

# ENVIRONMENTAL HEALTH AND SAFETY

Case Western Reserve University, Department of Environmental Health  
and Safety Annual report covering 2022-2024

Annual Report  
2022-2024

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## **Mission Statement**

The Case Western Reserve University Department of Environmental Health and Safety is committed to safeguarding our environment and university community.

Through diligent regulatory compliance and innovative practices, we respect and support the diverse needs of our personnel and the academic objectives of our research community.

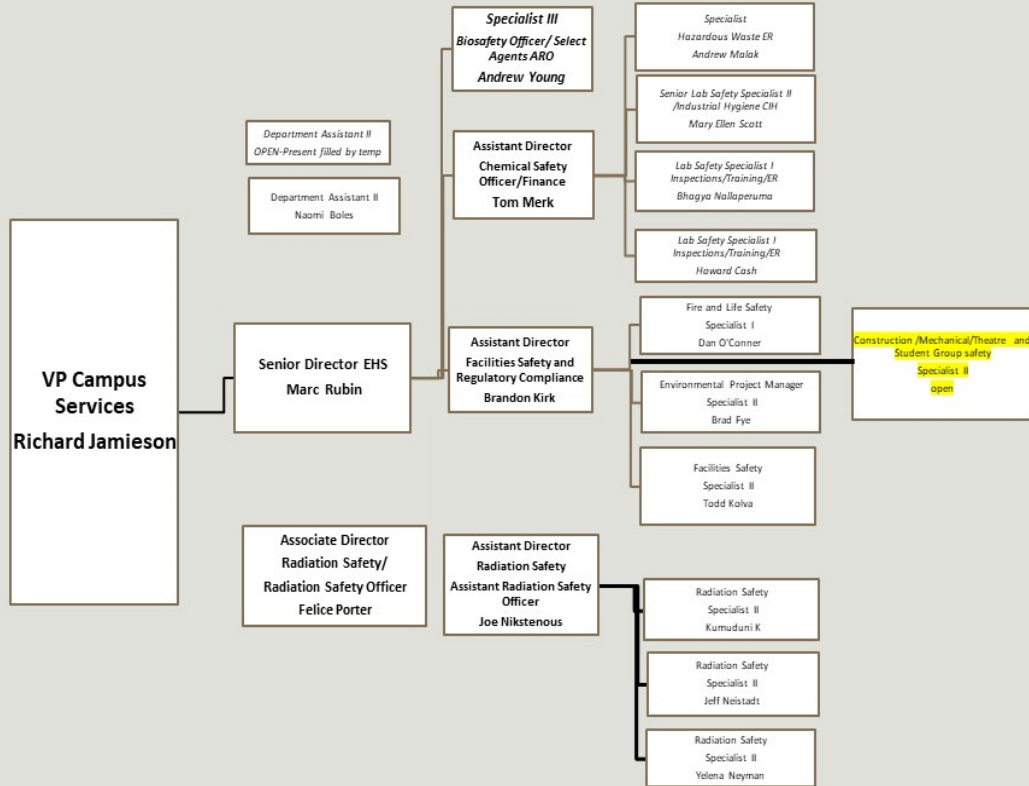
Our mission is to uphold and enhance the health and safety of the Case Western Reserve University community by delivering essential support, expertise, and training, ensuring a safe and healthy environment conducive to excellence in education and research

## **Executive Summary**

The Department of Occupational and Environmental Safety at CWRU has experienced a dynamic phase of growth and innovation, effectively navigating post-COVID challenges by adapting to a leaner operational mode and revitalizing its workforce. Over the past two years, we've successfully filled nearly all open positions, with the new team members performing exceptionally well. Noteworthy developments include the creation of a post-approval monitoring system for research grants and the implementation of modern technologies like Zoom and AI to enhance training programs, significantly reducing required training hours for Medical, Nursing, and Dental students. We've also refined our inspection program, incorporating real-time data access and photographic documentation to improve the transparency and effectiveness of our safety checks. Additionally, we've proactively enhanced safety across student-led groups by developing targeted safety programs, set to launch with the recruitment of new roles. To ensure rigorous regulatory compliance, our Assistant Director is spearheading a comprehensive program to track all permitting and regulatory requirements. These collective efforts underscore our commitment to ensuring a safe and compliant environment for all members of the CWRU community, reinforcing our unwavering dedication to safety and excellence in all aspects of campus life

# EHS Organizational Chart 2023-2024

EHS Organizational Chart 2023-2024



## DEPARTMENT DESCRIPTION

The Department of Environmental Health and Safety (EHS) at Case Western Reserve University (CWRU) is dedicated to fostering a secure and healthy environment for over 6,000 employees and 10,000 undergraduate and graduate students across more than 130 buildings at CWRU and five other major research locations in Northeastern Ohio. Our reach extends globally, sharing the commitment to safety with CWRU personnel at international sites.

EHS is tasked with harmonizing stringent federal, state, and local safety regulations with the dynamic needs of academic research. This often requires innovative solutions to reconcile the goals of a safe working environment with a productive research community. Our approach is customer-centric, moving away from traditional regulatory practices to engage more interactively with our stakeholders, including faculty, staff, and students.

We ensure the dissemination of safety information through formal training comprised of nearly 12,000 contact hours annually, consultation, occupational monitoring, environmental monitoring, and the creation and maintenance of safety and regulatory documents. These activities are supported by thorough inspection, audit, post approval monitoring, and program oversight, which serve as critical feedback mechanisms for assessing compliance and understanding within the community.

Despite our comprehensive safety measures, unexpected incidents can occur in complex environments. In such events, EHS provides immediate emergency response and hazard mitigation. We also engage in proactive planning to prevent future incidents, collaborating with internal teams like emergency management, plant operations, police, and security, as well as external agencies. These partnerships are essential for developing cohesive emergency response strategies and familiarizing external bodies with our institutional capabilities, thereby laying the groundwork for effective collaborative responses to emergencies.

