



**Carleton**  
UNIVERSITY

Environmental Health and Safety  
Annual Report  
of the Vice-President (Finance and Administration)  
2015

To the Building Program Committee  
of the Board of Governors

May 1<sup>st</sup> 2016

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## 1. EXECUTIVE SUMMARY

The Annual Report on Environmental Health and Safety (EHS) profiles the effectiveness of Carleton's efforts in addressing our responsibilities in managing the operational risks of a research and educational intensive university.

The Environmental Health and Safety Office is a critical partner in support of Carleton's mission through developing, promoting and implementing best practices in prevention strategies while balancing these with responsible risk taking:

- By establishing structures, policies, standards and programs
- By managing Carleton's response to regulatory issues related to health and safety
- By identifying opportunities to influence change in safety awareness
- By fostering and strengthening a culture of collaborative prevention and resolution of health and safety concerns
- By embedding sustainability principles in all our operational, research and academic endeavours

Carleton is subject to increasing numbers and complexity in health and safety legislation, all of which require differing intensity of activities, program development, training and documentation for compliance. As such, these require a strong internal responsibility system to ensure we support Carleton's core pillar of innovation in research and education, while ensuring that Carleton is managing risks responsibly.

### 1.1 2015 ACHIEVEMENTS AND SUCCESSES

- Provided effective business case to support investment in an integrated EHS data management software system. Approval to purchase and implement obtained in February 2016
- Successfully submitted inaugural Human Pathogens and Toxins licence application complying with new Regulatory requirements
- Online H&S training compliance continues to improve
  - Over 6000 have successfully completed Worker H&S Awareness to date, increasing the compliance rate to 66%
  - Over 2100 supervisors have completed the supplementary training
  - By end of 2015, 7834 have completed Workplace Violence and Harassment Prevention, achieving 95% compliance for permanent staff and faculty
- After three years of targeted and aggressive investment into Asbestos Management, all damaged asbestos identified in the 2012 survey has been removed or repaired.
- Targeted performance evaluations and exposure assessments completed for highly specialized ventilation systems were completed to ensure safety and operational effectiveness. These included the Mechanical and Aerospace Composite undergraduate Laboratory, the STC workshops, Maintenance Building workshops, LSRB animal facilities. These risk assessments confirmed current performance capabilities and highlighted required next steps to minimize worker and student exposures, as required
- A comprehensive hazard signage was introduced for all laboratories and workshops on campus leveraging the information acquired through the Chemical Management System.

## **1.2 LOOKING FORWARD TO 2016 AND BEYOND**

- Finalize the acquisition and implement Phase 1 rollout of the Medgate Environmental Health & Safety (EHS) Software system
- Begin implementation of recommendations from the EHS Internal Audit to strengthen EHS and reduce risk across the organization through alignment with ISO 18001 standards
- Enhance fume hood safety for staff and students through investment in the acquisition and implementation of audible alarms to advise of suboptimal operation
- Develop and implement a contractor management program to minimize risk resulting from actions caused by third party contractors, particularly in a time of enhanced activities arising from Capital Renewal major projects
- Develop and implement an effective workshop safety program to assist faculties in safe delivery of experiential learning opportunities to students
- Implementation of the Human Pathogens and Toxins Regulations across the university through a collaborative approach, and embed these into new Health Sciences programming
- In collaboration with Human Resources, a pilot project will focus on enhanced return to work and accommodation programs under the guidance of an Occupational Health nurse

## **2. 2015 STRATEGIC PRIORITIES**

### **2.1 ASSESSING NEEDS: INTERNAL FORCES**

2015 continued the implementation of activities and programs aimed at further strengthening Carleton's environmental health and safety performance and positioning Carleton as a responsive organization, capable of readily adapting to changes in both the regulatory environment and with the ability to reduce risk while supporting our teaching and research activities.

With the full implementation of the Chemical Management System by late 2014, associated activities related to laboratory use were carried out. These included implementation of comprehensive hazard signage derived from the location specific chemical data, exposure assessments involving the use of anaesthetic gases in the animal facilities, safe handling of preserved bird specimens in undergraduate lecture courses, and a review of older model fume hood operations to ensure safe practices were implemented.

Continuing with the implementation of the 2012 Benchmarking report recommendations, an RFP was issued in January 2015 for the acquisition of an integrated EHS data management system to reduce manual interventions and ensure compliance efforts across campus are easily tracked. This software will capture information on injuries, accidents and good catches, inspections, equipment inventory and overall risk analysis. Guided by the Information Systems Steering Committee (ISSC), the acquisition of the EHS data management System was approved in February 2016.

Innovative research conducted largely by the department of Mechanical and Aerospace Engineering leads the province in the use and management of Unmanned Aerial Vehicles (UAVs). Due to increasing safety concerns over their use nationally, new Federal Regulations standards have been introduced. Working

collaboratively with an M&A faculty member, Carleton is developing policy and guidelines that will be modelled across Ontario and the country.

### **3. REGULATORY REQUIREMENTS**

#### **3.1 REFORM OF OHSA: HEALTH AND SAFETY AWARENESS TRAINING**

November 15, 2013, further to the recommendations of the Expert Advisory Panel on Occupational Health and Safety (The Tory Dean Report, 2010), the government of Ontario introduced legislation requiring Ontario Workplaces to provide Health and Safety Awareness training for workers and for supervisors.

Under the amendment to the Occupational Health and Safety Act (OHSA), all workers were to be trained by July 1<sup>st</sup> 2014, with supervisors to be trained within one week of becoming supervisors.

Two independent training courses (Worker Health and Safety Awareness and Supervisor Health and Safety Awareness) were developed and launched to the community 3 months prior to the “in effect” date of the Regulation. Carleton continues to lead the Ontario University sector with compliance.

To support these compliance initiatives, mandatory training elements have been incorporated into letters of offer for Contract Instructors, and embedded into collective agreements.

