

# Environment, Health, and Safety Office

## Executive Summary

In the [Environment, Health, and Safety Office \(EHS\)](#), the 2020 fiscal year was marked by hard work, determination, and collaboration. Throughout the year, we saw the MIT community come together to meet both the EHS mission and the Institute's mission. Time and time again, EHS staff went above and beyond to accommodate the needs of stakeholders. We began the year with an in-depth review of our processes and ended it with an agile and effective response to an ongoing global pandemic. We are proud to serve this community.

## EHS Management System Review

The first half of this year was spent undergoing an in-depth review of the EHS Management System (EHS-MS), which has been in place for almost 20 years. The goal of the review was to evaluate our current services and processes to ensure that they meet the needs of the community in an agile and effective manner. To accomplish this, EHS conducted countless interviews, focus groups, and discussions with stakeholders. EHS leadership met with 19 faculty members; 19 department, lab, and center (DLC) heads; and other academy members. In addition, a survey was sent out, and three focus groups were held with DLC EHS coordinators and one with lead contacts. The information collected was analyzed and subsequently synthesized into a comprehensive report.

From that report, EHS submitted plans of action on ways to improve its processes to the Institute Council on Environmental Health and Safety. We expanded the review to include the EHS manual to ensure that it is up to date, reflecting the current environment. In addition, EHS is updating the mission of the working committee, which ties together EHS staff and DLC EHS coordinators. In conjunction with this process, EHS is actively strengthening ties with collateral-duty and part-time coordinators as part of the outreach initiatives prompted by the EHS-MS review. EHS staff are exploring and planning for many more exciting initiatives and are committed to continuous improvement.

## COVID-19

The fiscal year ended in the midst of a pandemic. The campus community, as a whole, engaged in a quick, effective, and highly collaborative response. EHS was and continues to be an integral part, and EHS staff have risen to meet the challenges associated with the Covid environment, continually providing solutions. Throughout this time, we have helped secure personal protective equipment (PPE) and hand sanitizer, developed numerous training initiatives, conducted testing of MIT's prototype face shield, and used data to inform laboratory and classroom social distancing requirements, among other activities.

Our goal is to "get to yes" whenever and wherever applicable. We want students to have the best MIT experience possible regardless of their location. This notion was highlighted by our part in creating the Wiki on Remote Making with Project Manus. Students come to MIT for the world's best hands-on experience, and EHS does not want to be a barrier to that. Instead, our mission is to provide the guidance and expertise needed to create safe coursework for all types of environments.

## **Moving Forward**

EHS will always work to continually improve and add to its services. In the upcoming year, EHS looks to increase its agility via document management, process reviews, and expanded data usage. Our brand will grow through increased communication efforts and outreach. This past year, we launched a new website that increases ease of access to important information and brings us closer to our stakeholders and the MIT community. Moving forward, we will continue our outreach efforts by reshaping our working committee and enhancing collaboration between EHS staff and DLC EHS coordinators. In addition, we will continue our outreach with part-time and collateral-duty coordinators and continue the EHS-MS manual review, making updates to keep it current.

## **EHS Management System by the Numbers**

- 526 principal investigators (PIs)/supervisors
- 3,920 registered spaces
- 32,383 learning experiences
- 1,333 service tickets
- 831 research registrations/authorizations
- 41 lab cleanouts

## **Navigating Uncharted Waters**

The COVID-19 pandemic has placed unique challenges on EHS, its programs, and its staff. The office has met these challenges head on, continuing to provide uninterrupted services to the MIT community and off-campus sites while also taking on new initiatives, projects, and efforts directly in response to the pandemic.

Much like the rest of the nation, MIT's campus and local hospitals faced shortages of both personal protective equipment and hand sanitizer. EHS saw these shortages and this particular challenge as an opportunity to leverage its expertise and resources. In the lab, staff produced 480 individual-use spray bottles of Food and Drug Administration-registered hand sanitizer that was then distributed to MIT's first responders. An additional 120 one-gallon bottles of hand sanitizer were distributed to the Department of Facilities to refill dispensers across the campus. In collaboration with Project Manus, staff tested the MIT face shield to ensure its effectiveness in accordance with the American National Standards Institute/International Safety Equipment Association Standard for Occupational and Educational Eye and Face Protection. Staff also participated in procuring PPE for donation to local hospitals and vetting large-scale purchases for the Institute's ramp-up activities. To further support large-scale purchases, staff members participated in the interdisciplinary PPE working group. This included creating, distributing, and analyzing a PPE survey to assess potential needs and drafting a PPE policy and guidance documents.

