2022 Annual Report

ENVIRONMENTAL HEALTH AND SAFETY

THE OHIO STATE UNIVERSITY

Executive Summary

Environmental Health and Safety (EHS) is responsible for facilitating health and safety compliance at all Ohio State campuses, extension offices, hospital complexes and outpatient care centers throughout Ohio. We assist the university community in providing and maintaining a safe and healthy work environment and protect the local community and environment from potential hazards. EHS staff act as liaisons to over 80 regulatory agencies helping to facilitate compliance to more than 350 health, safety, and environmental regulations.

Program Areas

- ENVIRONMENTAL COMPLIANCE
- MEDICAL CENTER SAFETY & EMERGENCY PREPAREDNESS
- OCCUPATIONAL HEALTH & SAFETY
- RADIATION SAFETY
- LABORATORY SAFETY & BIOSAFETY

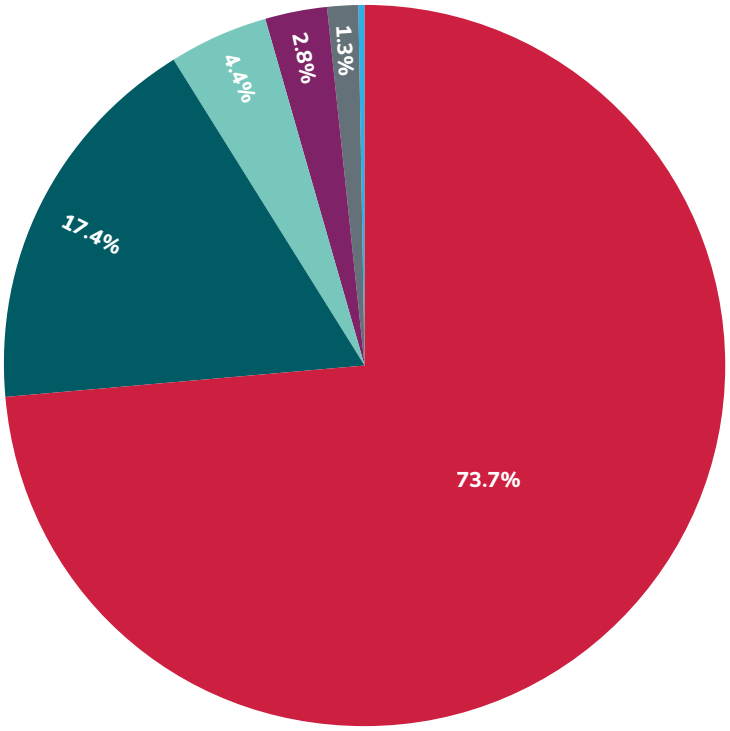
By the Numbers

EHS Funding Percentages:
General Funds: 73.7%
Wexner Medical Center: 17.4%
James Cancer Hospital: 4.4%
External (Consulting Services): 2.8%
Office of Research: 1.3%
Department of Athletics: 0.2%

Annual Budget (FY24): $4,156,836

EHS Staff: 41 FTE

Contracted Staff (Clean Harbors): 4 FTE



Key Accomplishments

- **792** research, chemical and biological safety inspections completed
- **109** radiation safety inspections
- **267** laser units inspected
- **57** non-medical x-ray units inspected
- **73** inspections of facilities shops
- **16,457** hazardous waste service requests completed (new record)
- **4.6** days on average for a service request to be completed (goal of under 5)
- **722,460** pounds of hazardous waste cleared (28% increase from 2015)
- **162** indoor air quality investigations
- **42** workstation ergonomic evaluations
- **77** hazard assestments
- **36** chemical monitoring sessions
- **22** noise surveys
- **119** hot work permits
- **705** hazardous material assessment requests
- **1,450** contractors completing Medical Center Safety team orientation
- **141** requisitions for radioactive material
- **233** packages containing radioactive materials delivered
- **27** incidents involving hazardous materials responded to
- **50** Good Catch reports

Overview

Environmental Health and Safety (EHS) assists the university community in providing and maintaining a safe and healthy work environment for students, faculty, staff, contractors, and visitors. EHS also works to protect the local community and environment from potential hazards on campus and instills safety, health, and environmental stewardship in the work they perform. Our office is responsible for facilitating health and safety compliance at all Ohio State campuses, extension offices, hospital complexes and ambulatory facilities throughout the state of Ohio.