#### **3.2 REFORM OF OHSA: VULNERABLE WORKERS**

Vulnerable workers as a sector of the Ontario population has been identified as a strategic priority by the Chief Prevention Officer. Youth between the ages of 18 and 25 are more likely to be injured or killed on the job than a more mature worker, particularly in the first four weeks of work. This resulted in the introduction of Bill 18, the *Stronger Workplaces for a Stronger Economy Act*. Bill 18 amended the definition of a worker under the Occupational Health and Safety Act, and guarantees protection for unpaid learners, students and trainees in the workplace. As the impacts continue to be evaluated across the university sector, there will continue to be refinement to our programs.

EHS, Student Affairs, the Registrar’s Office, the Risk Manager, and CCS continue their collaboration to refine documentation and processes, including the purchase of injury insurance, to address the MTCU changes to the unpaid learners’ program, and ensure that Carleton students are able to benefit from increased opportunity for experiential learning.

#### **3.3 HUMAN PATHOGENS AND TOXINS REGULATIONS (HPTR)**

The HPTR came into force on Dec 1st, 2015. Further to internal stakeholder consultation, Carleton successfully submitted a comprehensive Licence application. In addition, institutions that carry out scientific research were required to submit a Plan for Administrative Oversight for Pathogens and Toxins. The Carleton University plan described prescribed elements of the Biosafety Program including policies and procedures, hazard assessments and risk mitigation strategies on an institutional scale. While requiring additional administrative oversight, these newly introduced regulations will facilitate importation and acquisition of regulated biological material for researchers involved in these activities.

### **3.4 REFORM OF OHSA: INTRODUCTION OF SEXUAL VIOLENCE ACTS**

With the passing of Bill 132, the Sexual Violence and Harassment Plan Act, in March of 2016, and the expected passing of Bill 177, Domestic and Sexual Violence Workplace Leave, Accommodation and Training Act the Occupational Health and Safety Act will be amended in respect of information and instruction concerning domestic and sexual violence. As a result, there is a significant requirement for updates to the existing programs, including alignment with a new policy on Sexual Violence.

### **3.5 SMOKE FREE ONTARIO**

In anticipation of increased requests for the use of medical marijuana on campus by staff and students, a cross-functional team was created to examine the legal, medical, ethical, health and safety, security, as well as reputational elements to inform a response strategy. This preparation has positioned Carleton extremely well, given the proposed changes to the Smoke Free Ontario Act.

### **3.6 DEFENSE PRODUCTION ACT AND CONTROLLED GOODS REGULATIONS**

In January of 2015, a thorough review of Controlled Goods activities was completed in response to an inquiry by the RCMP concerning a faculty member who had allegedly attempted to unknowingly sell Controlled Goods obtained from Carleton in the 1980s. The review confirmed that a similar incident could no longer occur given controls implemented in recent years.

## **4. MANAGING RISK @ CU**

To assist in managing risks that affect the university, an evolving risk review process is completed annually which includes regulatory compliance elements as well as program identification and gap analysis, particularly with regard to the infrastructure elements. Injury/incident data such as severity and frequency dimensions are also incorporated when establishing the risk ranking. This risk exercise will continue into 2016 with expansion of operational program elements.

### **4.1 2015 RISK MITIGATION ACTIVITIES AT A GLANCE**

#### **4.1.1 Asbestos Management @ CU**

In 2012, an updated campus ACM survey was completed which highlighted areas for improvement. This facilitated a systematic approach to abating and/or repairing damaged ACM. After 3 years of aggressively investing to enhance understanding and improve the condition of ACM on campus, ***all damaged asbestos containing materials as per the 2012 campus survey have been abated or repaired.*** Approximately 8% of all campus ACM pipe insulation was removed or repaired during this initiative. In 2017, the campus ACM survey will be fully refreshed through third party audit to ensure ongoing review of ACM condition on campus and continue to identify opportunities to remove ACM. In addition to addressing the damaged asbestos, EHS was involved in reviewing or managing 20 asbestos abatement projects in 2015.

#### 4.1.2 Hazard Signage of High Risk Areas

Following two years of identifying chemical use and storage locations through the implementation of the Chemical Management System, as of 2015 ***all laboratory and workshop areas across campus have appropriate hazard signage***. The comprehensive hazard signage does not only include health, flammability and reactivity hazards due to chemicals, but all hazards (e.g. lasers, compressed gases, biohazardous material, radioactive materials, etc.) present in each space through the consolidation of numerous databases. Hardware and signage were installed for all buildings except Steacie that required only updated signage. These laboratory signage standards will be applied in all new construction going forward.

**Table 1: Room-specific Hazards Identified through Signage Initiative**

Number of Rooms	Buildings												Total Rooms
	AA	CB	CTTC	HP	LSRB	LA	ME	MC	NB	SC	TB	VSIM	
Chemical Hazards*	2	4	2	1	15		11	10	24	65	11	2	<b>147</b>
Compressed Gases	1	3	3	4	7	1	16	6	13	32	2	1	<b>99</b>
Biohazardous Materials		1			4		2		7	3			<b>17</b>
Radioactive Materials				16	1		1	2	6	9			<b>35</b>
Lasers				5				2	1	5			<b>13</b>
X-Rays				6						2			<b>8</b>

*\*Chemical Hazards can include flammable, toxic, corrosive or reactive materials*

#### 4.1.3 Performance Verification of Engineering Controls

On campus the use of fume hoods and biological safety cabinets (BSC) are the primary engineering controls in place to mitigate the risk of biological and chemical exposures for our workers and students. Currently, there are 175 fume hoods and 17 BSCs used on campus to control exposure. There are also a handful of other types of local exhaust ventilation systems (LEVs) across various departments, such as snorkels and slot hoods, which serve the same purpose.

