the general provisions of the Occupational Health and Safety Act of Ontario and the guidelines of the American National Standards Institute (ANSI) Standard for the Safe Use of Lasers --- Z136.1-1993.

In 2002, EHS provided laser safety training to a number of laser workers at the University of Toronto. Inspections of Class 3b and Class 4 lasers and Laser Systems have never really been done; this will be a major priority in 2003.

Lead Control Program

This Control Program applies to all University employees who work in, or around areas, where lead contamination and/or overexposure to lead might occur. It is the objective of the program to identify and control lead hazard areas and the identification and protection of all employees who are potentially exposed to lead in the course of their work.

A Lead Control Program is in effect at the rifle/revolver range at Hart House; EHS conducted an assessment of the potential for lead exposure in the Hart House Range in 2002, after it had been closed for other reasons. The assessment included discussions with staff, club members and the cleaning contractor; preliminary evaluation of the ventilation system; and surface dust sampling.

Currently in Canada there are no quantitative standards regarding maximum allowable levels of surface contamination for lead dust. However, several agencies in the U.S.A, (U.S. Navy Environmental Health Center, U.S. Department of Housing and Urban Development, and the U.S. Environmental Protection Agency) require that certain lead-dust clearance levels be achieved before the area can be declared safe for occupant re-entry.

Sampling conducted in January 2002 in the range showed extensive lead contamination of all surfaces (floor, walls, ceiling, tables, chairs etc.) that exceeded all guidelines. Several recommendations were made by EHS at that time.

The range was thoroughly cleaned and sampling was repeated in April 2002. Unfortunately, extensive contamination persisted. Further recommendations were made. Eventually, the range was encapsulated (painted) to contain the lead dust and the range was re-opened to shooting clubs in early January 2003.

6.3 Safety Equipment Testing/Validation

Deluge Shower Testing Program

Under the Occupational Health and Safety Act of Ontario, the University has a legal obligation to provide deluge showers in or near chemical laboratories and also to ensure that they are functioning properly. This requires that these showers 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 declined sharply over the next 4 years to an average of 4% per year over the last 5 years.

Showers not functioning are immediately repaired.

6.4 Major Health and Safety Concerns

As in the past few years, the major health and safety concerns of the general University community involved office ergonomic issues and indoor air quality.

In 2002, there were over 30 ergonomic assessments of chairs, computer workstations and environmental factors such as lighting and glare; many of these assessments were the result of requests from individuals experiencing pain or discomfort. Additionally, EHS delivered ten seminars on "Office Ergonomics" that dealt with issues such as workstation design, posture, lighting and job design. We also continued with our program of providing different types of ergonomic equipment and devices to employees on a short-term basis.

As usual, EHS investigated many indoor air quality concerns; these ranged from comfort parameters of temperature, humidity and air-movement to contaminant build-up in occupied spaces. These investigations occurred in various departments/buildings including:-

- Admission and Awards – 1st floor (temperature)
- Earth Sciences Centre – Dept of Geology (odours, dust)
- Rotman School of Management – Room304 (ventilation)
- Lash Miller Bldg – Dept of Chemistry (Rm 10) (ventilation issue, contaminant build-up)
- Koffler Student Services Bldg – Student Recruitment Offices -- (temperature control, dust)

Other notable health and safety concerns include:-

- Concerns regarding mould contamination were investigated after numerous occupants of Phase V residence at University of Toronto at Mississauga reported mould growth in their residences. Mould growth and favourable conditions for growth were identified in two residence units. It was deemed necessary to have mould in the two units removed to have the remaining units in Phase V inspected for possible presence of mould. Recommendations were also made to correct any structural deficits in the building envelope to minimize conditions for mould growth.

- An assessment of soldering operation in Physics Electronic Resource Center (PERC) was done at the request of the PERC supervisor. The assessment revealed the use of potentially hazardous solder and soldering flux along with inadequate ventilation. Recommendations made included substitution of the flux and solder currently being used with less hazardous materials along with elimination of certain cleaning solvents. Other recommendations included following good work practices and proper use of personal protective equipment.

- Concerns regarding possible student exposure to vinyl chloride in the Groundwater Lab in Civil Engineering were investigated. An assessment revealed the vinyl chloride exposure of students to be below the allowable exposure limit, however, to further reduce the exposure levels, all experiments involving vinyl chloride were terminated and all vinyl chloride was removed from the labs.