EHS staff developed numerous training initiatives to ensure that essential staff and returning researchers received support and information to keep themselves safe. At the start of the COVID-19 response, online training was developed to educate custodial and maintenance staff about virus transmission and ways to protect themselves through proper use of PPE and hand washing. The training has been viewed 1,565 times since its launch. In order to likewise orient returning researchers to enhanced COVID-19 safety measures, EHS developed a lab safety reorientation course. The course launched in June 2020, and 3,372 individuals have so far completed the course. Going forward, all returning researchers must complete the course before reentering their lab.

In order to ensure continued hands-on learning experiences at MIT, EHS partnered with Professor Martin Culpepper of the Department of Mechanical Engineering along with other Project Manus staff to engage with students, faculty, and shop managers in an effort to better understand their needs for remote making courses and activities, and to plan for virtually enabled remote making. After gathering feedback, Project Manus and EHS collaboratively created the Wiki on Remote Making, which is being used by lab instructors and faculty to determine whether a maker course can be taught safely at a student's residence, where the student may potentially use power tools, hand tools, and shop chemicals. Project Manus and EHS also developed a three-day, nine-hour course (Enabling Remote Making and Hands-on Activities during the COVID-19 Pandemic) to provide insight and best practices and delivered the course to MIT faculty, staff, and external parties.

Internally, staff have provided technical resources and support for the transition to working remotely by developing guidance documents and conducting staff training sessions, ensuring that EHS staff can access all of its tools and systems and continue to provide exceptional service in the COVID-19 environment. Staff have been able to effectively communicate and connect virtually with one another as an office team and also with the MIT community. Across its programs, EHS has facilitated content development and drafted materials as part of the web communications plan to keep the community informed about COVID-19-related guidance.

Additional EHS initiatives and projects in response to COVID-19 include:

- Investigating ventilation in the MIT Dental Clinic and recommending increased air flow, portable fan/filter devices, and physical barriers to allow the clinic to reopen
- Implementing rapid fit testing of N-95 masks for the Department of Student Life during the initial phases of the COVID-19 crisis
- Assisting in the identification of appropriate disinfectants to use on campus for new cleaning and disinfection protocols
- Collaborating with the Office of the General Counsel and the Office of Risk Management on guidance related to online programs for minors, and creating an approval process when DLCs and programs submit plans for minors to do hands-on projects
- Creating a review process and application that enables researchers and students to request remote use of research equipment in residences

- Developing guidance for principal investigators using primary human materials in their research to discuss the risk of COVID-19 and establishing guidelines for work related to COVID-19 at MIT
- Developing a guidance document outlining the procedure and requiring PPE for decontamination after individuals suspected or confirmed to have COVID-19 have been in a public space
- Developing care and use instructions for the distribution of cloth masks to undergraduate and graduate students housed on campus
- Supporting the review of campus contractors' COVID-19 plans and providing advice to MIT Campus Construction project managers on the many unique challenges they face
- Providing reviews and feedback on the creation of an MIT Medical care facility in the campus ice rink
- Identifying and selecting a vendor for online ergonomic training, including a "work from home" module that provides guidance for setting up an ergonomically sound remote work area
- Developing virtual ergonomic training for DLCs upon request and conducting virtual, individual workstation assessments
- Developing comprehensive information for best practices when working remotely, accessible via the EHS website

### **Biosafety Program**

The EHS Biosafety Program (BSP) ensures the safe and responsible conduct of life sciences research and participates in and supports the MIT Committee on Assessment of Biohazards and Embryonic Stem Cell Research Oversight (CAB/ESCRO), the Committee on Animal Care, and the Committee on the Use of Humans as Experimental Subjects.

This year, BSP migrated its in-person Bloodborne Pathogens for Researchers initial training course to a web-based course for both the MIT campus and Lincoln Laboratory. This training is required for everyone participating in biological research involving bloodborne pathogens or human-derived materials and provides for a more convenient end-user experience. The MIT community is able to access the training requirement on demand, and it simplifies the onboarding process for new principal investigators and researchers. In addition, BSP updated the Bloodborne Pathogens for Researchers refresher web-based training.