EHS has 41 funded, full-time positions. The positions are funded through university general funds, in and through annual funding from the Wexner Medical Center and FOD Operations. In addition to our university FTEs, Clean Harbors, our contracted hazardous waste vendor, has 4 FTEs onsite daily working with our EHS team. The comprehensive EHS program can be broken down into five specific program areas.

Strategic Program Areas

EHS advances its strategic priorities through the following Program Areas:

- **Environmental Compliance** (9 FTEs) focuses primarily on compliance with environmental regulations issued by both federal and state law. This group also provides several activities and services to assist the university community and environment from potential hazards generated by university activities.
- **Medical Center Safety & Emergency Preparedness** (8 FTEs) provides oversight and guidance for the environment of care, safety, life safety and emergency management programs at The Ohio State University Wexner Medical Center. This group adheres to specific guidelines and actions to ensure compliance with both environmental regulations and patient safety. Two new positions, dedicated to respirator fit testing of medical center employees, were added this year.
- **Occupational Health & Safety** (7 FTEs) promotes health and safety procedures and assists the university in identifying, evaluating, and eliminating occupational and workplace hazards that can cause illness or injury. Online and classroom training sessions are provided for compliance with established federal, state, and local regulations and with university policies.

- **Radiation Safety** (7 FTEs) provides oversight of laboratories that either work with or store radioactive material or radiation generating devices. The program seeks to provide a safe working environment for radiation workers, patients and the general university public while allowing creative and breakthrough research to continue.
- **Research Laboratory Safety & Biosafety** (8 FTEs) focuses on management and regulatory compliance involving the research laboratories at The Ohio State University. This group supports the research goals of the university while promoting a safe working environment.

***Note:** The remaining 2 FTEs fall under EHS program administration (Senior Director, Administrative Assistant)*

Strategic Program Drivers

EXTERNAL DRIVERS refer to factors outside the university that are likely to influence or impact our internal programs. The main external drivers for EHS are federal, state and local regulations (i.e. OSHA/PERRP, Environmental Protection Agency, Ohio Department of Health, City of Columbus, Centers for Disease Control, US Department of Agriculture, Department of Homeland Security, and the Centers for Medicare & Medicaid Services), Accrediting bodies (i.e. The Joint Commission, AAALAC), funding requirements (i.e. follow NIH Guidelines as a result of receiving funding), peer institution benchmarking, high profile incidents / accidents, changing technologies and the labor market.

INTERNAL DRIVERS are the kinds of things, situations and events that occur within the university and are under the control of the university and/or program. The main internal drivers for EHS include the university's strategic goals, campus growth / expansion, allocated funding, retention risks to staff due to increased external competition, university policies, campus safety culture initiative, university shared values, customer needs, crisis / incident response and ongoing stress on staff affecting ability to flex to new / emergent priorities.