- A number of water quality concerns related to levels of turbidity and elevated levels of iron, copper, zinc and possibly lead. Generally, the water tests indicate that the quality of water in the pipe run is acceptable according to the Ontario Drinking Water Standard. In many of these situations EHS

recommends allowing the water to run for a about a minute (particularly, first thing in the morning) prior to using the water for drinking, coffee,etc. or the use of bottled water.

- Long-standing concern regarding significant discomfort of workers at the Patient Reception Area, Faculty of Dentistry. EHS conducted a reassessment of several ergonomic issues associated with the area and recommended a complete redesign of the workstations. In response to these concerns, the reception area was redesigned and reconstructed in 2002.

- Staff concerns regarding worker exposure to waste anesthetic gases in a rodent surgery at 1 Spadina Crescent, were investigated. An assessment revealed leakage points in the anesthetic delivery and scavenging systems, as well as insufficient room dilution ventilation. Recommendations included changes to the design of the delivery and scavenging system and to the ventilation system in order to minimize leakage and escape into adjacent rooms.

- Air quality concerns were investigated following a report of progressive respiratory symptoms in an employee at the Visitors Centre, Knox College. Water migration through the porous building materials had resulted in mould contamination on local wall surfaces two years earlier; this had since been remediated. The investigation showed no obvious signs of mould contamination. An air sampling assessment showed little to no background levels of viable airborne fungi, and volatile organic compounds and formaldehyde were well within recommended limits for the office environment. Although measured contaminant levels were low, the employee continued to experience symptoms when in the area, and was relocated to an office in another building. Further recommendations included improved ventilation to the area, regular housekeeping, and routine monitoring of room surfaces for obvious mould growth.

6.5 Training and Education

The training courses provided by the Office of Environmental Health and Safety and the numbers trained are summarized in Appendix 2.

7 ENVIRONMENTAL PROTECTION SERVICES (HAZARDOUS MATERIALS)

Environmental Protection Services (Hazardous Materials) is responsible for the hazardous waste disposal program for chemical and radioactive wastes, responding to major chemical spills, and providing training, information and advice relating to disposal and environmental protection legislation for hazardous materials.

7.1 Chemical Waste Management

In November 1999, the University's central chemical waste transfer facility was demolished by the University to accommodate the construction of a parking garage for the Bahen Centre for Information Technology building. The impact on the University has been a 300% increase in the average monthly chemical waste disposal costs coupled with a 40% reduction in service in collecting chemical waste from the 1500 laboratories on the St. George campus. The average monthly costs for chemical waste disposal rose from $8100 prior to demolition of the facility to $24,100 per month, averaged over the last three years. Over the past three years, it has been estimated that the University has paid over $575,000 in *additional costs* over regular disposal charges.

This facility was licensed by the Ontario Ministry of the Environment and acted as the central environmental facility to receive, safely store and efficiently package collected chemical wastes, prior to final shipment off-site for disposal. With this facility in operation, Environmental Health and Safety staff were able to efficiently packaged and consolidate the hazardous chemical waste. With the demolition of the central waste facility, the University's efforts towards more cost-effective packaging through consolidation of waste materials had to be discontinued, due to the lack of proper environmental and safety facilities on campus.

Interim arrangements were made with an external waste disposal contractor to directly remove chemical waste from all buildings generating chemical wastes. Currently thirty-five locations on the St George campus are still being serviced by the interim measures established in 1999. The lack of any space to consolidate and reduce the volume of waste disposed as well as the reliance on external

contractor labour to individually service the thirty-five sites on the St. George campus explains the dramatic increase in costs.

These disposal costs will continue to increase due to:

- Expected industry increases in disposal costs of a minimum of 10%
- Two large new research buildings of the CCBR and the Leslie Dan Pharmacy Building being commissioned in the next 5 years is expected to increase the amount of chemical waste produced by approximately 20%
- the double cohort is expected to increase enrolment by an estimated 8% and this is expected to also impact on waste by increasing waste production.

EHS will explore ways of decreasing these costs. `

7.2 PCB Waste Management

The University maintains a central PCB waste storage site at the Institute for Aerospace Studies. Currently, the inventory at the storage site includes 204 drums of PCB-contaminated materials. The Ontario Ministry of the Environment has mandated that all PCB waste be disposed and the sites decommissioned by owners by 2005.