CAB/ESCRO ensures the safe and responsible conduct of biological research at MIT. The scope has changed over time to provide a more consistent and cohesive oversight process for a range of biological research and new technologies.

CAB/ESCRO registers biological research involving recombinant or synthetic DNA/RNA, pathogens, human cells and tissues, use of biological agents at biosafety level (BL) 1 or greater, nanoparticle-based gene delivery systems, and biological toxins. The review

and approval process is based on completion and submission of Biological Research Registration (BRR) forms to BSP. The majority of BRRs (76%) are BL2 or BL2+, the highest approved containment level. This is due to the large number of laboratories that use human materials, various viral vectors, bacteria, and/or viruses for researching ways to improve the human condition.

The committee reviewed 431 BRR submissions over the past fiscal year:

- 64 rewrites
- 182 amendments
- 164 renewals
- 21 teaching labs

The BRR forms were updated to optimize their migration to an online system. The changes to the forms were developed in conjunction with research personnel to best clarify the most pertinent information and facilitate their compatibility with the specific online platform being considered, EHS Assistant (EHSA).

### **Environmental Management Program**

The EHS Environmental Management Program (EMP) focuses on providing environmental oversight, advice, consultation, training, and direct operational services for permitting, data reporting, and responses to air, water, and hazardous waste discharge policies and procedures.

### **Hazardous Waste Program**

EHS is responsible for the management of chemical waste generated during campus operations. Research, academic projects, and other projects on campus generate a large volume and wide variety of chemical waste that must be collected and disposed of properly. EHS works to strengthen compliance and mitigate liability risks, and the program undertook the following initiatives over the past year:

- Selected a new hazardous waste vendor through a rigorous selection process.
- Created a new web-based hazardous waste training module. The module was completely reorganized and rewritten, enhancing ease of use and understanding for the thousands of researchers and lab staff who complete the training annually.
- Created a new hazardous waste contingency plan with necessary updates to reflect the latest federal rules. For quick reference, a guide and detailed facility diagram is also available.
- In collaboration with Department of Facilities (DoF) and the Recycling Group, enhanced the Universal Waste Program to better outline processes.
- Revised existing lab decontamination and decommissioning processes using QuickBase as a portal to request EMP services. The new system is more user friendly, combines all aspects of the process, and allows for tracking statuses.

- Coordinated with MIT Medical in a review of its dental amalgam collection and recycling program to complete the Massachusetts certification process.
- Reviewed the main accumulation areas for chemical storage, deemed three areas unnecessary, and subsequently eliminated these areas.
- Created written guidelines for MIT's chemical waste disposal vendors that more clearly define the difference between hazardous and non-hazardous waste.
- Developed new spreadsheets to easily track program expenses, invoices, and document lab cleanouts.
- Developed a new training program tailored to the needs of the Haystack Observatory as well as one for labs or DLCs whose hazardous waste performance does not meet the expectations of the Institute.

### **Process Management**

In collaboration with the EHS Information Technology (IT) Team, EMP began using Smartsheet to record and track the program's and DoF's regulatory roles and responsibilities. Smartsheet enables EMP to update the complex environmental air and water regulatory roles and responsibilities of EMP and DoF and to ensure compliance by defining roles and identifying responsible individuals and entities. EMP also uses Smartsheet to document tasks, track regulatory compliance status, and enable reporting.

### **Remediation Activities**

EMP engaged in the following remediation activities:

- Worked with DoF to address wastewater mercury and zinc contamination in Buildings NW13 and NW14, including removal and replacement of lab wastewater piping to address the regulatory requirements of the Massachusetts Water Resource Authority and return these locations to compliance
- Worked with DoF and a vendor to characterize, remediate, and remove the NW13 historic wastewater tank and volatile organic compound contents of difficult historic lab waste
- Worked on re-certifying the Spill Prevention, Control and Countermeasure Plan for the Central Utilities Plant upgrade project, the Bates Research and Engineering Center, and two new campus dorms

### **Industrial Hygiene Program**

The Industrial Hygiene Program (IHP) anticipates, recognizes, evaluates, and controls workplace conditions by limiting exposures to chemicals and addressing the control of other potential stressors such as noise, heat, repetitive motion, and indoor air quality. This is accomplished through hazard assessments to identify the severity of the risk and implement appropriate controls, including engineering, administrative controls, and PPE.