The annual fume hood inspection process was enhanced in 2015 to be in accordance with ANSI standards. As a result of the enhanced program to improve the performance of the fumehoods, 65 of the 175 fume hoods failed at least 1 of the 4 testing criteria. This provided the opportunity to investigate and correct fume hoods that were not operating optimally. After the investigation and completed actions, ***all fume hoods in operation by lab users are operating within key performance criteria as outlined in the ANSI standards***.

The 2016 activities will focus on expanding and streamlining this process of fume hood maintenance, the installation of fume hood monitors, where required, and consolidating the annual biological safety cabinet inspections efforts across all departments. In 2015 the performance of 7 snorkels and slot hoods on campus was completed. In 2016, the remaining local exhaust ventilation systems will be performance tested to gain a baseline insight into current performance capabilities of the types of units on campus.

#### 4.1.4 In House Risk Assessment (RA) Services

In 2015, **a total of 20 risk assessments were completed** and included areas such as: 1) exposure potential to various solvents, arsenic, and waste anaesthetic gas, 2) IAQ and mould concerns, 3) local exhaust ventilation (LEV) performance assessments for 4 departments, and 4) ergonomic assessments. These risk assessments were a combination of reactive and proactive in nature. For instance, as part of an on-going initiative to verify performance of local exhaust ventilation systems on campus, an updated inventory of local ventilation systems on campus (i.e., snorkels and slot hoods, not fume hoods) was generated and the performance of select ventilation systems were tested. A summary of the key risk assessments performed in 2015 are highlighted in table 2 below.

**Table 2: Key Risk Assessments Completed in 2015**

RA's Performed	Details
<b>Arsenic in Biology undergraduate lab</b>	<ul style="list-style-type: none"> <li>- Concern raised over potential exposure to arsenic from over 1,000 animal live mounts and study skins.</li> <li>- Specimen sampling confirmed presence of arsenic in live mounts and skins.</li> <li>- Rigorous cleaning of lab space was required by 3<sup>rd</sup> party abatement contractor using a modified asbestos abatement procedure.</li> <li>- Air sampling and surface sampling provided insight into student exposure and contamination potential during normal operations.</li> <li>- Prescriptive program safety components were developed and implemented as required for arsenic, a designated substance under OHSA.</li> </ul>
<b>Anaesthetic Gas Use in Animal Facility</b>	<ul style="list-style-type: none"> <li>- The effectiveness of the snorkel ventilation units used during mouse and rat surgeries to prevent exposure to isoflurane was questioned.</li> <li>- Snorkel assessment indicated concern over capabilities based on overall flow and capture velocities recorded.</li> <li>- Concern confirmed through personal air monitoring, results indicated students were being exposed to concentrations exceeding recommended limit.</li> <li>- Snorkels were removed and portable, cost effective air scrubbing units were purchased.</li> <li>- New units were installed with specific layout criteria and were tested to confirm appropriate flow and capture velocity.</li> <li>- Personal air sampling validated units with all exposures recorded below the recommended limit.</li> </ul>
<b>QA of Slot Hood in FED Composite Workshop</b>	<ul style="list-style-type: none"> <li>- Performance of newly installed slot hood in composite workshop was assessed</li> <li>- Acceptable containment capability confirmed assuming side baffles are utilized.</li> <li>- Additional RA needed if side baffles not used. Current intent of upcoming projects is to use slot hood with side baffles.</li> </ul>

In addition to the 20 risk assessments performed in 2015, 51 office ergonomic assessments were completed. Similar to previous years, 41% of the staff members were already using their paramedical

services to help address their symptoms before contacting the EHS Office for assistance. The employee's request for an assessment was based on the recommendation from their paramedical services provider as the next needed step in addressing the root cause of their symptoms.

#### 4.1.5 Autoclave Safety Program

2015 included the rollout of the new Carleton University Autoclave Safety Program. Program and safety guideline documents were finalized in 2015 further to stakeholder feedback and distributed to the departments where autoclaves are in use. The new program outlines that departments perform weekly efficacy verification of autoclaves used for the decontamination of biohazardous waste. This process is a requirement stipulated under the Human Pathogens and Toxins Regulations as well as by the Ministry of the Environment's *Guideline C-4: The Management of Biomedical Waste in Ontario*. Tools and materials to perform the testing were funded and provided to each department where autoclaves are used. Online safety training will be made available through CULearn for all autoclave operators.

All autoclaves have been inspected by a technical representative of Royal and Sun Alliance Insurance Company of Canada and received certification under the Ontario Technical Standards and Safety Act – Ontario Regulation 220/01 Boiler and Pressure Vessels.

#### 4.1.6 Hazardous Waste Management

EHS continues to manage disposal of hazardous waste to reduce storage of chemicals and to ensure compliance with MOE regulations. Disposal across the faculties has remained steady in 2015.

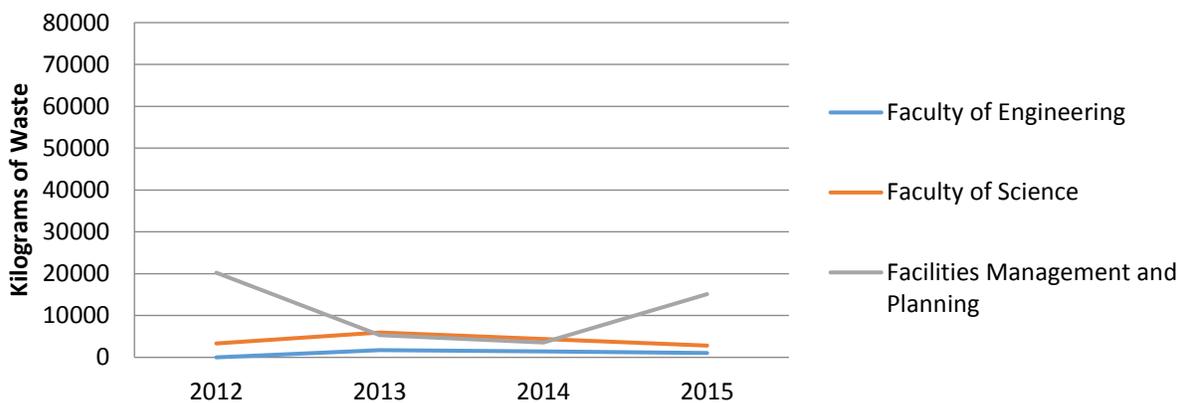


Figure 1: 2012-2015 Waste Disposal Trend at Carleton University

Of note in 2015 was the discovery of a highly reactive and unstable chemical in a laboratory that required specialized disposal by an explosives expert. Although significant, the cost of disposal was necessary to ensure the safety of the Carleton community.