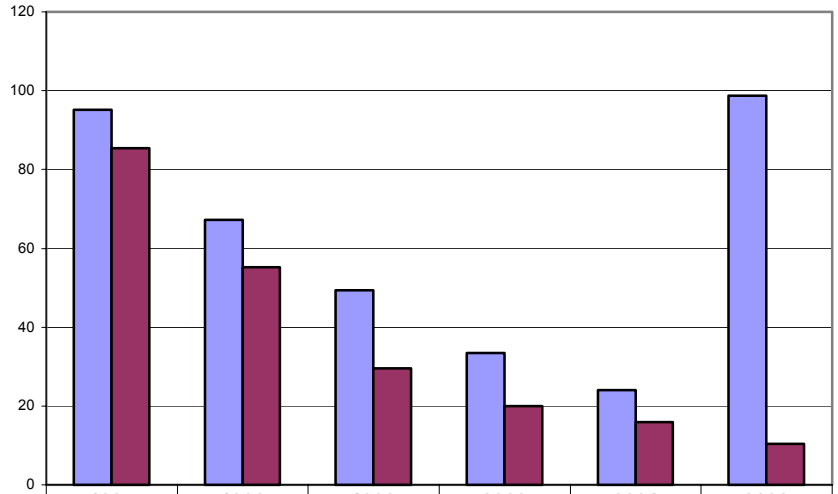
The University is in year four of a seven-year plan, to eliminate the current PCB waste inventory stored at the Institute for Aerospace Studies. The costs for PCB disposal are still prohibitive on a large scale, however projects involving the disposal of smaller amounts of wastes have become a more viable option. It is expected that the University will be able to comply within the current budget restraints by the 2005 deadline. This assumption is based on the disposal costs to remain relatively stable as they have been over the past three years.

7.3 Radioactive Waste Management

In March 2002, the only radioactive waste disposal facility in Canada, AECL Canada in Chalk River Ontario, raised its disposal rates for low-level radioactive waste disposal from $\$1,170/m^3$ to $\$10,266/m^3$, or an increase of 880% in one year. Rates are expected to rise by approximately 10% a year.

Although the amount of waste being produced by research has not changed, over the past five years the Environmental Health and Safety Office has phased-in implementation of a program involving more efficient packaging of solid waste and the delay and decay program in eliminating short-lived isotopes from the waste stream. However in the next five years with the double cohort and commissioning of two major research buildings (CCBR and Leslie Dan Pharmacy), the amount of radioactive waste will increase. It is estimated that within five years, the cost of disposal of low-level radioactive waste will increase by an additional $170,000.

Figure 1: Radioactive Waste Disposal - Volume and Costs



	1997	1998	1999	2000	2001	2002
Costs (k$)	95.2	67.3	49.3	33.4	24	98.8
Volume (m3)	85.4	55.2	29.5	19.9	15.9	10.3

8.0 RADIATION PROTECTION SERVICES

The Radiation Protection Service administers the University's Consolidated Radioisotope Licence under the direction of the University Radiation Protection Authority. The Service ensures that the University and its radiation permit holders meet the requirements of the Nuclear Safety and Control Act and the requirements of the Radioisotope Licence. Duties include the approval of all radioisotope purchases, the inspection of radioisotope laboratories carrying out of radiation dosimetry for those exposed to ionizing radiation and training of all laboratory staff and students using radioactive materials.

8.1 Radiation Protection Authority

Ultimate responsibility for the control of radioactive materials within the University lies with the Radiation Protection Authority, the membership of which is listed in Appendix 3.

The Authority met three times during 2001, on February 7, April 25, and September 13. The Authority receives reports on radiation safety matters at the University. After discussion amongst the members, decisions and recommendations are made for actions by the Chair, members, or Radiation Protection Service staff.

8.2 Operational Statistics

The following table summarizes the operations of the RPS from 1999 through 2002.