Additionally, EHS collaborates with internal and external teams to ensure that all construction, property acquisition, renovation, and other remedial activities thoroughly identify, communicate, and mitigate potential occupational and environmental hazards.

The department comprises ten specialized sub-groups focused on Biological, Chemical, Facilities, Fire/Life Safety, Construction, Theater/Student Group safety, mechanical safety, and Radiation safety, ensuring a broad and inclusive approach to health and safety at CWRU.

## Year in review

The Department of Occupational and Environmental Safety has successfully navigated through a transformative period of growth and development. Following the COVID era in 2022, when four of our five safety technicians transitioned to higher-paying opportunities, our department strategically adapted to a leaner operational mode. This phase allowed us to not only maintain essential safety services but also to critically evaluate and enhance our programs. Over the past two years, we have revitalized our team by recruiting and training new personnel, a comprehensive process that ensures each member is well-acquainted with the CWRU environment and fully equipped to perform at their best. By June 2024, we have successfully filled all positions, and our current team is performing exceptionally well, reflecting the robust and dynamic capabilities of a fully functioning EHS department

Throughout its period of restructuring, the EHS department has been anything but stagnant, successfully launching several key initiatives that demonstrate our commitment to innovation and excellence. One significant advancement is the development of a post-approval monitoring system. This system diligently tracks the real-time progress of research grants approved by the Institutional Biosafety Committee, greatly enhancing our confidence in regulatory compliance and ensuring that practices align with their documented protocols.

In the realm of training, we've embraced modern technologies such as Zoom and AI to expand and enrich our training programs, making them more accessible than ever. Additionally, we've streamlined our training approach by combining courses, which allows us to deliver content more efficiently. This optimization has notably reduced the required training hours for Medical, Nursing, and Dental students from nine to three, without compromising the quality of education.

We've also refined our training outreach, identifying and eliminating redundancies in the process. Now, we recognize and accept equivalent training completed at other institutions for personnel and students who work exclusively off-campus.

Looking ahead, we are thrilled to announce the upcoming launch of a new infection control training program for the Dental Clinic in the 2024-2025 academic year. This program is designed to ensure a smooth transition from the previous instructor and to continuously elevate our training standards, reinforcing our unwavering dedication to safety and excellence in clinical practice

EHS has thoroughly revitalized its inspection program, incorporating advanced features that allow for real-time recording and retrieval of data directly from the field. This immediate access to data enhances our responsiveness and accuracy in addressing safety concerns. We have solidified our inventory processes to maintain a continuously updated list of locations requiring inspections, ensuring that no area is overlooked and enhancing the overall efficiency of our safety checks.

Moreover, we have enriched the inspection reports by including photographs, which create a comprehensive narrative of each space inspected. This visual documentation not only improves the transparency of our inspections but also significantly aids in understanding and resolving issues more effectively.

In our commitment to continuous improvement, we actively collaborate with faculty, students, and staff to ensure that any recurring safety issues receive additional attention. This collaborative approach helps ensure that all identified issues are thoroughly addressed and well-documented. In cases where resolution is not immediately possible, we have established a formal escalation process to address and resolve concerns promptly and effectively.

These enhancements collectively elevate the robustness of our safety protocols, ensuring a safer environment for all faculty, staff, and students

EHS has proactively embraced the responsibility of enhancing safety in the theatre and across various student-led groups, including the Rocket Club, Theatre Club, Baja Club, and others. Our aim is to ensure these groups not only have a direct line of communication with our department but also a significant voice in shaping the safety protocols that affect their activities. To support these efforts, we have developed a comprehensive theatre safety program. This program will be implemented in 2024-2025. This strategic move demonstrates our commitment to providing a safe, engaging, and supportive environment for all student activities

To enhance regulatory compliance, the Assistant Director of EHS Regulatory Compliance is leading the development of a robust program designed to catalog, track, and ensure adherence to all permitting, inspection, and regulatory requirements across the facilities and EHS groups. This initiative will kick off with the implementation of a comprehensive calendar detailing all required activities. It will evolve into a sophisticated tracking system that not only identifies responsible parties but also guarantees the completion of each task. This proactive approach ensures meticulous compliance, streamlines our operations, and reinforces our commitment to maintaining the highest standards of safety and regulatory adherence



# **Biosafety**

## **FY2023-24 Biosafety**

The Biosafety Program at Case Western Reserve University is dedicated to ensuring the safety of its community by adhering to rigorous standards and regulations. Over the years, the program has undergone significant developments, including the appointment of a new Biosafety Officer, comprehensive reviews of training programs and manuals, and enhanced collaborations with various departments and agencies. Key initiatives have included joint inspections with regulatory bodies, the strengthening of Occupational Health Monitoring programs, and meticulous management of biological agents and hazardous materials. Moving forward, the program aims to further enhance its capabilities, including the expansion of specialized inspection programs and ongoing efforts to improve safety protocols across the university.

### **EHS Biosafety Program 2022-2023**

The University Biosafety Officer position was filled in October 2022, bringing stability and leadership to the program. Throughout 2021-2022, the program continued operations, primarily supporting IACUC and IBC activities. A comprehensive review of the Biosafety training program was conducted, resulting in the issuance of an updated and improved training curriculum.

### **EHS Biosafety Program 2023-2024**

2023-2024 was a pivotal growth period for the Biosafety Program with many advancements and reenergized functionality. During this period extensive planning occurred between research Administration and EHS to find opportunities to enhance both programs through cooperative inspection., post approval monitoring, increase committee presence, and joint training opportunities. EHS and research administration IBC and IACUC offices have forged a strong bond.

Collaborative efforts persist with a deep integration across both BSL3 and ABSL3 facilities. These facilities had not undergone inspections by USDA and CDC in support of several issued permits since prior to the COVID-19 period. Extensive testing of both facilities was conducted in preparation for the inspections and to support annual operational maintenance, revealing several discrepancies that have since been successfully resolved. Through coordinated teamwork involving the BSL3/ABSL3, the School of Medicine, Facilities, Research Administration, and EHS, significantly enhanced protocols and operational maintenance procedures were developed. As a result of these collective efforts, the joint USDA/CDC inspections proceeded seamlessly without any incidents.