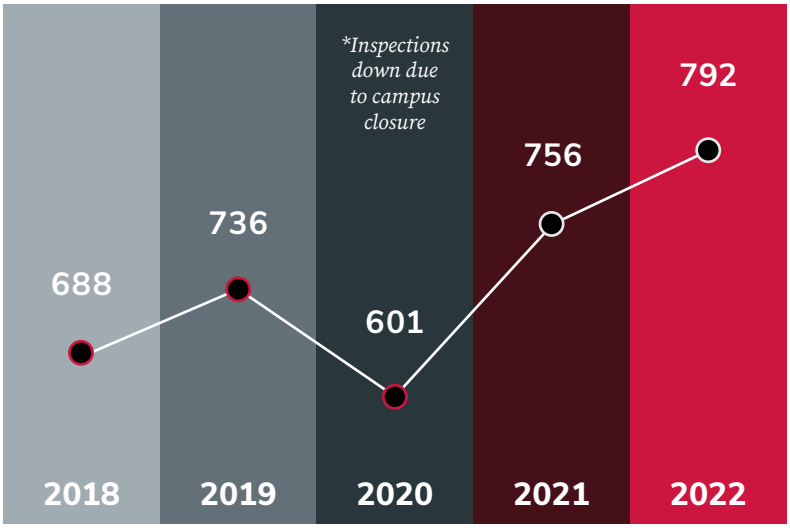
Key Program Accomplishments

Inspection Programs

During CY2022, the Radiation and Research Laboratory Safety program utilized 7 FTEs to complete a total of 792 research, chemical and biological safety inspections in 2,455 laboratory spaces located in 136 buildings across 5 campuses. In addition, those same FTEs also completed 109 radiation safety inspections, and inspected 267 laser units as well as 57 non-medical x-ray units. We continue to see an increase in both research PI numbers (see table below) and in complexity of the research conducted. In turn, research staff are requesting more assistance from EHS staff in the form of hazard evaluations, SOP review and general safety advice throughout the year.

Furthermore, Occupational Health & Safety staff conducted safety inspections of 73 facilities shops in Facilities, Operations & Development, Student Life, Transportation & Traffic Management, Athletics, Wexner Medical Center, College of Engineering, College of Food, Agriculture & Environmental Science, and the College of Arts & Sciences. The shop inspection program has allowed EHS to continue to build partnerships and create a renewed emphasis on safety in units and departments which are not research based.

Chemical & Biological *Safety Inspections*



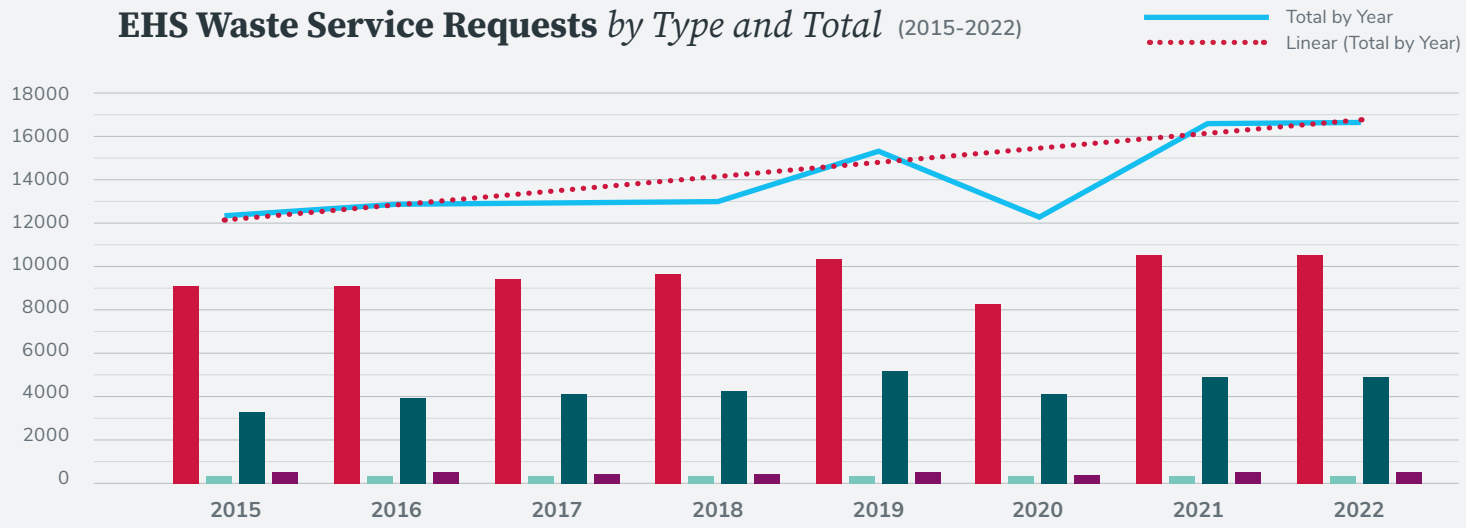
The Environmental Affairs program coordinated the complete hazardous building material assessment surveys for 67 OSU facilities. This brings to total of OSU buildings fully assessed to 267. Having full building assessment data available as we complete the assessments enables the team to complete more service requests in a faster time frame as sampling and analysis steps are eliminated in most cases. Additionally, program staff completed 37 stormwater outfall inspections on the Main, Newark, and Lima campuses.