### **New Respiratory Fit Test Protocol**

IHP adopted a new protocol approved by the Occupational Safety and Health Administration (OSHA) that reduced the amount of time required to complete a respirator fit test. This involved reprogramming the instrument used for the test and training staff on the new process. Fit tests are now performed with increased efficiency while maintaining overall effectiveness.

### **Keeping MIT's Drinking Water Safe**

IHP schedules water sampling based on priority of building usage and age. An online tracking database was developed to provide an overview of the program, facilitate sampling, and maintain records of the results. This year 21 buildings were surveyed, with a focus on residence halls. A total of 115 samplings were conducted, resulting in collaborations with DoF to shut down the water supplies, notify occupants, and repair/replace the nine affected delivery points.

### **Workplace Health and Safety**

As a part of its workplace health and safety initiatives, IHP:

- Conducted annual audiometric testing for 223 employees. All employees received hearing conservation training with updated content to ensure compliance with OSHA and MIT standards.
- Conducted noise assessment surveys for 17 DLCs/areas throughout the year for a variety of reasons. For example, MIT Medical's optical shop needed area sound-level measurements to help with the design phase of moving to its new location.
- Recommended changes in engineering controls to mitigate overexposure to anesthetic gas (isoflurane) among employees in the Division of Comparative Medicine (DCM). This included new local exhaust ventilation, modified slot hoods, and increased general ventilation. Additionally, IHP developed a technical guidance document for the use and control of anesthetic gases and an operation guide for ventilation control.
- Performed air and wipe sampling at the request of the Department of Materials Science and Engineering (DMSE) Glass Lab to check for possible contamination from the hazardous contents in the glass beads. To characterize the glass, which was used on the day of the sampling, DMSE and IHP staff members collaborated to perform an X-ray fluorescence analysis. The results of the sampling were as expected; there was surface contamination but none in the air, resulting in a recommendation for regular surface cleaning.

### **Occupational and Construction Safety Program**

The primary responsibility of the Occupational and Construction Safety Program is to provide oversight of programs for general safety, fire prevention and protection, and construction safety while complying with all relevant regulations.

## Key Highlights

- Inventoried 235 cranes and hoists on campus and worked on migrating data to an online inventory system.
- Updated and created more accurate flammable storage permits and renewed flammable storage licenses.
- Conducted rooftop fall protection surveys for 42 buildings. These surveys are conducted to update the status of fall protection systems, railings, and other measures as well as the locations of unprotected edges.
- In collaboration with DoF, managed a third-party vendor to conduct a confined space survey. The survey information is being incorporated into the DoF work order system.

## New and Updated Safety Training Courses

- Revised and tailored the Introduction to OSHA course for all new EHS staff, EHS coordinators, and others. It was piloted with 14 individuals and was well received.
- Developed an online introductory electrical safety for researchers course that is now in the final stages of review. This course provides an overview of electrical safety topics and a basic level of electrical safety information for researchers.
- Redeveloped the Safe Use of Fire Extinguishers course to be taught in-house. The course was redesigned to focus on fire extinguisher use in laboratories and residential occupancies.

## Incident Investigation and Reporting

The OSHA incident rate of total recordable injury and illness cases for calendar year 2019 is shown in Figure 1 along with data for the previous four years.