#### 4.1.7 Promoting Safety Culture @ CU

The safety culture of an organization represents the shared beliefs, attitudes and work practices of employees and management. An organization that successfully develops a safety culture can expect to realize tangible results in reducing workplace accidents and their associated costs. It is with this in mind that ***EHS in collaboration with Healthy Workplace and the Department of University Safety organized and successfully ran a weeklong engagement to promote the North American Occupational Safety and Health, Mental Health Awareness and Emergency Preparedness week in May 2015.*** This annual event presents an excellent opportunity to focus, reinforce and strengthen the Carleton community's commitment to these important initiatives. The objective of each of the daily events, online challenges and training sessions was to increase awareness of health and safety programs and resources available through the Environmental Health and Safety office.

#### 4.1.8 Audit of EHS Office

Starting in the fall of 2015, and progressing through the first quarter of 2016, an internal audit of EHS was performed by Price Waterhouse Cooper to assess the adequacy and effectiveness of policies, procedures and practices of the EHS Office as compared to generally accepted international standards. The scope of the audit focused on the EHS Office and its related policies, procedures and programs, including implementation across the University.

The audit confirmed that there is a strong culture and commitment to EHS across the University – from the direction, services and support provided by the EHS Office and senior executives/Board of Governors commitment to oversight relative to EHS to the individuals working across the University who demonstrate their commitment to a safe and healthy working environment on a daily basis.

Notwithstanding, the audit identified opportunities to further strengthen the overall Environment Health and Safety program to reduce the potential to expose the University to a moderate level of risk.

The EHS Office continues to work towards formalizing key elements of the EHS program and working with the University to leverage existing mechanisms to do so. Leveraging the centralized learning management system (CuLearn) within the University has helped improve its management of EHS training. Furthermore, the ***implementation of an enterprise EHS software tool for EHS data management will allow for improved information for trending and decision-making*** and address concerns highlighted within the audit.

#### 4.1.9 Green Laboratory Initiative

One of the main objectives of the Sustainability Program at CU is to embed sustainability into our daily operations through outreach and action. The Green Revolving Fund is an opportunity for the community to submit ideas for initiatives with positive environmental impacts and a strong business case. ***A joint submission in 2015 by EHS and Peter Mosher from Science Stores will save 1400 cubic meters of water/ per year from laboratory operations.*** In particular, the remaining 30 water aspirators used to create suction required for laboratory experiments in the undergraduate Steacie Superlab will be replaced by vacuum pumps.

## **4.2 ENFORCEMENT BY LEGISLATIVE AUTHORITIES**

### **4.2.1 Ministry of Labour: Inspections and enforcement**

The Ministry of Labour (MOL) visited twice in 2015 (August, with follow up in September) as a result of an anonymous complaint regarding Carleton's Fume Hood Management Program. The MOL inspected the facilities, met with representatives of the JHSC, EHS and FMP Leadership, reviewed Carleton's Fume Hood Management Program, including certification and preventative maintenance records, and reviewed communications regarding any fume hood concerns. The following findings were noted:

- The MOL recognized that Carleton had a strong program in place, and that communications had been provided when individual fume hood units failed their annual certification. This confirmed that the statutory requirements were met.
- The MOL did identify an opportunity for improvement, as many of the fume hoods were of an older vintage, and did not have automated signalling capability in case of situation of low flow.
- Two orders resulted which were remedied through the repair of a single defective alarm monitor in one instance, and through an educational and signage program on all fume hoods to ensure fume hoods are verified prior to use in the second instance. A longer term solution will see the phased replacement of all older fume hood units. In the shorter term, fume hood monitors will be installed in 2016 to address automated signalling capability

### **4.2.2 Ministry of Labour: Notifications**

The following were reported in 2015:

- October 2015: an elderly female visitor sustained a fractured knee resulting from a trip and fall outside St Patrick's caused by uneven paving stones. The paving stones were repaired to prevent recurrences
- December 2015: a six year old child sustained a skull fracture when she fell through the stairwell railing from the main floor of Southam Hall to the tunnel level below. A fall of approximately 14 feet. The distance between the railings were 11 inches apart, which was considered as legal non-conforming. As a result, the replacement of the Southam Hall Stairwell is occurring in 2016 and a campus review of similar legal non-compliant stairwell locations was completed, with consideration to be part of future Facility Renewal strategy.

No orders were received for the above, and the MOL did not attend

### **4.2.3 Ministry of the Environment: Inspections and enforcement**

The Ministry of the Environment and Climate Change visited twice in 2015, for compliance inspections.

- In August 2015, the MOECC visited to assess campus air emission compliance and to review Environmental Compliance Approvals documentation. A review identified that older equipment previously grandfathered (boilers in the power plant) were no longer in compliance, as approvals had become mandatory under revised regulatory requirements. In addition, the review identified isolated situations where approvals had not been obtained. A plan has been prepared to address non-compliance issues. Implementation will continue throughout 2016 and 2017.