Lastly, at the Wexner Medical Center, more than 1500 interim life safety measure assessments of internal work orders were completed as well as more than 60 pre-life safety inspections in preparation for the State Fire Marshal visits.

Customer Service Requests

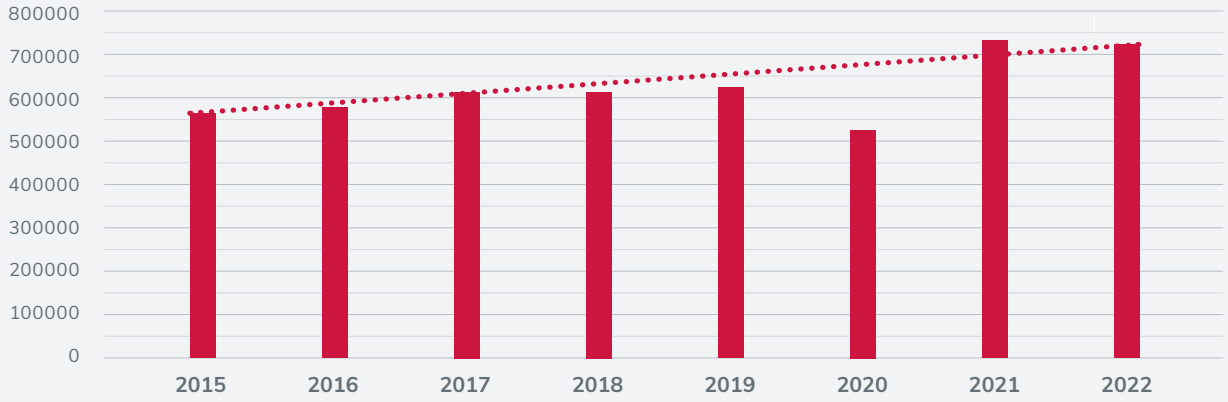
The EHS hazardous waste team completed a record 16,457 waste service requests in 2022. The average time for a service request to be completed was 4.6 days, versus a goal of no more than 5 days. These requests include biohazard waste, hazardous chemical waste, and universal waste disposal requests. Apart from 2020, when the university shut down operations due to COVID, the number of waste requests per year has continued to trend upward, with the corresponding trend lines representing an increase of approximately 23% since 2015 (see below). In addition, the total volume (in pounds) of chemical waste disposed of has increased as well, increasing from 560,524lbs in 2015 to 722,460lbs in 2022.

EHS Waste Service Requests *by Type and Total* (2015-2022)



	2015	2016	2017	2018	2019	2020	2021	2022
Biological	8836	8909	8972	9235	10202	8308	10648	10783
Chemical Redistribution	33	15	29	31	24	23	18	10
Chemical Disposal	3367	3803	3995	4382	4848	4150	5313	5301
Universal Waste	376	464	389	433	446	292	354	363

Total Chemical Waste *Disposed Through EHS* (In Pounds)



We have seen a significant increase in overall waste disposal costs, mostly due to the increase in volume of chemical waste and increases in cost for disposal supplies such as drums and carboys, as well as contracted labor.