Collaborative efforts persist with University Health Services to fortify and enhance a robust Occupational Health Monitoring program. This comprehensive program encompasses

evaluations for various occupational hazards, including but not limited to animal dander, biohazards such as TB, chemical agents as utilized in IACUC and IBC protocols, respiratory protection, and other research-related exposures. Tailored consultations on safe work procedures are provided, along with active monitoring of workers to ensure their well-being and safety.

The Biosafety Program meticulously maintains an active inventory of biological agents on campus, recording and managing this information through the OSHA Exposure Control Plans. These plans undergo regular evaluations and are updated annually with input from laboratories. Collaborative partnerships between laboratories and the Biosafety Officer are a routine occurrence, facilitating protocol reviews and post-approval monitoring to ensure adherence to safety standards.

The Biosafety Program consistently conducts collaborative inspections alongside the IACUC, IBC, BSL3, ABSL3, and the Animal Resource Center to ensure that facilities adhere to stringent containment standards, comply with protocols and OSHA Exposure Control Plans, and have appropriate emergency procedures and signage in place. These thorough inspections are carried out at least annually to maintain a high level of safety and compliance. Additionally, the BSL/ABSL3 facilities undergo annual testing for failure modes, with identified issues promptly addressed and repaired. Such rigorous maintenance is mandated by regulatory bodies including the CDC, USDA, APHIS, AAALAC, and other permitting agencies.

Specialized inspections with targeted areas of emphasis are routinely carried out. For instance, a comprehensive inspection of the Prion center was conducted, encompassing all Prion research activities, with a detailed report outlining identified deficiencies. One significant area flagged for improvement was the lack of adequate area access control, particularly regarding access from public areas to research zones, which was deemed less stringent than optimal. This concern was promptly communicated to the School of Medicine for integration into their planning initiatives.

Moreover, it was observed that the age of many facilities posed operational challenges for laboratories, although they still managed to meet fundamental requirements.

Nevertheless, there is a recognized need for enhanced updating procedures for personnel movements on permit applications, an aspect earmarked for improvement.

Case Western Reserve University's Infectious Waste Program operates in full compliance with DOT and state regulations, overseeing the comprehensive lifecycle of infectious waste from collection to treatment and final disposal. Our expert teams, equipped with specialized training in infectious waste management and strict adherence to OSHA bloodborne pathogens standards, meticulously supervise all aspects of the collection and disposal processes.

In collaboration with Daniels Health, a trusted partner in waste management, the university ensures the safe transportation and environmentally responsible disposal of infectious

waste. Regular inspections of designated Infectious Waste Areas are conducted, alongside meticulous maintenance of the Facility Management Plan, which includes detailed provisions for regulatory compliance and emergency preparedness. These practices underscore the program's commitment to maintaining the highest standards of safety and environmental responsibility.

**FY2024-2025-Program Objectives** – Looking forward, the program has set goals for 2024/25, which include further developing the Prion-specific laboratory inspection program as well as developing an inspection program for labs that require an IBC protocol. Expansion of these efforts to other areas will continue in subsequent years. The Biosafety manual will undergo thorough review to ensure alignment with current best practices and regulations.

## Chemical Safety

Chemical Safety at Case Western Reserve University is organized into several subprograms, each addressing specific facets of safety within our chemical environment. These subprograms include hazardous waste management, respiratory protection, training, emergency response, and hazard communication. Together, they form a comprehensive framework for ensuring the safe handling and use of chemicals on campus.

Within this framework, critical elements such as indoor air quality, OSHA exposure monitoring, chemical inventory management, inspections, and specialized consultations on research devices and installations are managed by the Chemical Safety Program. These elements are essential for maintaining a safe and compliant environment for all members of the university community.

In addition to these efforts, collaborative initiatives with the research community are a cornerstone of our approach to chemical safety. By working closely with researchers across all disciplines, Environmental Health and Safety (EHS) ensures that safety practices are integrated seamlessly into research activities. This collaborative approach reflects our commitment to fostering a culture of safety and regulatory adherence throughout the university.

Furthermore, the Chemical Safety Program includes the University Laboratory Safety Committee, established in 1989. Comprising faculty, staff, and administrators from diverse backgrounds, this committee plays a crucial role in overseeing safety practices in laboratory settings. Among its responsibilities is the review and approval of the Laboratory Safety Manual, which sets forth fundamental safety protocols campus-wide. Additionally, the committee addresses specialty issues, such as injuries and incidents, and implements mitigation strategies as needed. Through its collaborative efforts, the University Laboratory Safety Committee serves as a key driver in promoting a culture of safety and ensuring compliance with safety standards across the university.

## Laboratory Safety Inspections

Laboratory safety at Case Western Reserve University is paramount, with a meticulous inspection and compliance process in place to ensure a safe working environment. Each laboratory, whether on or off-campus, undergoes comprehensive inspections covering a range of safety aspects, from fire and electrical systems to hazardous materials handling and personal protective equipment. These inspections are conducted regularly to monitor progress and address any recurring issues effectively. Through collaborative efforts between Principal Investigators (PIs) and Environmental Health and Safety (EHS), findings are documented, communicated, and resolved promptly. Summary reports are then distributed to department Chairpersons, ensuring awareness of safety measures and necessary upgrades. This systematic approach underscores the university's commitment to fostering a culture of safety and continuous improvement within its research facilities.

**Frequency and Scope of Inspections:** Each laboratory, both on and off-campus, undergoes at least one comprehensive inspection to ensure compliance with safety standards and regulations. Inspections cover various aspects, including fire safety, electrical systems, mechanical equipment, hazardous materials storage and handling, personal protective equipment (PPE), training, and other relevant topics.

**Comparison and Progress Monitoring:** Results from each inspection are compared to previous years to track progress and ensure that recurring issues are addressed effectively. Emphasis is placed on continuous improvement and correction of identified deficiencies.