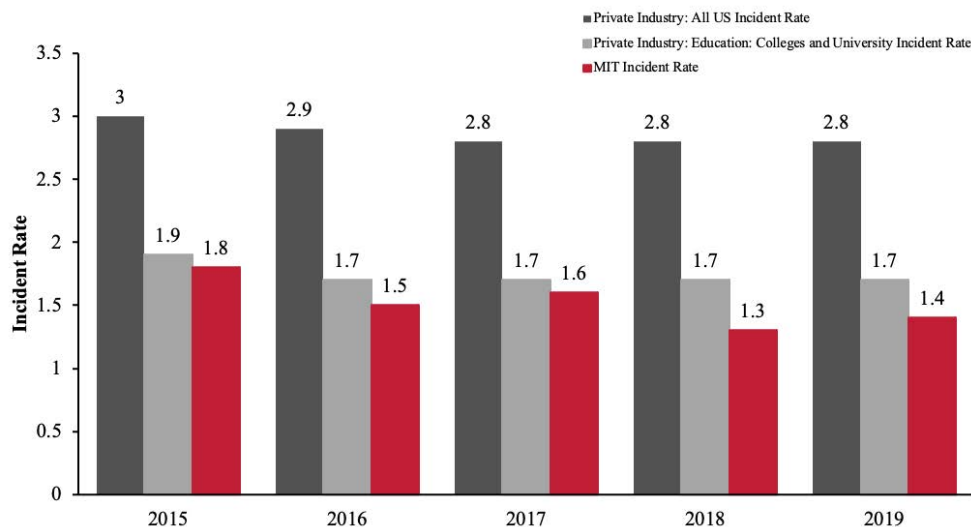


Figure 1. OSHA recordable incident rates of injuries and illnesses. (Note: The 2019 US private industry rate for universities is the 2018 rate, as this is the most recent information. The incidence rate of injuries and illnesses is computed from the following formula: number of injuries and illnesses  $\times$  200,000/employee hours worked. The 200,000 hours in the formula represents the equivalent of 100 employees working 40 hours per week, 50 weeks per year, and provides the standard base for incidence rates.)



## Campus Design and Construction Support

Campus Design and Construction Support (CDCS) provides mitigation, design review, and assistance to DoF project managers for construction and renovation projects on the MIT campus. This year, CDCS advised 14 major lab design projects for incoming faculty. These projects require careful EHS oversight to meet increasingly complex research needs.

In terms of project highlights, CDCS:

- Removed the ammonia system from the campus ice rink and designed a new system
- Completed the installation of a new drainage system on west campus
- Upgraded the Burton-Conner sanitary line
- Was heavily involved in the design and planning of new campus buildings, including Site 4, the new Vassar Street dorm, the Music Building, and the MIT Stephen A. Schwarzman College of Computing building, and an extensive renovation of the Metropolitan Warehouse
- Was significantly involved in major renovations of Hayden Library, the Harold W. Pierce Boathouse, and the Wright Brothers Wind Tunnel
- Renovated the fourth floor of Building 4 for three newly tenured faculty in the Department of Earth, Atmospheric and Planetary Sciences
- Provided design advice and support for The Engine
- Acted as the project liaison for energy audits of Buildings 46, 66, 68, and 76
- Served as acting liaison for project teams working on design and construction facility upgrades to the MIT Medical radiology labs, Building 68 glass wash facilities, and the DCM glass wash facility in Building E17/E18

In addition, subject matter experts from each EHS program provide expertise and guidance as needed for campus construction projects as part of the CDCS service team. Projects are conducted in collaboration with MIT Campus Construction and/or MIT Planning. Initiatives from the past year included:

- Providing hazardous material sampling on the façade, windows, roof, building systems, and interior of Building 54 to prepare for an upcoming renovation. EHS compiled past hazardous material sampling reports and came up with a plan for what will need to be surveyed for this project.
- Facilitating hazardous material sampling and exposure monitoring throughout the renovation of Hayden Library (Building 14). This project included abatement logistics, additional sampling for hazardous materials, and provision of regulatory guidance where needed.
- Inspecting the Harold W. Pierce Boathouse (Building W8) to determine areas of concern for hazardous materials. EHS completed multiple surveys, walkthroughs, and oversight and has been consulted throughout this project. Staff assist with hazardous material sampling where needed and provide regulatory guidance.

- Managing clean-ups at multiple mercury spills, including the clean-up of the heavily contaminated Building 17 project.
- Coordinating disposal for lead abatements, heavy equipment, and demolition debris on various campus projects.
- Working to close the Building 2 contaminated sump and track complicated environmental compliance.
- Working on the 600 Memorial Drive lead soil remediation project to close out the Massachusetts Contingency Plan site with selective removal of lead soil contamination.
- Reviewing the West Parking Lot activity and use limitation site to facilitate development of the site as a new graduate student dorm.
- Assessing the Haystack diesel release incident, performing preliminary testing, and investigating the release to plan for future remediation efforts to achieve compliance with Massachusetts Contingency Plan regulations and accomplish permanent closure status.

### **Upcoming Initiatives**

- Continue reviewing and enhancing training for hot work, electrical safety, and the crane and hoists program
- Lead a department-wide effort to make necessary updates and changes to MIT design standards in EHS-related sections
- Explore the development of a visitor/non-employee student injury reporting tool in collaboration with the MIT Office of Insurance

### **Radiation Protection Program**

The EHS Radiation Protection Program (RPP) provides a safe working area for radiation workers, the general public, and the environment while allowing creative and breakthrough research to continue. RPP ensures compliance with the regulations set forth by the Massachusetts Department of Public Health Radiation Control Program (MRCP) and MIT policy.