EHS continues to expand the use of the CMS work order system and S2F for service requests. This allows for better tracking, as well as a way to connect EHS service requests to facilities maintenance work orders, when applicable. Occupational Health & Safety staff conducted 162 indoor air quality investigations, 42 workstation ergonomic evaluations and 77 hazard assessments for employees working around hazardous materials or in hazardous situations (up from 12 in 2021), as well as 36 chemical monitoring sessions, 22 noise surveys and issued 119 hot work permits. Additionally, Environmental Affairs staff completed a record number 705 hazardous material assessment requests for OSU projects including OCIO, FDC, FOD and Student Life.

Throughout the course of the year, the Medical Center Safety team conducted safety orientation for over 1,450 contract workers and provided operating room fire safety education to hundreds of faculty and staff.

Lastly, the Radiation Safety program processed 141 requisitions for radioactive material and delivered 223 packages containing radioactive materials securely to the research community, OSU Veterinary Hospital and OSUMC facilities.

Emergency Response

EHS staffs two Emergency Response teams, one for hazardous materials incident response and the second for responding to incidents involving radioactive materials. EHS responded to 27 incidents involving hazardous materials in 2022. Many of these involved chemical or biological spill clean-ups, including diesel and oil spills, laboratory chemicals and human blood. The EHS Response Team holds monthly training sessions to review incidents and train on the use of emergency response equipment and procedures. Safety personnel from the College of Engineering and the Department of Chemistry & Biochemistry also participate in the monthly training sessions. The Radiation Safety emergency response team responds to incidents involving radioactive material contamination, alarm response at secure facilities and questions from patients recently treated with radiopharmaceutical therapies. The team received over 160 calls related to these issues, with the majority being patient questions.

good catch *Program*

In autumn 2020, Environmental Health and Safety launched the Good Catch Program to help prevent injuries or property damage and improve the safety culture at the university. The program provides an avenue for anyone in the university community to report unsafe acts, conditions, or equipment. In 2022, 50 Good Catch reports were submitted. Of these reports, 80% reported an unsafe condition, 14% reported unsafe equipment and 6% reported an unsafe behavior. Many of the investigations resulted in the submission of an FOD service request and were quickly rectified. We continue to look for ways to communicate the program and its benefits to the campus community, this year adding the Good Catch link to the Ohio State app, under "Resources – Safety Center" and a Good Catch dashboard on the EHS website.

Professional Development and Team Culture

Professional development plans have been created by each employee outlining short-term and long-term goals, along with measurable steps to complete them. Plans are reviewed and updated at least annually with the employee's supervisor.

In addition, the Senior Director meets individually with each EHS employee on an annual basis. These meetings are confidential and have been instrumental in improving individual relationships and well as team culture. EHS is a value driven organization and staff strive to incorporate the OSU Shared Values into daily activities. Several staff appreciation and team building events were held throughout the year, including a Bucks for Charity tailgate.

Other EHS Program Highlights

EHS, in collaboration with Fire & Emergency Management, began coordinating the shipment of excess / expired hand sanitizer products purchased by the university during the pandemic to recycling facilities. The material sent to these recycling facilities is being repurposed for wastewater treatment and other alcohol-based products, thereby reducing our contribution to landfills, lowering disposal costs and supporting the university's overall sustainability efforts.

Radiation Safety staff provided patient and staff education, patient release surveys, radioactive waste management, room preparation and decontamination, emergency response, and equipment quality control for 489 radiopharmaceutical therapy patients. Additionally, staff provided contracted radiation safety services to Nationwide Children's Hospital for a 6-month period, while NCH recruited and hired a new Radiation Safety Officer. Radiation Safety staff has worked closely with Radiation Oncology, Physics and Varian in the planning and implementation stages of the new Proton Therapy Unit which will open on west campus in fall of 2023.