**Communication and Documentation:** Following inspections, a detailed communication is prepared between the Principal Investigator (PI) and Environmental Health and Safety (EHS) to outline findings. Findings are documented with photographs to facilitate precise identification of issues.

**Collaborative Resolution and Updates:** EHS collaborates with PIs to implement necessary changes and updates, including revisions to manuals, training materials, signage, emergency contacts, and other relevant aspects. Safety devices provided by the facility, such as fume hoods, eyewashes, safety showers, cold rooms, warm rooms, and fire protection systems, are identified, cataloged, and inspected for operational certification.

**Summary Reports and Communication:** Summary documents are prepared and disseminated to each Chairperson to ensure awareness of findings, corrections, and required upgrades within their respective areas. Safety plans, inventory, and emergency contact information are collected and updated as part of the inspection process.

## Training

Environmental Health and Safety (EHS) provides over 12,000 contact hours of individual training annually, addressing a wide array of regulatory compliance topics. From driver's education to laboratory safety, as well as radiation, chemical, and biological safety, our training programs cater to the diverse needs of the university community. Additionally, we offer Continuing Education Units (CEUs) upon request, enabling professional development opportunities.

Our training programs begin with engaging, interactive in-person sessions led by experienced trainers, complemented by annual self-directed learning modules. By utilizing state-of-the-art presentation techniques, we make our sessions not only engaging and entertaining but also focused on educational objectives and regulatory compliance.

Harnessing cutting-edge Artificial Intelligence (AI) technology, EHS produces high-quality, in-house training materials. This approach ensures swift adaptation to changing requirements and timely content delivery. We also collaborate with other departments to create tailored training solutions that meet specific needs.

EHS's comprehensive training extends beyond the university campus to serve high schools, external companies involved in cooperative grants, traditional students, faculty, and volunteers.

In collaboration with Research Administration, EHS is centralizing training records and streamlining programs through a unified platform. This joint initiative, anticipated to launch during the 2024-2025 period, aims to improve accessibility and efficiency for training management across the university.

We partner with organizations like Metro Health, Cleveland Clinic, Veterans Affairs, and NASA to support training for shared resource projects. Through these cooperative efforts, we strive to create a comprehensive, collaborative, and compliant training environment.

We collaborate with partner organizations, including Metro Health, Cleveland Clinic, Veterans Affairs, and NASA, to provide training support for shared resource partner projects. These collaborative endeavors are aimed at creating a comprehensive, cooperative, and compliant training environment. By leveraging the expertise and resources of these esteemed organizations, we strive to enhance the quality and effectiveness of our training programs, ensuring participants receive the highest standard of education and preparation.

Throughout 2022-2024, EHS has streamlined its training classes by consolidating courses with similar content. As a result, composite course offerings have been developed and are now accessible to students in the fields of Medicine, Dentistry, and Nursing. This initiative has reduced the required training hours from 9 to 3 while maintaining or even improving content quality. By using tools like Zoom, we've moved from traditional classroom settings to virtual platforms, allowing us to reach larger audiences and conduct more efficient training sessions.

EHS partnered with the Dental School to implement an innovative solution by replacing the previous Infection Control module with an online course generated using Artificial Intelligence (AI). This strategic initiative has allowed the Dental School to fulfill a missing requirement efficiently and effectively. By leveraging AI technology, we have optimized the delivery of essential training while enhancing the educational offerings within the dental curriculum..

In conclusion, Environmental Health and Safety (EHS) remains committed to providing comprehensive and effective training programs to meet the diverse needs of the university community and beyond. From regulatory compliance to professional development, our initiatives cover a wide range of topics, delivered through innovative methods like interactive virtual sessions and AI-generated online courses. By partnering with other organizations and using optimization tools, we aim to improve accessibility and efficiency in training across disciplines and platforms. Our dedication to continuous improvement and collaboration ensures that we maintain a leading role in fostering a culture of safety and excellence in education.

**FY2024-2025 Program Objectives:** EHS remains unwavering in its commitment to refining training classes and seeking opportunities to streamline content delivery through synergistic approaches. By consolidating training materials, we aim to offer significant time savings for trainees. Leveraging advanced AI technologies, EHS will refine current programs and enhance our delivery capabilities. Our collaborative efforts with Research Administration will continue as we transition training from Canvas to the Docebo platform, ensuring seamless migration and elevating the learning experience. Through these strategic initiatives, EHS is poised to deliver unparalleled educational value while driving innovation in safety and compliance training

# Indoor Air Quality (IAQ) and Occupational Health Monitoring

Maintaining optimal Indoor Air Quality (IAQ) and robust occupational health monitoring is essential for fostering a safe and productive working environment. IAQ monitoring involves assessing and controlling pollutants that can affect the health, comfort, and well-being of building occupants. This includes monitoring levels of carbon dioxide, volatile organic compounds (VOCs), particulate matter, and other airborne contaminants.

Occupational health monitoring encompasses proactive surveillance strategies to identify potential workplace hazards and protect employees from harmful exposures. This includes periodic assessments of noise levels, chemical exposure, ergonomic risks, and biological agents.

## Services Provided:

### 1. **Exposure Assessment:**

CWRU EHS conducts exposure assessments for environmental hazards in workplaces, including mold, asbestos, mercury, and other contaminants in laboratories and construction or renovation spaces.

### 2. **Safety Compliance:**

By reviewing safety plans and questionnaires, CWRU EHS identifies laboratories using materials like anesthetic gases, regulated chemicals (e.g., the upcoming methylene chloride ban), pathogenic biological materials, and radiological materials. It assesses these uses to ensure compliance with regulatory exposure levels.

### 3. **Formaldehyde Monitoring:**

In areas like anatomy, where formaldehyde is used, thorough testing is conducted to maintain long-term exposure stability and confidence. Paired with comprehensive training and regular spot checks, these measures ensure the HVAC systems remain consistent with negative exposure assessments. Substituting formaldehyde and phenol has partially mitigated exposure risks.