- In October 2015, the MOECC visited Carleton, as part of their ongoing three-year cycle to assess compliance with hazardous waste regulations. The visit was to assess and review compliance with the Environmental Protection Act and Ontario Regulation 347, related to waste management. All documentation related to waste management was found to be in full compliance. During the visit, it was identified that a catch basin, discharging to the storm system, was adjacent to the fuel filling system. A review indicated that Environmental Compliance Approval or Certificate of Approval had not been obtained. An action plan was prepared to address non-compliance in December, and an Application was completed in March 2016. Implementation will continue in 2016.

#### **4.2.4 Canadian Nuclear Safety Commission (CNSC): Inspections**

There were no official inspections conducted by the CNSC in 2015. Our annual application for a licence to import nuclear materials was granted under the Nuclear Safety and Control Act. This will allow for research to continue uninterrupted.

#### **4.2.5 Canadian Food Inspection Agency (CFIA): Inspections**

For years, one of Carleton University's most successful community outreach events is the annual butterfly show hosted by the Biology Department. In order to allow the show to occur, an import permit must be issued by the CFIA to purchase the required specimens. The submitted import permit application was approved and the onsite visit by a CFIA inspector did not raise any concerns.

### **4.3 SAFETY AND COMPLIANCE COMMITTEES**

#### **4.3.1 Joint Health and Safety Committee**

The primary objective of the JHSC is to oversee the internal responsibility system and is comprised of worker and management representatives working together to promote a co-operative, positive and progressive approach to dealing with health and safety issues. The committee met five times in 2015 (February, March, June, September and November).

Three members of the committee, as well as two members of the EHS Office, were certified under the MOL and WSIB JHSC certification program, thus ensuring that a certified member is present at all times.

#### **4.3.2 Radiation Safety Committee**

The Radiation Safety Committee reports to the Vice President Finance and Administration and is chaired by the Dean of Science. The Committee met once in 2015 (December). In fulfillment of a condition under our consolidated licence, an annual compliance report was submitted to the CNSC. No concerns were noted.

#### **4.3.3 Animal Care Committee**

The Animal Care Committee reports to the Office of the Vice-President (Research and International). The EHS representative on the committee actively participates in the assessment of Animal Use protocols in

regards to animal welfare and occupational health, performs mandated inspections of animal holding spaces and facilitates the acquisition of controlled substances often associated with animal work.

#### 4.3.4 Biohazards Committee

The Biohazards Committee reports to the Office of the Vice-President (Research and International). The Committee met in December 2015. An update was provided by the Biosafety Officer regarding the institutional licence application process and initial conversation was had regarding updating the Committee Terms of Reference in order to strengthen the roles and responsibilities in preparation for the incoming regulations. Currently, there are 34 active Biohazard permits. 18% of these were assessed and approved in 2015.

#### 4.4 POLICY STRENGTHENING AND RISK REDUCTION STRATEGY

A comprehensive laboratory decommissioning procedure to address concerns including improper disposal of hazardous material and indirect exposure to harmful materials originating from laboratory or workshop spaces was reviewed at all levels of the organization. This became a key risk mitigation strategy as part of the Steacie Building Chemistry Laboratory renewal. Similarly, the Working Alone Guidelines and the hazard assessment tool was promoted as a methodology for research activities to be validated for risk.

The Golf Carts in Tunnels Policy was renewed to reinforce safe driving responsibilities, leveraging key concepts associated with the Internal Responsibility System and streamlining the reporting of unsafe acts.

## 5. PERFORMANCE INDICATORS

### 5.1 INJURY, INCIDENT AND WSIB INDICATORS

*In 2015, there were 187 incidents/accidents in the workplace (129 injuries, 21 incidents, and 37 Good Catch reports).* Of these, there were 31 WSIB claims submitted with 9 of the injuries severe enough to warrant lost time. In 2015, there were 102 lost time days (LTDs) attributed to those 9 claims. The WSIB numbers used in this report were provided by Human Resources. There were 2 critical injury reported to the MOL. Table 3 noted below highlights the difference in key injury and incident tracking indicators between 2014 to 2015.

**Table 3: Key Injury and Incident Tracking Changes Between 2014 and 2015**

	2014	2015	Change
# of Critical Injuries	5	2	
Days Lost to Injury Claims	204	102	
# of Lost Time Injuries	11	9	

<b>Average # of Lost Days/Injury Claim</b>	18.5	11.3	↓
<b># of Good Catches Reported</b>	69	37	↓

In 2015, slips and fall incidents accounted for not only the greatest number of incidents (39) but also the greatest number of lost time days accumulated in the incident calendar year (79). Refer to Figure 2 below. These injury statistics also coincide with a substantial number (32%) of the good catches reported being related to slip and fall hazard concerns on campus. As a result, **a number of locations were identified through the good catch reporting which permitted the development of a prioritized registry of slip/trip/fall hazards for corrective actions in the upcoming year.**

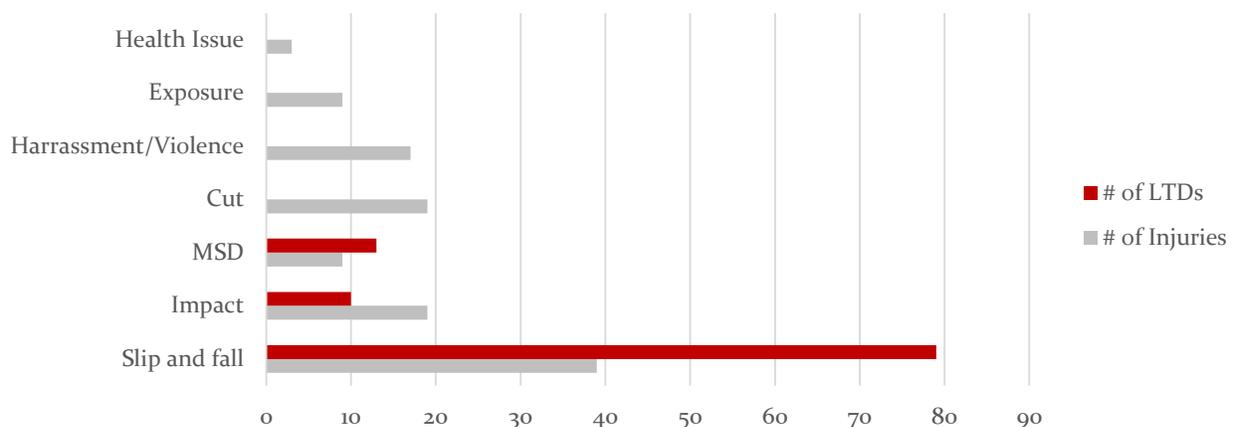


Figure 2: Number of injuries vs. number of LTD's taken within the 2015 calendar year