EHS hosted the 17th annual Ohio State/OSHA Safety Day attended by over 250 participants. This is a joint venture between OSU Environmental Health and Safety, OSHA and construction contractors to provide construction safety information to a wide range of personnel, college students, contractors and health and safety professionals from local organizations, universities and companies.

The Occupational Health & Safety program worked with Facilities Operations and Development to strengthen the facility safety program. An inspection program was developed for mechanical spaces to allow FOD Operations and others to conduct self-inspections these areas to help ensure unsafe conditions and operations are addressed. Additionally, staff assisted with identifying fall protection deficiencies for FOD Operations staff and helped with arranging training, identifying PPE needs and working toward compliance through fall protection building audits.

EHS coordinated with several student organizations to clean out and rehabilitate the rain gardens at Jennings Hall. This event included approximately 40 students from various organizations and worked to keep the raingardens functional and to reduce potential pollutants in stormwater. The project also provided a service opportunity for the student organizations involved. The event also helps OSU meet requirements in our MS4 permit for public outreach and education.

Compliance Responsibilities

Each year, EHS staff facilitate hundreds of regulatory and accreditation visits, permit applications, regulatory reviews, and compliance investigations. We are responsible for routine reporting to the US Environmental Protection Agency (USEPA), Ohio Environmental Protection Agency (OEPA), Ohio Department of Health (ODH), Ohio Public Employment Risk Reduction Program (PERRP), Bureau of Labor Standards (BLS), state Fire Marshal's Office and US Department of Homeland Security (DHS), among others. EHS staff act as liaisons to over 80 regulatory agencies helping to facilitate compliance to more than 350 health, safety, and environmental regulations.

The following information summarizes the key Environmental Health & Safety regulatory actions for CY2022:

- Submitted four quarterly Title V air permit deviation reports, two semiannual monitoring, recordkeeping, and reporting deviation reports, and one annual emissions report to the Ohio EPA, with no deviations.
- Submitted the Annual Greenhouse Gas report to U.S. EPA, encompassing the entire Columbus campus including Engie-operated emission units, with 142,117 metric tons CO2 equivalent emitted.
- Submitted the annual Emission Fee report to Ohio EPA, excluding Engie operated utilities emission units.
- Completed the Permit to Install and Operate (PTIO) renewal application for air permit of the College of Food, Agriculture, and Environmental Sciences (CFAES) Wooster campus Feedmill Facility.
- Completed the annual Compliance Certification and submitted to Ohio EPA with the following non-compliances: failure to obtain a Permit to Install from Ohio EPA prior to installation of the three Central Sterilization Supply Facility boilers and failure to update the facility Title V permit with new emission sources.
- Restructured and centralized the air reporting and permitting responsibilities of the regional campuses to better facilitate compliance.
- Completed a campus-wide Refrigerant Management Plan.
- Responded to a request for information by the Ohio EPA air division stemming from a citizen complaint regarding a foul odor thought to be emanating from west campus construction sites. The investigation yielded no odors and the EPA subsequently indicated they thought another non-OSU property may be the source. This non-compliance straddled reporting years 2021 and 2022 so was required to be reported in both years.
- Completed revisions and or created new Spill Pollution Prevention and Countermeasure Plans for 2 OSU facilities.
- Reviewed 3 stormwater pollution prevention plans.
- Coordinated with the Planning Architecture and Real Estate group to review historical environmental issues and conduct due diligence on several properties prior to purchase by the university.
- Completed 31 regulatory permit issuances/renewals for the air, water, waste and underground storage tank programs.
- Facilitated 23 regulatory agency inspections in the air, water, waste, hazardous material and underground storage tank programs.
- Facilitated 10 Ohio Department of Health inspections for x-ray emitting devices and 13 Mammogram Quality Standards Act (MQSA) Inspections.
- Completed the Ohio Department of Health Broad Scope Radioactive Materials license 5-year renewal.