### **Radiation Protection Committee**

The Radiation Protection Committee reviews and approves all uses of ionizing and non-ionizing radiation sources through a system of authorization/registration programs, risk assessments, and monitoring programs managed by RPP. The committee has continued its strong collaborative presence in the academy with the continued implementation of radiation protection service programs and interactions with faculty, postdocs, students, and staff. RPP has performed radiation hazard risk analyses for proposed and continuing uses of licensed radioactive material and machine-produced radiation, as described below.

## Registrations and Devices Monitored by RPP

Program	Registrations	Amount
Radioactive material	115	n/a
X-ray	28	56 machines
Po-210 alpha ionizer	25	252 ionizers
Accelerator	8	8 machines
Class 3B/4 laser	185	1,387 lasers
Irradiator	29	4 facilities
Radio frequency	n/a	75 systems
Superconducting magnet	10	50 magnets

### Radio Frequency Safety Program

The Radio Frequency Safety Program initiates/requires reviews for any system that exceeds 5 W effective or equivalent isotropically radiated power. RPP staff attend routine safety committee meetings for the Haystack/Millstone Hill Geospace Facility complex and provide oversight with respect to radio frequency (RF) safety. Training is provided to anyone who works in areas posted with RF warning signs. During the past fiscal year, 61 individuals were trained over five offerings. The number of new systems and reviews varies; this year, there were 20 significant system reviews. Highlights of RF safety work over the last year are as follows:

- At Haystack/Millstone, verification RF surveys, prompted by ongoing construction, were performed by RPP staff both at ground level and at height to verify sector limits.
- The Millstone Hill radar is undergoing an upgrade and, to ensure safe operations, RPP staff conducted extensive surveys and evaluations and advised on safety plans.
- Airborne radar systems at Joint Base Cape Cod and the Lincoln Laboratory Flight Test Facility were evaluated and underwent RF hazard analysis and surveying.

### Department, Lab, and Center Outreach

RPP routinely engages in outreach with DLCs as follows.

- Provides Lincoln Laboratory with the following services: training, maintaining a laser inventory, performing laser hazard assessments, reviewing laser safety standard operating procedures, assisting in laser laboratory design, and providing laser users with information on laser safety products. In addition, RPP assists with or provides reviews for such activities as Science on Saturday, the LaserCom Independent Activities Period (IAP), the Laser Radar IAP, the Radar IAP, and various other outreach programs.
- Participates in the Nuclear Science and Engineering (NS&E) design course as a project judge in the preliminary competition.

- Continues to partner with NS&E to help design (and eventually help manage) the Nuclear Makerspace. RPP staff are members of the search committee to hire a manager for the space.
- Works with the Soonest/Smallest Privately Funded Affordable Robust Compact (SPARC) licensing team and meets with MRCP to openly discuss the regulatory path forward for the siting/licensing of the facility in Massachusetts.

### **Local Community Outreach**

In terms of local outreach, RPP:

- Continues to support the Cambridge Fire Department and the Cambridge Police Department. RPP delivered retraining seminars to several groups from the two departments on basic radiation safety, radiation measurement, and emergency response protocols for potential threats to the irradiator facilities in Cambridge. This included developing a memorandum of agreement that RPP will provide biennial training to fulfill the emergency plan requirements for the Nuclear Reactor Lab.
- Continues the project with the Cambridge and Somerville Programs for Addiction Recovery facility for collection of used bio-sharps (needles) to encourage users not to dispose of them on streets or sidewalks, reducing the risk of accidental exposures to workers or the public.

### **Integrative Programming**

The integrative programs within EHS are composed of the organizational programs described above as well as service teams that, together, oversee a wide variety of initiatives involving cross-program monitoring and measurements to sustain regulatory compliance, proactively assess risk to the MIT community, and support a culture of safety. This year several service teams and programs provided regular operational support, as detailed below.