### 4. **IAQ Complaints:**

CWRU's program promptly responds to Indoor Air Quality (IAQ) complaints, identifying root causes and providing solutions. Additionally, work involving particularly hazardous or chronic exposure materials is carefully assessed and mitigated to ensure a safe working environment.

**FY2024-2025 Program Objectives:** The ban on methylene chloride will require the creation of a new monitoring program



## Waste

The management of hazardous waste is a critical component of maintaining a safe and compliant research environment. We adhere to stringent regulations to ensure the proper identification, handling, storage, and disposal of hazardous materials. Our Environmental Health and Safety (EHS) team works closely with laboratory personnel, researchers, and staff to minimize the risks associated with hazardous waste, providing guidance, training, and comprehensive services.

Effective hazardous waste management begins in the laboratories with responsible inventory management and purchasing practices. Every laboratory is required to maintain a comprehensive inventory of the chemicals used in each space. Starting in the 2023-2024 academic year, EHS has requested that these inventories be submitted in electronic format. This digital transition will streamline the creation of disposal cost assessments for department chairs and school administrators, helping them better understand the expenses related to laboratory closures due to departure or retirement, and plan accordingly.

In 2019, we provided this data to the Chemistry and Macromolecular departments, and upon collecting all electronic inventories, we will extend these insights to all departments and schools. This initiative aims to promote transparent budgeting and proactive management of hazardous waste disposal costs.

EHS provides ongoing support in managing the clearance and departure process for laboratories, ensuring the proper removal of chemicals and other materials. From 2022 onward, EHS adopted a collaborative approach to hazardous waste removal. Previously, contractors removed materials without preprocessing. However, we recognized that careful sorting of containers and the direct disposal of non-hazardous materials could lead to significant cost savings.

Since disposal costs are directly billed to the schools, these efforts represent a crucial stewardship initiative. Savings range from 20% to 60% of the raw disposal cost, and additional reductions can be achieved by redistributing materials to other laboratories where applicable. This proactive approach is only possible when schools provide the labor required for sorting and consolidating. Given that a single cleanup can cost up to \$60,000, even a modest 20% savings translates to \$12,000—a substantial and worthwhile reduction.

**FY2024-2025 Program Objectives:** A price increase has not been issued since 2016. We are in an RFP process and expect an increase of 30-50% in 2024-2025

## Emergency Response Signs

**FY2024-2025 Program Objectives:** Maintaining clear and accurate emergency response signs on laboratory doors is crucial for a swift and effective response to potential incidents. These signs convey essential information to emergency personnel, including the presence of hazardous materials, specific risks associated with the lab, and immediate contact details for responsible personnel. An up-to-date and accurate database of contact information ensures that the right individuals can be quickly reached in case of an emergency.

CWRU EHS is investigating the use of QR codes into these signs to streamline the sharing of accurate data and prevent outdated information from lingering. By scanning the QR code, responders can access a secure and current digital repository of lab-specific data, including emergency contacts, hazards present, and safety protocols. This innovation eliminates the risk of stale or incomplete information and provides real-time updates that enhance safety. Collection of data will occur during the annual collection of safety plans. EHS will share this database with Police and Security to assure everyone has direct access to the data.

## Clearance

Before any laboratory equipment is disposed of or relocated, it must be thoroughly inspected for potential hazards. This clearance process ensures that equipment is free of contaminants such as chemical, biological, or radiological residues that could pose risks to individuals handling it or to the environment.

**FY2024-2025 Program Objectives:** To streamline this process, an improved online form has been developed. It automatically logs service requests and generates the necessary paperwork. This streamlined system will be fully implemented in the coming year.

## **Respirator Program**

The OSHA Respirator Program is pivotal in ensuring workplace safety through proper respiratory protection protocols. Workers undergo a rigorous process beginning with a medical evaluation to assess their suitability for respirator use. Subsequently, fit testing is conducted to verify that the selected respirator forms a secure seal on the wearer's face. Thorough training is provided to equip employees with the knowledge of respirator usage, maintenance, storage, and hazard recognition.

Selection of the appropriate respirator type is tailored to the specific workplace hazards, ensuring optimal protection. Regular assessments are carried out to uphold program effectiveness and compliance with OSHA standards, thereby guaranteeing the proper maintenance and utilization of respiratory protection for safeguarding worker health and safety.

Despite the decrease in program users post-COVID, the enduring impact of the pandemic, particularly in clinical settings, emphasizes the continued necessity of the respirator program. During the pandemic, essential adaptations were made to streamline the medical evaluation, training, and fit-testing processes, which have persisted beyond the crisis.

Furthermore, collaboration between EHS and students from Medical, Dental, and Nursing groups has been extensive, ensuring their comprehensive preparedness for clinical rotations and reinforcing the importance of respiratory protection in healthcare environments.

# Facilities/Fire/Construction/Mechanical/ Theatre Safety Programs

## 2023 – 2024 Annual Report

### Environmental Safety

- **Water Quality Initiative:** Launched a comprehensive water quality testing program across the CWRU campus, involving random sampling from building water sources within designated areas. Our rigorous testing protocols allow us to promptly address any issues or concerns related to water quality in CWRU facilities, ensuring a safe environment for all occupants.
- **Air Quality Monitoring:** Initiated an air monitoring program targeting asbestos fibers in buildings with sprayed-on asbestos fireproofing at three locations: Crawford Hall, Gund Law, and Carlton Commons. We collect ambient air samples and analyze them using phase contrast microscopy to confirm that the asbestos fireproofing does not compromise indoor air quality or pose a health risk to occupants.

### Fire & Life Safety

- **Fire Protection System Maintenance:** Implemented systematic recording of maintenance activities for fire protection systems. This includes inspection dates, contractors involved with inspections of fire extinguishers, elevators, and fire alarms, and maintenance dates for sprinkler system gauges and fire alarm panel batteries. We also started using building addresses for easier tracking of system inspections and maintenance, which is crucial when building occupancies change.