In addition to the 129 injuries that occurred in 2015, 21 incidents were noted to have occurred while no injuries were documented. Incidents such as: natural gas leaks, oil leak from a compactor, false activation of life safety alarms, chemical powder spill, and unwanted chemical smell in a research lab.

There was a significant near miss event in January of 2015 relating to a Lock Out/Tagout (LOTO) procedure in Athletics whereby multiple personal locks were cut without authorization or notification. Thus, **increasing the risk that a service contractor may begin work on a live energy source** and suffer serious health consequences. This incident required the involvement from internal employees along with multiple service contractor's onsite and this near miss event emphasized the need to improve our internal LOTO program and Contractor Safety Management Program.

Similar to previous year's annual report, indicators such as injury frequency, number of incidents requiring medical attention (i.e., health care), and number of lost time days accrued have been aggregated. This grouping of data over the longer term reduces potential for the trend to be skewed by specific cases.

The injuries from 2015 continue to support the long term data suggesting that slip and falls along with MSD's are the primary cause of any lost time days accumulated in the incidents calendar year irrespective of the number of incidents (see figure 3 below). However, as noted in past years, there is consistently approximately 800 lost time days taken each year by CU employees for a workplace injury that has occurred in the past (outside the calendar year). Not having a clear understanding on what is causing

these lost time days limits the value of the current injury statistics and the emphasis on where risk mitigation measures need to be taken. Facilities Management and Planning will work with Human Resources to assist in the development of a strategy to address this area of risk.

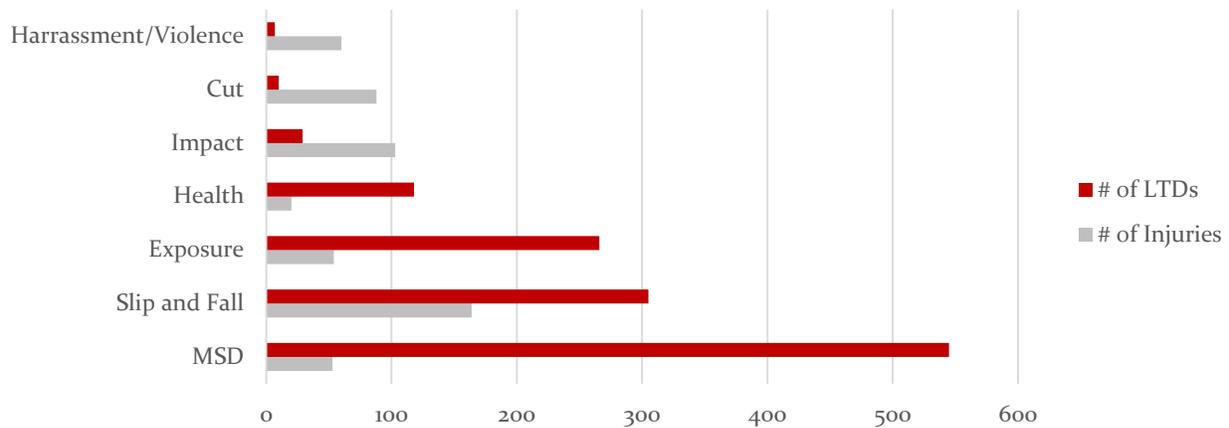


Figure 3: Number of injuries vs. number of LTD's taken within calendar year from 2010 to 2015

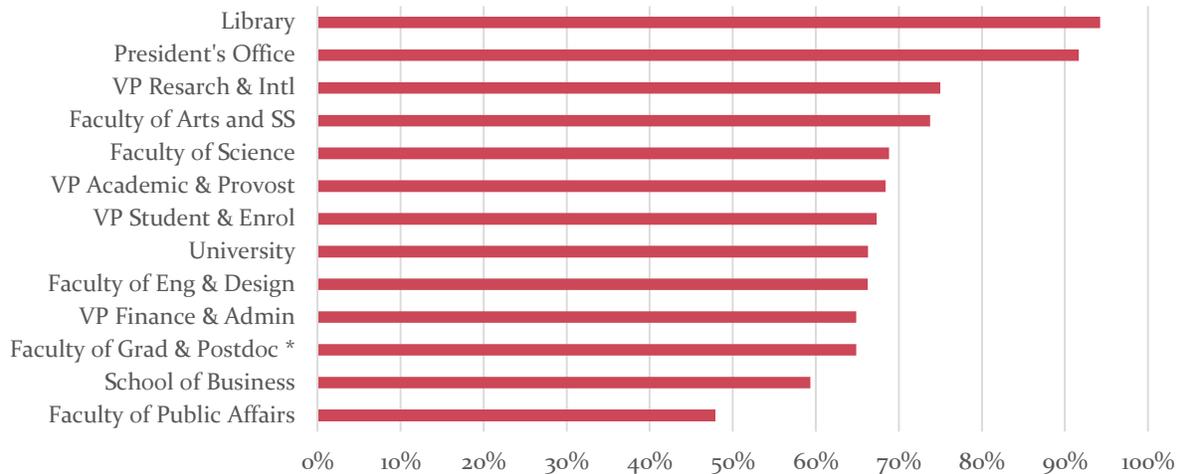
In 2015 the university received its WSIB Workplace Injury Summary Report (WSIR) which indicated a NEER Performance Index of 4. The NEER Performance Index has a range from 0-4 with scores below 1 providing institutions with a rebate on their premium while institutions with scores between 1 and 4 have a premium surcharge. Institutions are provided a rebate if they perform better than expected (claims costs) for their rate group while if an institution doesn't fare as well, they will be provided a surcharge. With the new proposed WSIB Rate Framework change from a 4 year injury window to a 6 year window, this allows poor performing years (and high surcharge fees) to be carried over for a longer duration.