Operational Statistics	2002	2001	2000	1999
Active Radioisotope Permits	260	235	261	248
Radiation Protection Course Attendees	216	201	179	147

Trained Summer/Project Students	**76**	**86**	**83**	**123**
Nuclear Energy Workers	**17**	**13**	**14**	**11**
Thyroid Bioassay Program (est)	**44**	**37**	**51**	**42**
Urinalysis Bioassay Program	**5**	**5**	**5**	**5**
Dosimeters worn by staff (avge)	**1185**	**800**	**800**	**1000**

The table above indicates that the number of active permit holders has grown by approximately 10% from the previous year. During the same period, the number of Radiation Protection Course trainees increased by 10%. The increasing numbers of permit holders, laboratory staff, and permitted locations indicate that the use of radioactive materials is growing in our research laboratories.

The Radiation Safety Training Program continues to be offered monthly, although class sizes are becoming cumbersome. To assist in this training, the computer-based lecture portion of the training program is now on the RPS website for evaluation by the UTRPA. This material will form the basis of "refresher" training for existing staff as well. Successful completion of the computer-based portion of the course leads to the 4-hour practical portion of the course, and a subsequent written examination. This practical training will be provided in the planned laboratory space provided to the RPS in response to an Action Notice written following the evaluation of the Radiation Protection Program at the University in 2001.

In addition to the personal dosimeters for assessing exposure quarterly, 4 Electronic Personal Dosimeters are used to assess the possibility of exposure immediately, where required. These detection units may be loaned to pregnant workers, service workers, or to workers beginning new experimental procedures to provide an immediate and direct assessment of their dose. During 2002, no members of the University community, Members of the General Public or Nuclear Energy Workers, received a radiation dose in excess of that allowed to any member of the Canadian public within the year. Maximum exposures to the whole body were 80% of the public limit in one case, but investigation suggested that this was due to poor storage of the dosimeter rather than to personal exposure. Similarly, the results of thyroid bioassays on individuals within the University community indicate no significant internal contamination by radioactive materials being detected in well over 100 assessments. Four individuals who handle radioactive waste materials and one academic researcher participate in the urinalysis assessments. None have shown evidence of radioactive material in their urine samples.

8.3 Security and Emergency Measures

In light of concerns due to recent terrorist threats, the security of our large radiation storage areas was reviewed and the alarm systems tested. In addition, the hoist required to access the neutron sources was tested and additional lockage provided. A review of access to our irradiator sources was also performed. Locks were changed, and key issues and logging of all usage confirmed. Specific permits for these locations were prepared, and the publicly posted permits edited so that locations of the more hazardous radioactive materials are more confidential.

The RPS has reviewed the security systems for radioactive laboratory materials with Campus Police. Increased emphasis has been placed on inventory control and security of laboratories during our laboratory inspections. Emergency procedures are updated regularly and are currently under review.

8.4 Summary of internal compliance activities

The number of laboratory inspections performed during 2002 was less than our target of two visits per permit per year. Considerable time was required for training of new staff and allowing them time to gain experience with our workplace and procedures during the fall of 2001 and thereafter. As indicated in the graphic, this situation is improving.

Non-compliance issues commonly include contamination monitoring, permit postings and warning

signage, inventory documentation, and radioactive waste concerns. These issues as well as security, eating and drinking in areas of radioactive usage/storage, and proper wearing/handling of thermo-luminescent dosimetry have been emphasized during laboratory inspections.

All laboratory inspections result in a report to the permit holder noting the issues of non-compliance, suggested corrective actions, and a deadline for corrective actions. Non-compliance issues requiring immediate response, such as evidence of eating and drinking or security issues are dealt with on-site during the visit. The RPS follows-up on the non-compliance issues discovered in these inspections, noting that the issues have been corrected or filing a second report in the event of continued non-compliance.

Permit holders are responsible for ensuring that all requirements of the regulations and the policies of the University are followed in their laboratories. Failure to meet the requirements can result in action being taken against the University's Radioisotope Licences. There is a four step procedure for disciplinary actions taken against non-compliant permits to protect the University's Consolidated Licences and responsible permit holders. It is the responsibility of the RPS to protect these Licences which enable the research and teaching activities which they support.

8.5 Unusual Occurrences

There have been no major occurrences during the calendar year 2002. There have been a few minor spills of radioactive materials, none resulting in any exposure to individuals nor spread of radioactive material outside the permitted areas.

The permit holder and laboratory staff involved had been trained in such emergency and spill response and handled each of these minor occurrences safely and adequately. Radiation Protection Staff followed up on each occurrence until only background readings were confirmed.