- Annual Certified Radiation Expert (CRE) reports were submitted to the Ohio Department of Health for the James Cancer Hospital and University Hospital.
- Conducted one PERRP employee complaint investigations regarding COVID-19 PPE.
- Provided annual PERRP 300 Log (Employee Accidents) compliance report.
- Provided annual BLS employee accident compliance reports for all Ohio State establishments.
- Successfully submitted daily OHA data for national COVID response and CMS compliance.
- Activated Outpatient Care Dublin and facilitated life safety, environment of care, and emergency preparedness programs.
- Assisted with several accreditation visits including The Joint Commission, Ohio Department of Health and the American College of Surgeons trauma verification.
- Coordinated Ebola Assessment Hospital grant program.
- Facilitated 59 State Fire Marshal inspections for Wexner Medical Center projects with an initial compliance rate of 96%.
- Completed 23 inspections with the Columbus Fire Department at OSUWMC facilities (7 inpatient areas and 16 ambulatory facilities).
- Successful UH triennial Joint Commission survey with zero scored elements from the Emergency Management standard.

Staffing Updates

EHS was able to add two new full-time positions to the Medical Center Safety & Emergency Preparedness team. These employees provide N-95 respiratory fit testing to medical center faculty, staff and students. By bringing this function in-house, we estimate a cost savings of approximately $50K/year for the medical center. Two EHS staff were promoted to new roles within the organization and one new staff member was hired to backfill a position.

Additionally, EHS has continued to implement hybrid work options as a flexible work option for staff. As the labor market continues to be challenging, we are concerned about losing experienced technical staff to higher paying EHS positions at local private employers. Reinforcing the benefits of working at OSU, offering flexible and/or hybrid work schedules and continuing to build a positive team environment are some things we can do to combat this issue.

Key Challenges

FUNDING MODEL

The current EHS funding model continues to be a significant concern for the future. EHS has not had any significant funding increase over the past 10 years, and 3 full-time positions were eliminated resulting from budget restrictions due to the pandemic response. With the addition of the new inpatient and multiple outpatient hospital facilities, including a new proton therapy facility, Integrated Research Facility building and Energy Advancement and Innovation Center, the increase in workload for EHS staff will be very significant. If EHS is to continue to provide a responsible level of service, both proactive (education & training, risk assessments, laboratory & shop inspections) and reactive

(hazardous waste collection & disposal, indoor air quality assessments, emergency response services), additional funding will be required for hiring new staff. Further, the current job market makes it increasingly difficult to retain and acquire talent capable of addressing the university's regulatory and safety needs. EHS is exploring the development of a new funding model for safety and compliance services that directly ties to research funding and/or space allocation, allowing funding to increase as campus size and research growth occur. By doing so, we will be better positioned to maintain our current service levels to the OSU campuses and medical center facilities.

HIGH REGULATORY RISK RESEARCH PROGRAMS

As new technologies and research opportunities present themselves that require the use of chemicals included in the Department of Homeland Security Chemicals of Interest (COI) list, departments are getting closer to threshold limit. If threshold limits are surpassed, the university would be subject to more stringent security measures and further oversight of program, requiring a significant financial investment by the university. EHS will be working with other compliance leaders across campus to develop an intake and decision-making process for research that may require enhanced compliance oversight.

CHALLENGING REGULATORY ENVIRONMENT / INDUSTRY PARTNERSHIPS

EHS continues to maintain positive engagement with regulators, given shifting regulatory priorities and competition among regulators. An increase in industry partnerships and research complexity creates new regulatory challenges, however, which will increasingly strain EHS capabilities. EHS department leaders will be part of a compliance driven project to review regulatory responsibilities, compliance challenges and service delivery that may arise with the future development of the Carmenton Research Park.