## 5.2 TRAINING PERFORMANCE INDICATORS

### 5.2.1 Worker and Supervisor Health and Safety Awareness Training

Since its introduction in May 2014, over 6000 staff and student workers have completed the Worker Health and Safety Awareness training, Over 1500 of these were in 2015. Even with a constantly varying workforce (TAs, Contract Instructors and Casual staff) this still provides an overall completion rate of 66%, an increase of 4% over the introductory year.

Full time permanent staff have an overall completion rate of 86% with faculty members at 78%. Carleton remains the Ontario University with the highest rate of faculty compliance. Challenges remain with completion by TAs and Contract Instructors, despite adding a financial incentive to the completion. The presence of this volatile population is reflected when examining completion rates by Faculty or Organizational Unit (Figure 4). It is noted that the FGPA data represents graduate student employees (TAs) that have not been assigned to a specific department or faculty.

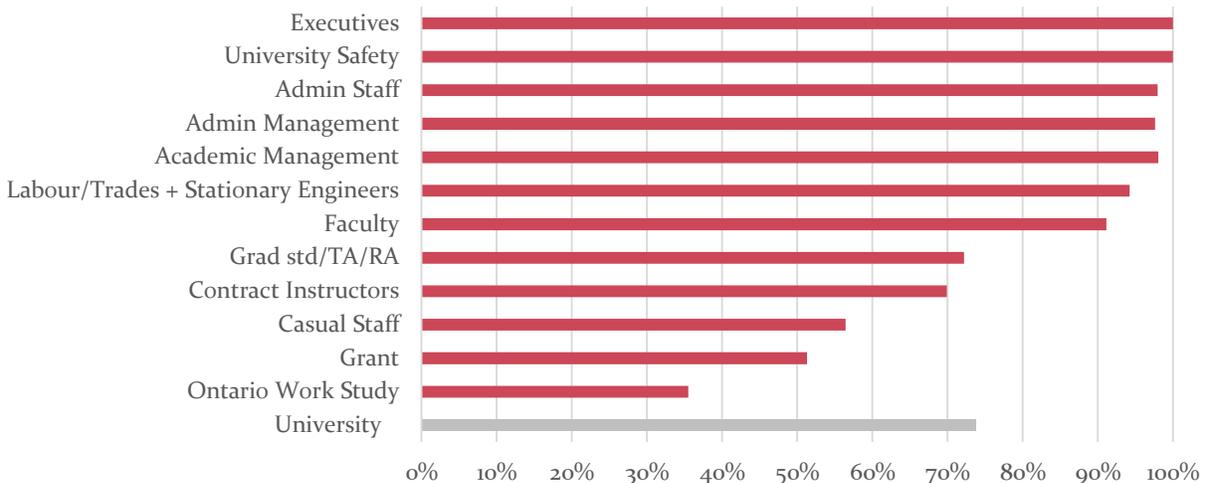


*Figure 4: 2015 worker health and safety awareness training completion percentage when separated by faculty or organizational unit*

By year end, almost 2100 supervisors had completed the second module, Supervisor Health and Safety Awareness training. Challenges remain however to provide this data as a compliance and completion percentage, as definitions of “Supervisor” vary across the organization. Equally as challenging to quantify is compliance with the requirement to ensure all supervisors completed the training within five days.

### 5.2.2 Workplace Violence and Harassment Prevention Training

By year end 2015, a total of 7834 staff members completed the Workplace Violence and Harassment Prevention training since it was first introduced in 2011. Over 1330 completed the training in 2015. This represents an overall 74% completion rate for active employees, with core employee employee groups at over 95% compliance. This represents a 5% increase in compliance among our stable workforce, a demonstrated commitment to ensuring everyone is familiar with Carleton’s policies and programs to prevent workplace violence and harassment.



*Figure 5: 2015 workplace violence and harassment prevention training completion percentage when separated by employee group*

### 5.2.3 Additional Health and Safety Training

Training development and delivery continues to be tailored and responsive to the needs of the organization, with the majority of the training being developed and provided by EHS staff. The use of some third-party service-providers remains the most effective solution for highly specialized areas where the expertise is best acquired externally.

**Table 4: Summary of addition training provided by EHS in 2015**

Training Course	# of Sessions Delivered	# of Participants Completed	Facilitator
Supervisor Health & Safety Awareness	online	518	EHS
Workplace Violence & Harassment Prevention	online	1,339	EHS
Laboratory Safety	11	164	EHS
Biosafety Awareness	6	44	EHS
Radiation Safety	1	9	EHS
Transportation of Dangerous Goods	3	15	EHS
WHMIS	Online/class	2,555	EHS
Laser Safety	5	41	EHS
Confined Space Awareness	1	7	External
Asbestos Awareness	1	11	EHS
Electrical Safety for Maintenance Staff	1	12	External
Fire Safety Warden	Online/class	100	EHS
Emergency First Aid and CPR	4	67	External

*\* It is noted that the 2,555 participants who completed the WHMIS training in 2015 also included 1575 first year chemistry students.*

### 5.3 FIRE ALARM STATISTICS

A total of 71 fire alarms were reported in 2015. This is below the annual average of 82 fire alarms for the past 5 years. The 2015 data indicates that the effort to revamp the Hot Work Program continues to produce positive results with minimal false alarms being recorded on construction sites and with our third party service contractors. That being said, fire suppression system failure and human error were the main culprits for false fire alarms in 2015. It is noted that 6 fires were reported on campus (i.e., smoldering debris in garbage bin from cigarette butt). To address the human error (i.e., burnt toast), increase in education and awareness in residence have been planned for 2016.