### Construction and Building Safety

- **Sprinkler System Maintenance:** Adopted proactive monthly inspections of sprinkler system valves and exercises of Post Indicator Valves as recommended by FM Global. This ensures their operational efficiency and functionality. FM Global highly praised our initiative, reflecting our commitment to top-notch fire protection standards.
- **Online Application for Emergency Access:** Developed and implemented an online application that precisely maps the locations of shutoff valves and other critical infrastructure within buildings. This tool, which provides detailed maps and diagrams, helps ensure that emergency responders and maintenance personnel can quickly access necessary resources. FM Global commended the app's effectiveness and user-friendly design.

## Facilities Safety

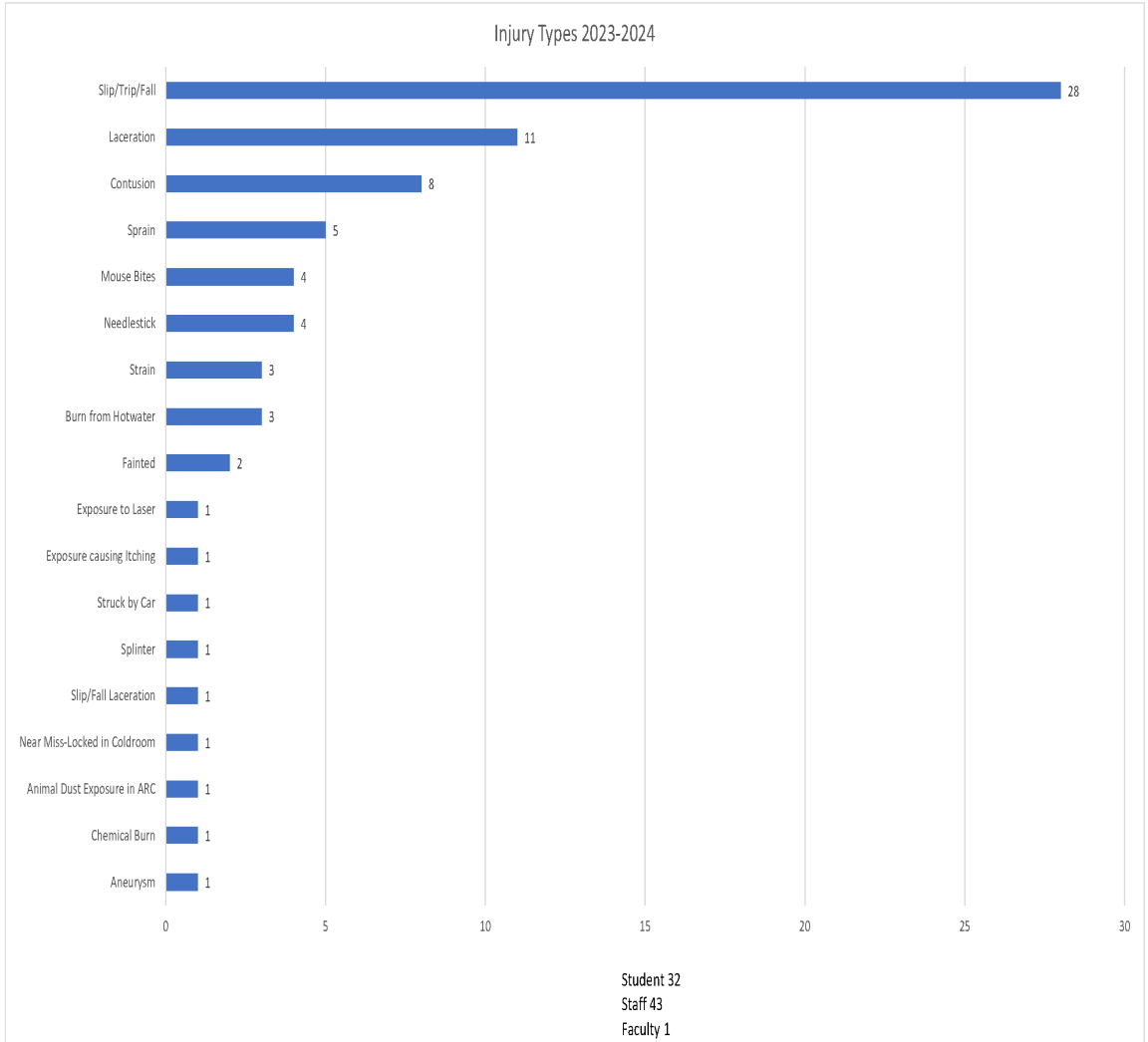
- **Specialist Hire:** Recruited a Facilities Safety Specialist to enhance safety measures across all facility operations. This role focuses on enforcing safety protocols like lockout/tagout procedures, confined space entry, and safe operation of industrial equipment. It includes conducting regular safety audits and implementing best practices.
- **Second Shift Safety Enhancements:** Established rigorous safety protocols for second shift operations, including mandatory start-of-shift safety meetings and 100% training compliance for all personnel. We also developed a comprehensive PPE pre-entry inspection checklist to enhance safety before personnel enter work areas, reaffirming our commitment to a secure working environment during all shifts.

## A Heartfelt Thanks to Our Remarkable Team

As we reflect on the challenging times brought upon by the COVID-19 pandemic, I am deeply grateful for the extraordinary dedication and resilience shown by our staff and administration. Despite the unprecedented situation where we saw 75% of our team members leave, those who stepped in and those who stayed have demonstrated remarkable strength and commitment. Your collective efforts have been pivotal in our recovery and continued success. Thank you all for your hard work and perseverance through these difficult times. You are truly the backbone of our organization.