9.0 BIOSAFETY

The functions of the University of Toronto Biosafety Committee and the Biosafety Office are to promote appropriate standards of biological safety in laboratories and to enable compliance with these standards, as detailed in University of Toronto Biosafety Policies and Procedures Manual. Research and teaching activities involving the use of hazardous or potentially hazardous biological agents (viruses, bacteria, animal cells, recombinant DNA, etc.) must be conducted in accordance with the requirements of this document and applicable legislation.

9.1 Biosafety Committee

During the year, approximately 110 application forms for new University of Toronto Biosafety Certificates were received from Principal Investigators and subjected to a risk assessment. Based on known and perceived risks posed by the biological agents and the intended manipulations,

40 were approved for projects requiring Containment Level 1,
64 were approved for projects requiring Containment Level 2, and
6 were approved for projects requiring Containment Level 3 laboratory conditions.

(NOTE: Currently, only 1 location at U of T provides Containment Level 3 laboratory conditions. No activities requiring a higher level of containment were approved; U of T has no Containment Level 4 laboratories.)

9.2 Biosafety Orientation Seminars

General and specific issue seminars were presented to U of T Police, Trades Services workers, laboratory workers, and project course and special program students. These were presented either as single 'stand alone' seminars or as part of a larger program involving other aspects of safety, to inform persons of the need to observe appropriate precautions and safe practices in the workplace.

9.3 Laboratory Waste Disposal

Up until last year, 'biomedical / pathological' and 'sharp' laboratory waste generated at the University of Toronto was steam sterilized / autoclaved on site to inactivate biological agents, and then it was transported to the Keele Valley landfill where it was buried. Two events have significantly impacted the disposal of laboratory waste: the Ontario Ministry of Environment introduced additional regulations under the Environmental Protection Act, and the Keele Valley landfill closed its gates permanently and the waste is trucked to Michigan.

The additional regulations include a concept known as "the derived from rule" which essentially states that 'biomedical / pathological' waste remains 'biomedical / pathological' waste until it is destroyed (i.e., by incineration) or it is rendered non-hazardous by a validated, documented process such as steam sterilization.

The Ontario Ministry of Environment requires that each autoclave used for the sterilization of 'biomedical / pathological' waste must have a valid Certificate of Approval. Maintaining this status requires strict documentation and efficacy testing using a biological indicator to verify that the waste is rendered non-hazardous (i.e., that all bacteria, viruses, animal cells are killed).

The Biosafety Office has been working with Facilities & Services to develop and implement a revised scheme for the disposal of 'biomedical / pathological' laboratory waste, needles & blades, glass and other sharp or pointed waste. Negotiations are underway with a specially licensed contractor for the removal of this waste. The waste will be transported to a local facility where it will be steam sterilized in an autoclave that has a valid Certificate of Approval from the Ontario Ministry of Environment. Following mechanical shredding, the inactivated waste will be transported to a landfill in southwestern Ontario. This will preclude the need for transboundary shipments of our laboratory waste.

This solution for 'biomedical / pathological' and 'sharp' laboratory waste disposal exposes the University of Toronto to the least liability. However, it comes with significant cost implications. It has been determined that disposal costs will increase dramatically, from about $.075/Kg, to approximately $.55/Kg. In each of the past few years, Facilities & Services paid a portion of the annual disposal cost. Waste volumes are projected to increase with the completion of the CCBR and Pharmacy buildings and due to the influx of the double cohort.

9.4 New Construction

The Faculty of Medicine and the Faculty of Pharmacy have plans for 2 new buildings near the north west corner of University Avenue and College Street. The Biosafety Officer provided information and attended meetings to discuss and clarify issues related to laboratory safety requirements, waste handling and waste disposal. The CCBR and the Leslie Dan Pharmacy Building will both provide new additional research laboratory space. A greater number of research laboratories will result in an increase in the quantity of waste generated by the University. We also anticipate a greater demand on the Biosafety Office with respect to the issuance of Biosafety Certificates and import permits.