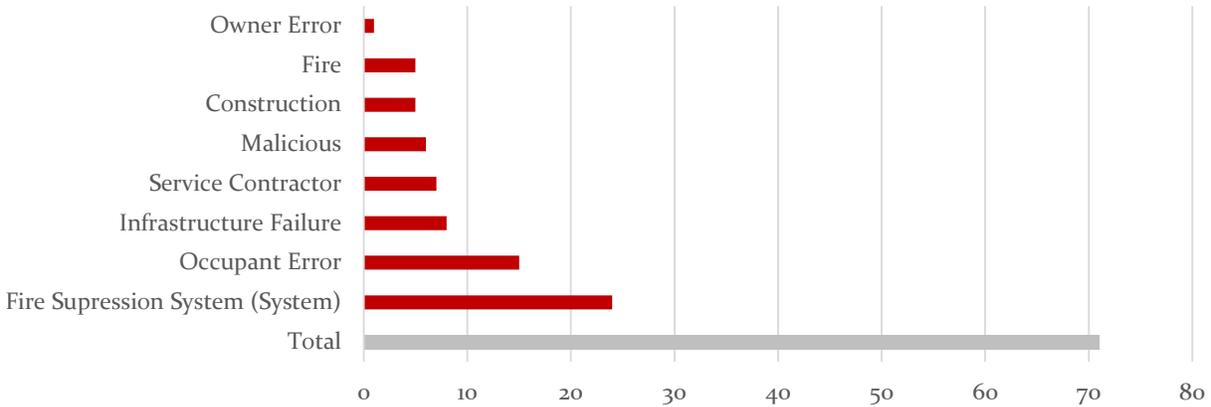


Figure 6: Number of fire alarms reported in 2015 categorized by alarm cause

## 6. LOOKING TO THE FUTURE AND BEYOND

The upcoming year will be an exciting year for significant change in safety culture across the organization, with further implementation of the benchmarking recommendations, including the implementation of the integrated EHS data management system, responding to new legislation, introducing a new staff member, and closing program gaps.

### EHS Benchmarking Recommendations

Having been approved at the ISSC in early 2016 to acquire the EHS data management software system, the focus will be on developing and implementing rollout of the Medgate Environmental Health & Safety (EHS) Software system.

### Internal Audit Recommendations

The PWC Internal Audit of EHS identified a number of opportunities to strengthen EHS and reduce risk across the organization. These include updating Carleton's Health and Safety Management System, establishing annual targets and objectives, formalizing an operational risk and hazard register aligned with legislative requirements, developing risk assessment tools to assist departments with their specific risk assessment activities, and formalizing a campus wide training matrix that would assist departments and supervisors with identifying required training aligned to hazards.

### Risk Reduction – Engineering Controls

Further to a review of fume hood operations as part of the 2015 MOL visit, a strategy to reduce risk with older fume hood use was developed. 2016 will see the acquisition and installation of approx. 100 audible monitors to relay real time effectiveness data. In addition, a single service provider was identified through RFP who will provide enhanced quality and consistency of service to all fume hoods and other exhaust devices to ensure they operate as effectively as possible to reduce any potential exposures, as well as decrease the operational demands.

### **Risk Reduction – Workshop Safety**

An effective workshop safety program will be developed to assist faculties in delivering experiential learning opportunities to students. The program will be developed upon collaborative principles including with external partners to reflect industry best practices.

### **Risk Reduction – Contractor Management**

With an annual investment of \$14M over the next 10 years towards major capital renewal, combined with a strategic focus on minimizing disruption to the student experience, there will be increasing pressure to manage multiple projects simultaneously. As such, EHS will develop a contractor management program for FMP that will be adaptable to the larger renewal projects as well as the smaller maintenance type activities. This oversight will reduce risks due to third party actions during construction.

### **Legislative compliance - Workplace Violence and Harassment**

With the passing of Bill 132, the Sexual Violence and Harassment Plan Act, in March of 2016, and the expected passing of Bill 177, Domestic and Sexual Violence Workplace Leave, there is significant requirement for updates to the existing programs, including alignment with a yet to be created policy on Sexual Violence.

### **Legislative Compliance - Human Pathogens and Toxins Regulations**

These regulations came into force Dec 1, 2015. After successfully applying for licencing in early 2016, the companion documents required for compliance will be developed or refined throughout 2016. These include the development of a biosafety manual, university specific procedures and programs, including autoclave safety and medical surveillance. Biohazardous material inventories will be verified and inspections will also be undertaken to ensure laboratories are in compliance with the Canadian Biosafety Standards. Meeting these standards is a condition of Carleton's future consolidated licence.

### **Legislative Compliance – Ministry of the Environment and Climate Change**

Recent enforcement across the university sector by the MOECC has resulted in the requirement to review all Environmental Compliance Approvals. This review and update process will continue throughout 2016 and beyond.

### **WSIB Performance Review**

The WSIB proposed Integrated Rate Framework could be implemented as early as 2017. The proposed reforms would change the way employers are classified and the way premium rates are set. Given the current financial liabilities faced by the WSIB plan, the reform may add additional costs to current premiums, particularly if the four-year window for claims is extended to six years. Such change will disadvantage employers such as Carleton who are in a surcharge position given past performance. A pilot project with Human Resources and EHS will focus on enhanced return to work and accommodation programs under the guidance of an Occupational Health nurse.