- The Emergency Preparedness and Response Team provides oversight for the 24-hour emergency response services at MIT and is responsible for the follow-up processes offered by EHS. Over the past year, the team updated training material and provided retraining to 39 staff and on-call orientation to five staff who are new to the on-call program.
- The Inspections Service Team conducts level II inspections twice a year for research lab spaces and annually for facility spaces. During calendar year 2019, there were 1,949 findings across 1,235 reports.
- The Hazardous Shipping Service Team continued to focus on rolling out eShipGlobal to additional DLCs. During the past year, there were a total of 606 research material shipments consisting of 457 regulated and 149 non-regulated shipments.

- The Regulated Waste Service Team continued to maintain excellent service for the pick-up of radioactive regulated medical and chemical waste. There was one shipment of low-level radioactive waste during the reporting period. Of the total chemical waste generated, about 195,000 pounds was hazardous chemical waste, approximately 29% less than in FY2019. The hazardous chemical waste program shipped 193 five-gallon buckets for disposal, down from 648 the previous year. The Hazardous Chemical Waste Team conducted 41 laboratory cleanouts and disposed of approximately 7,000 expired chemical bottles.

Additionally, the service teams described below accomplished key organizational initiatives and projects that went beyond routine support.

### **Communication Service Team**

The Communication Service Team (CST) works to achieve effective and timely communication among all of the office's stakeholders across the Institute and the MIT community to improve EHS performance.

A major initiative for the team was the redesign of the EHS website, which also led to a review of the EHS logo. This included not only coordinating with the design firm to articulate the purpose and goals of the website but also ensuring that the EHS brand emulates the mission, vision, and values of the department and staff. The team evaluated over 200 webpages and worked with content subject matter experts to consolidate the information into half the number of pages. A key feature of the new website is the ability for the team to spotlight and highlight timely information on the homepage, making the site more engaging for users.

CST highlights related to the EHS website and logo rebranding project include coordination of headshots for 68 staff members to feature photos on the team directory page, creation of a cohesive look and feel for document and presentation templates that align with the new website and logo, and assistance with coordinating logo updates to posters, signage, and promotional items.

CST facilitated other outreach activities and initiatives that required coordinating volunteers, providing materials, and communicating about EHS programs and services, including presenting two posters ("EHS Identity, Inclusion and Collaboration" and "Life Story of a Chemical") at the annual executive vice president and treasurer poster session and delivering 16 EHS NewsBolts (the EHS e-newsletter) to EHS and DLC EHS coordinators with an overall average open rate of 64%. The increase in crafting and delivering newsletters was due to the communication needs created by the COVID-19 emergency as EHS and MIT transitioned to working remotely.

### **Training Services Team**

The Training Services Team provides oversight for all EHS training needs and assists in the development of training courses. Courses offered meet regulatory requirements and focus on general awareness and best practices. A total of 32,383 learning experiences were delivered in FY2020; Figure 2 shows methods of delivery (the "other" category encompasses medical and signature forms). Overall, 8,258 unique individuals completed EHS training.

Overall, there was an increase of 20% in web course participation due to the conversion of the highly registered Bloodborne Pathogens for Researchers initial classroom training course to a web course. This offers a more flexible option for members of the MIT research community to complete training conducive to their schedule. The team also updated two web courses researchers are required to complete on an annual basis: the Bloodborne Pathogens for Researchers refresher course and Managing Hazardous Waste.

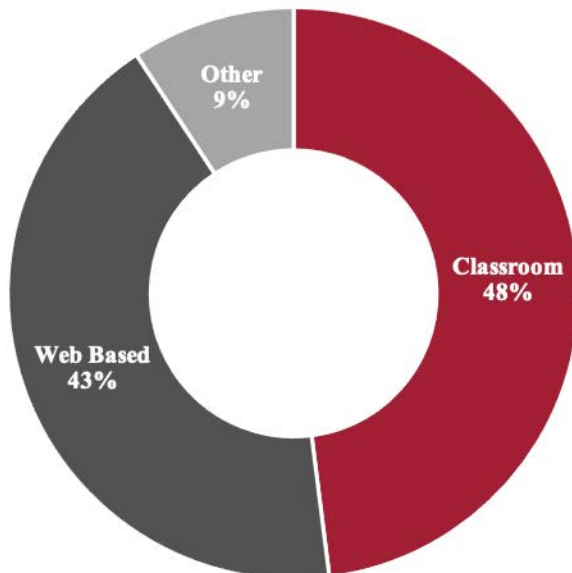


Figure 2. Delivery methods for EHS training courses

As part of the EHS strategic plan, a third-party audit was conducted to evaluate the office's training program. Interviews with multiple EHS staff and coordinators, Training Services Team members, and MIT community members were conducted to gather information on the current state of the program, and these interviews resulted in a summarized report. The report will be used as a guide for the training program's future plans.