**DATA**

# INJURIES





<b>EHS METRIC 2023-2024</b>					
<b>COMMITTEE AUDITS</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Radiation Safety Committee Audits	10	10	10	19	49
Laboratory Safety Committee Audits	0	0	0	0	0
IACUC Audits - New Protocols	42	35	26	40	143
IACUC Audits - Continuing reviews					0
IACUC Audits - Addenda	7	6	7	3	23
IBC Audits	22	17	13	25	77
<b>CHP/ECP SUBMITTED</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
CHP	1	154	54	43	252
ECP	40	87	74	23	224
TOTAL	41	241	128	66	476
<b>ORIENTATION</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
New Employees	155	147	142	181	625
New Faculty	200	150	176	171	697
Total	355	297	318	352	1322
<b>ANESTHETIC GASES/VAPORS</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Isoflurane	0	5	0	0	0
<b>TRAINING</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Laboratory Safety/Regulated Chemicals	777	657	921	881	3236
Police and Security Composite (Hazcom, Biohaz/	1	3	12	7	23
Custodial Composite (Hazcom, Biohaz/BBP, Anci	136	0	0	0	136
Plant and Maintenance Composite (Hazcom, Bio	78	1	76	1	156
Health Education Campus Composite (Hazcom, B	631	126	240		997
Hazard Communication	196	159	285	264	904
ARC Safety Training		38			38
Formaldehyde	23	35	38	49	145
Biohazard Training with Bloodborne Pathogens	540	539	779	755	2613
Respirator (Academic and Plant)			187		187
Vehicle Safety	40	50	68	31	189
Fire Safety Only	0	0	0	0	0
Fire Extinguisher/Fire Safety	51	8	7	0	66
Plant (Hearing Conservation, etc.) (Hazcom/Bio/	84	340	268	106	798
BSL 3					0
DOT/IATA Shipping	40	60	10	41	151
Contractor	16	5	11	4	36
Special Classes	3	2	4	2	11
Scissor Lift	0	0	0	0	0
Fork Lift	11	0	0	13	24
TOTAL	2627	2023	2906	2154	9710

<b>ROOM INSPECTIONS (Inspections run from January to December)</b>					
Building Name	July-September	October-December	January-March	April-June	Total
Art Studio					0
A.W. Smith	11	118			129
Bingham	0	87			87
Bioenterprise (UCRC I, University West)					0
Bishop				5	5
Bolwell				5	5
Biomedical Research Bldg.			8	465	473
CCMSB	0	29			
Cleveland Clinic Foundation					0
Clapp	18				18
Coroner's Office (UCRC II)					0
DeGrace (Biology)	14	15			29
Dental HEC	509				509
Dental Research	4			178	182
Farm					0
Glennan		20			20
Kent Hale Smith	0	154			154
Lerner UH					0
Lowman					0
MacDonald				14	14
MetroHealth					0
Millis	73	61			134
Mixon			144		
NASA					0
Nursing HEC					0
Nursing Old	61		7	206	274
Olin		51			51
Pathology	38		36	118	192
RAD Waste Facility					0
RB&C					0
Research Tower				98	98
Robbins (MED East)			145	274	419
Rockefeller	0	107			107
Sears Building	0	6			6
Sears Tower				2	2
Service Bldg.					0
Simulation Center (Mt. Sinai)					0
Strosacker	8				8
VA Hospital				18	18
Walker					0
Wearn				41	41
West Quad (Mt. Sinai) (CCMSB)					0
White	7	74			81
Wickenden	107	27		5	139
Wolstein Research Bldg.	71		50	333	454
Wood				311	311
<b>TOTAL</b>	<b>921</b>	<b>749</b>	<b>390</b>	<b>2073</b>	<b>3960</b>

<b>CRANE INSPECTIONS</b>	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
AW Smith	0	0	0	1	1
Bingham	0	0	0	6	6
BRB	0	0	0	1	1
Cedar Service Center	0	0	0	5	5
Maltz Performing Arts	0	0	0	1	1
Olin	0	0	0	1	1
Rockefeller	0	0	0	8	8
Sears Tower	0	0	0	3	3
White	0	0	0	3	3
Total	0	0	0	29	29
<b>RESPIRATOR USE (From FileMaker)</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Physical	47	90	166	33	336
Train	35	34	120	35	224
Fit Test	27	40	104	31	202
<b>BIOHOOD REPORTS</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Recertify	116	266	70	59	511
Repair (Service and Fail)	41	19	20	11	91
Total	157	285	90	70	255
<b>ASHRAE TEST</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Pass	no instrument	no instrument	no instrument	no instrument	0
Restricted					0
Fail					0
TOTAL	0	0	0	0	0
<b>FUME VELOCITY HOOD TESTING</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Pass	91	128	70	259	548
Restricted	24	12	2	17	55
Failed	27	19	7	14	67
Work Orders	22	82	36	122	262
Retests	19	29	25	22	95
TOTAL	183	270	140	434	1027
<b>CLEARANCES</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Relocation	23	19	45	69	156
Repairs	9	2	2		13
Disposal	61	153	30	71	315
Demolition					0
Equipment Fabrication (OLIN)				1	1
Renovation					0
Relocation to Storage					0
Termination					0
Clean	0	4	2	2	8
Return to Vendor				2	2
Cold Room Repairs	2	2		1	5
Decommission or Sale					0
TOTAL	95	180	79	146	500
<b>ERGONOMICS</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Ergonomics Assessment	2	0	4	2	8
Follow-ups	0	1	3	2	6

<b>CHEMICAL PURCHASE APPROVALS</b>					
Purchase Approvals	162	112	174	96	544
<b>HAZARDS MATERIALS SHIPPING</b>					
DOT/IATA SHIPPING	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Aviation Regulated Liquid (Formalin)					0
Biological Category B					0
Corrosive					0
DOT/IATA	8	14	1	9	32
Dry Ice	12	16	4	14	46
Exempt	12	16	4	9	41
Infectious	8	14	1	9	32
TOTAL	40	60	10	41	151
<b>TYPES OF INJURIES</b>					
INJURY TYPES	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Needlestick	2	5	2	0	9
Splash	1	1	0	1	3
Burn	1	1	1	1	4
Concussion/Contusion	3	10	0	2	15
Laceration	5	9	5	5	24
Strain/Sprain	2	7	6	3	18
Slip/Fall	7	28	13	5	53
Inhalation/Exposure	2	3	0	6	11
Bite/Sting	4	8	1	0	13
TOTAL	27	72	28	23	150
<b>INCIDENTS</b>					
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Alarms					0
Egress					0
Equipment Alarm					0
Explosion/Fire			1		1
Exposure (Chemical/Biohazard)	1	2			3
Flood				1	1
Food in Lab					0
Gas Alarm, Leak					0
Hood Repair					0
IAQ					0
Injury (SHARPS)					0
Leak (Water)					0
Mercury					0
Noise	1			1	3
Odor	3	6	14	4	27
Other (Housekeeping)					0
SHARPS waste					0
Spills/Leaks (Chemical/Biohazard)		2	1	9	12
Suspicious Substance					0
Temperature	1			1	2
Unauthorized Entry				1	1
Unsafe Conditions		3			3
Ventilation			1	2	3
Waste Issue		1			1
TOTAL	6	15	20	16	57