Appendix 1

Joint Health and Safety Committees
Status Summary - Calendar Year 2002

#	Committee	# Meetings	# Certified Members	#	Committee	# Meetings	# Certified Members
1	Trades/Utilities	8	11	20	Faculty of Forestry	3	1
2	Police	2	2	21	Faculty of Law	4	1
3	Library (CUPE 1230)	5	3	22	Rotman School of Management	2	2
4	CUPE 3261	9	10	23	Faculty of Music	4	3
5	USWA	5	3	24	Faculty of Nursing	4	3
6	Faculty of Engineering	4	2	25	OISE/UT	4	4
7	Aerospace Studies	4	3	26	Faculty of Pharmacy	4	2
8	Sidney Smith Hall	2	2	27	Faculty of Physical Education & Health	7	6
9	Department of Botany	3	1	28	Faculty of Social Work	4	2
10	Department of Chemistry	4	3	29	Hart House	2	2
11	Department of Geology	2	0	30	215 Huron Street	2	3
12	Department of Economics	4	2	31	Koffler Student Services	2	4
13	McLennan Building	4	2	32	School of Graduate Studies	1	2
14	Department of Zoology	4	3	33	School of Continuing Studies.	1	1
15	U of T at Scarborough	4	4	34	Simcoe Hall	1	3
16	U of T at Mississauga	4	4	35	21 King's College Circle	4	2
17	Faculty of Medicine	2	3	36	Borden Building	4	4
18	Faculty of Architecture & Landscape Architecture	3	2	37	Admissions and Awards	2	4
19	Faculty of Dentistry	4	6	38	1 Spadina Crescent	1	2

Appendix 2

Summary of Training Provided by EHS in 2002

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.	7	45
Understanding Noise	This two-hour seminar provides "noise exposed" employees with information regarding the effects of noise and the control of noise hazards.	2	7
Small Scale, Short Duration Asbestos Activities -- A Practical Program	This one-day practical program provides employees with the details they require to safely conduct Type 1 and Type 2 asbestos activities.	8	86
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.	5	25
Managing Asbestos Activities	This half-day seminar provides “asbestos-project managers” with the relevant details for managing Type1, Type 2 and Type 3 asbestos projects in accordance with the University’s Asbestos Control Program.	3	25
WHMIS (Workplace Hazardous Materials Information)	All employees who work with or in proximity to hazardous chemicals are required to be provided with training which informs them about the potential hazards as well as the safe use of these chemicals EHS provides training to summer employees (mainly students) and participates in seminars organized by departments.	7	324
Occupational Health and Safety Responsibilities: Business Management Program/ Supervising in a Unionized Environment Program	This half-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.	1	24
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.	10	91
Laser Safety	This one-day seminar provides laser workers with information regarding the safe use of Class 3b and Class 4 Lasers and Laser Systems.	2	59
Radiation Protection		12 5	216 76
TOTALS		60	919

APPENDIX 3

COMMITTEE MEMBERSHIP

Senior Management Committee on Health and Safety

Prof. Angela Hildyard (chair)	- Vice-President, Human Resources
Dr. James B. Campbell	- Chair, University of Toronto Biosafety Committee
Prof. Anastasios Venetsanopoulos	- Dean, Faculty of Applied Science and Engineering
Dr. Tania Watts	- Chair, University of Toronto Radiation Protection Authority
Dr. David J. Gorman*	- Director, Environmental Health and Safety
Mr Chris McNeill**	- Interim Director, Environmental Health and Safety
Mr. David Keeling	- Administrative Officer, Faculty of Medicine
Prof. Robert Baker	- Associate Dean of Sciences, UT Mississauga
Prof. David Farrar	- Chair, Department of Chemistry
Ms. Catherine Riggall	- Assistant Vice-President, Operations & Services
Prof. Pekka Sinervo	- Associate Dean, Science, Faculty of Arts & Science
Ms. Kim McLean	- Director, Administration, UT Scarborough
Prof. James W. Smith	- Department of Chemical Engineering & Applied Chemistry
Prof. Robin Marjoribanks	- Chair, Laser Safety Committee
Prof. Ian Orchard	- Vice-Provost, Students

* January 1 to August 31, 2002
** September 1 - December 31, 2002

University of Toronto Radiation Protection Authority

The membership of the UTRPA as of 31 December 2002 is as follows:

Dr. Tania Watts (Chair)	Academic	Immunology
Dr. David Hampson(Vice-Chair)	Academic	Pharmacy
Dr. P. Brubaker	Academic	Physiology
Dr. Robin Cameron	Academic	Botany
Dr. Sela Cheifetz	Academic	MRC Group, Peridontal Physiology
Dr. Alan Cochrane	Academic	Medical Genetics and Microbiology
Dr. Herbert Gaisano	Academic	Clinical Sciences
Dr. David Gorman	Administrative	Environmental Health and Safety
Mr. Ray Ilson	Administrative	Senior Radiation Safety Officer, EHS
Dr. Angela Lange	Academic	Life Sciences, UT Mississauga
Dr. Michael Pharoah	Academic	Dentistry
Dr. David Riddick	Academic	Pharmacology
Dr. M. Ringuette	Academic	Zoology
Dr. Julie C. Silver	Academic	Life Sciences, UT Scarborough
Dr. David Williams	Academic	Biochemistry
Ms. E. Krivonosov	Administrative	Manager, Environmental Protection, EHS
Ms. S. Ramjit	Recording Secretary	Office of Environmental Health and Safety

University of Toronto Biosafety Committee (2002-2003)

Dr. J.B. Campbell (Chairman)	(Medical Genetics and Microbiology)
Dr. C. Bergeron [Tanz Building]*	(CRND)
Dr. S. Cheifetz [Dentistry & FitzGerald Bldg.]*	(Dentistry)
Dr. A.G. Clark [Medical Sciences Building, Banting Inst. & All Other]*	(Medical Genetics and Microbiology)
Dr. J. Coleman [Earth Sciences Building]*	(Botany)
Dr. S. Kish [Clarke Institute of Psychiatry]*	(Clarke Institute of Psychiatry)
Dr. A.B. Lange [U of T Mississauga]*	(Biology, U of T Mississauga)
Dr. A. Marks [Best Institute]*	(BBDMR)
Dr. M. Ringuette [Ramsay Wright Building]*	(Zoology)
Dr. S. Ross [Pharmacy Building]*	(Pharmacy)
Dr. J. Silver [U of T Scarborough]*	(Biology, U of T Scarborough)
Ms. C. Marshall	(Public Affairs)

*Local Biosafety Co-ordinator [jurisdiction in brackets]
Note: Dr. A. Gavin Clark is serving as the Local Biosafety Co-ordinator for all other locations on the St. George campus that do not have an on site co-ordinator.

Members, Ex officio:

Dr. A. Hildyard	Vice-President, Human Resources
Dr. H. Munroe-Blum	Vice-President, Research & International Relations
Dr. D.J. Gorman	Director, Environmental Health & Safety
Ms. J. Chadwick	Director, Research Grants, ORS
Dr. C.C. Yip	Vice-Dean, Research, Faculty of Medicine
Mr. J. Valant	University Biosafety Officer

Associate Members:

Mr. R. Ilson	Senior Radiation Safety Officer, U of T
Mr. F. Galberg	PMD&C, F&S, U of T
Ms. R. Kogan	Public Health, City of Toronto
Dr. M.S. Mahdy	Ontario Ministry of Health
Mr. M.R. Paull	DOMed, U of T
Dr. R. Renlund	DCM, U of T

Adjunct Members:

Dr. J. Brunton	Toronto Hospital
Dr. M.J. McGavin	Sunnybrook Health Science Centre
Ms. A. Monteath	Hospital for Sick Children
Dr. L. Holness	St. Michael's Hospital
Ms. R. Wallace	Mount Sinai Hospital
Dr. J. Woodgett	Ontario Cancer Institute / Princess Margaret Hospital

Laser Safety Committee (2002)

Prof. James Donaldson	- Chemistry
Prof. Robin Marjoribanks (Chair)	- Physics
Prof. Aephraim Steinberg	- Physics
Prof. Peter Herman	- Electrical & Computer Engineering
Prof. Andreas Mandelis	- Mechanical & Industrial Engineering
Mr. Nokolay Stoev	- Photonics Research Ontario

Dr. David Gorman	- Environmental Health & Safety
Mr. Chris McNeill	- Environmental Health & Safety

Central Health and Safety Committee (USWA):

Prof. Donald DeWees	- Department of Economics (Management)
Dr. David Gorman	- Environmental Health and Safety (Management)
Mr. David Keeling	- Faculty of Medicine (Management) (to June 30,2001)
Ms. Rose DaSilva	- USWA
Ms. Mary Ann DeFrancis	- USWA
Ms. Cynthia Kazadi	- Faculty of Dentistry (USWA)