### Information Technology Team

Information managed by the EHS management system and used by the EHS organization is secured through a variety of software platforms and tools. The IT Team coordinates all services required to support the EHS-MS infrastructure and operations.

Over the past year, the IT Team programmed new and/or enhanced existing applications in support of the office's information needs, operations, mission, and goals, including extensive enhancements of the injury/incident follow-up application, an EHS attendance reporting application, a fume hood testing application, a hearing conservation appointment management application, and substantial reworking of the asbestos (physical samples) application.

Through a continuous communications and outreach process with EHS coordinators and labs, IT staff increased the adoption of the central EHSA chemical inventory by research labs over the past year; 133 PIs had a chemical inventory in EHS Assistant at the end of June 2019, as compared with 181 at the end of June 2020 (these figures do not include the 14 additional PIs with inventories in EHSA who have since left MIT). These

numbers reflect solid growth in the EHSA adoption rate among PIs and supervisors using chemicals in their research or work. The percentage of these PIs and supervisors using chemicals in EHSA who are being supported by the IT Team grew from 33% in FY2019 to 45% in FY2020.

## **Awards**

### **Department, Lab, and Center Performance Awards**

At the end of the year, EHS recognizes DLCs with performance ratings above 90% for training and inspections. This year's recipients were the Center for Environmental Health and Sciences, the Department of Materials Science and Engineering, and the Picower Institute for Learning and Memory.

### **Environmental Health and Safety Infinite Mile Awards**

The Infinite Mile Awards are given to individuals or teams in recognition of their exceptional contributions to health, safety, and environmental stewardship at the Institute. Award recipients in 2020 were as follows.

- Distinguished Service Award: Mitch Galanek, Nick Paquin, Jessica Van, and Jim Doughty
- Service Award: Mike Dunn, Damon Baptista, Judi Reilly, and Laurie Veal
- Positive Attitude Award: Suzanne Adams, Hao Nguyen, Michal Sharoni, and Grace Mlady
- Distinguished Service Team Award: EHS Everyday Hand Sanitizer Team (Bob Edwards, Alec Casavant, Jackie Leahy, Pat O'Donnell, Jessica Van, Hao Nguyen, and Mike Dunn)
- Special Recognition: Lou DiBerardinis and Nadia Morrison

## **Organization and Professional Development**

EHS hired four staff members to continue to provide excellent service to the MIT community. Also, staff continue to engage in professional development opportunities and to obtain and/or maintain certifications. Overall, EHS staff members attended 50 conferences, workshops, seminars, and classes this past year.

## **Compliance-Related Activities and Regulatory Interactions**

EHS compliance-related programs, activities, and interactions are described below.

- The Asbestos Lab completed recertification, including site visits from the American Industrial Hygiene Association (AIHA) and the Massachusetts Department of Labor Standards (MA-DLS). AIHA spent three days on-site to review lab processes, manuals, reporting, and certifications. MA-DLS reviewed similar process and regulatory aspects and found the lab to be in good standing.

- Two inspections were conducted by MRCP, focusing on broad license radiation protection programs and security programs. Also, inspections of activities on campus, at Lincoln Laboratory, and at Bates were conducted, along with inspections related to the roles and responsibilities of the MIT Police and the Facilities Operations Center with respect to our irradiator security and emergency response programs. The inspections did not reveal any non-compliance.
- There were two allegations filed with MRCP involving worker exposures to radiation and the security of radioactive material. The allegations resulted in three MRCP inspections, two scheduled and one unannounced. We were required to provide dosimetry records dating back to the 1980s, and the inspectors reviewed all past and current radiation protection records. The inspections revealed no non-compliance.
- Staff worked with Open Ag to comply with Massachusetts Department of Environmental Protection (MassDEP) registration requirements for discharge to the Class V Underground Injection Control (UIC) well at Bates, resolved MassDEP regulatory issues related to Open Ag operations, and worked to close out Open Ag wastewater discharge and permanently close the UIC well following the MassDEP approved closure plan.

**Tolga Durak**  
**Managing Director**  
**Environmental Health and Safety Programs**