<b>REPORTED FIRES</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Residence Halls	0	2	2	2	6
Non-Residence Halls	2	0	0	5	7
<b>TOTALS</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>13</b>
<b>FIRE SAFETY REPORTS</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Fire Alarms	68	92	61	56	277
Hot Work Permits	150	80	112	107	449
Red Tag	6	0	0	4	10
Fire Drills	56	54	57	53	220
Fire Inspection, Complete Bldg.	152	151	149	150	602
<b>TOTAL</b>	<b>432</b>	<b>377</b>	<b>379</b>	<b>370</b>	<b>1558</b>
<b>ENVIRONMENTAL ISSUES</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Asbestos Surveys	10	14	12	8	44
Asbestos Abatements	19	12	16	9	56
Asbestos Training	0	0	0	3	3
Mold (Microbial) Issues	5	8	4	8	25
Microbial Clean up	2	6	4	3	15
Lead Testing	3	2	2	3	10
Water Testing	10	7	9	0	26
IAQ	3	2	6	2	13
Phase I	1	1	1	0	3
Universal Waste					0
Misc.					0
<b>TOTAL</b>	<b>53</b>	<b>52</b>	<b>54</b>	<b>36</b>	<b>195</b>
<b>OTHER MONITORING</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Formaldehyde Monitoring	0	0	0	0	0
Confined Space (Shutdowns)	22	13	21	10	66
<b>TOTAL</b>	<b>22</b>	<b>13</b>	<b>21</b>	<b>10</b>	<b>66</b>
<b>ENTRANCE CAUTION SIGNS</b>	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>	<b>Total</b>
Signs	235	170	55	49	509

# TRAINING METRIC 2023-2024

## BIOSAFETY

Total Overdue  
 Initial Training-new  
 Annual Retrained-completed  
 Total Expected to Train(Overdue + Initial + Retrained)  
 Percent Non compliance(Total Overdue/Expected to Train)

7/31/2023	8/31/2023	9/30/2023	10/30/2023	11/30/2023	12/30/2023	1/30/2024	2/28/2024	3/31/2024	4/30/2024	5/31/2024	6/30/2024	AVG COMPLIANCE
322	257	297	391	440	442	311	361	399	452	380	452	
1012	1028	982	992	1008	992	1060	1086	1058	1077	1202	1235	
1480	1526	1486	1419	1364	1350	1407	1404	1394	1388	1353	1383	
2814	2811	2765	2802	2812	2784	2778	2851	2851	2917	2935	3070	
11%	9%	11%	14%	16%	16%	11%	13%	14%	15%	13%	15%	87%

## CHEMICAL SAFETY

Total Overdue  
 Initial Training-new  
 Annual Retrained-completed  
 Total Expected to Train(Overdue + Initial + Retrained)  
 Percent Non compliance(Total Overdue/Expected to Train)

7/31/2023	8/31/2023	9/30/2023	10/30/2023	11/30/2023	12/30/2023	1/30/2024	2/28/2024	3/31/2024	4/30/2024	5/31/2024	6/30/2024	
528	349	401	536	493	602	252	292	348	392	458	609	
1147	1174	1168	1184	1179	1175	1249	1230	1232	1269	1386	1347	
1720	1849	1857	1907	1822	1773	1942	1920	1885	1893	1890	1898	
3395	3372	3426	3627	3494	3550	3443	3442	3465	3554	3734	3854	
16%	10%	12%	15%	14%	17%	7%	8%	10%	11%	12%	16%	88%

## HAZARD COMMUNICATION

Total Overdue  
 Initial Training-new  
 Annual Retrained-completed  
 Total Expected to Train(Overdue + Initial + Retrained)  
 Percent Non compliance(Total Overdue/Expected to Train)

7/31/2023	8/31/2023	9/30/2023	11/30/2023	11/30/2023	12/30/2023	1/30/2024	2/28/2024	3/31/2024	4/30/2024	5/31/2024	6/30/2024	
29	12	15	20	5	11	29	6	8	13	15	18	
81	80	80	72	73	70	81	81	84	84	84	76	
213	212	204	213	213	212	213	224	223	221	211	214	
323	304	299	305	291	293	323	311	315	318	310	308	
9%	4%	5%	7%	2%	4%	9%	2%	3%	4%	5%	6%	95%

## RADIATION SAFETY

Total Overdue  
 Initial Training-new  
 Annual Retrained-completed  
 Total Expected to Train(Overdue + Initial + Retrained)  
 Percent Non compliance(Total Overdue/Expected to Train)

7/31/2023	8/31/2023	9/30/2023	10/30/2023	11/30/2023	12/30/2023	1/30/2024	2/28/2024	3/31/2024	4/30/2024	5/31/2024	6/30/2024	
67	37	42	47	52	58	31	34	37	39	26	30	
460	479	465	473	406	480	517	534	516	522	623	593	
460	450	437	409	409	382	345	314	306	312	304	306	
987	966	944	929	867	920	893	882	859	873	953	929	
7%	4%	4%	5%	6%	6%	3%	4%	4%	4%	3%	3%	95%

## Composite compliance

89% 93% 92% 90% 91% 89% 92% 93% 92% 91% 92% 90% **91%**