University of New Hampshire

Environmental Health and Safety

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February 1, 2024

Ms. Catherine Provencher
Chief Administrative Officer and Vice Chancellor for Financial Affairs and Treasurer
University System of New Hampshire
5 Chenell Drive, Suite 301
Concord, NH 03301

RE: USNH Environmental Health and Safety Annual Report

Dear Ms. Provencher,

I am pleased to forward you the USNH Environmental Health and Safety Report for 2023. The Board of Trustees (BOT) Operation and Maintenance of Property Policy (VI.F.1.1.3) calls on the Presidents, in collaboration with the Chancellor, to establish procedures to ensure the prudent management of environmental health and safety in compliance with applicable state and federal laws. Those procedures shall include coordination with a Council on Environmental Health and Safety with representation from each component institution. These procedures shall also include, where appropriate, a mechanism for measuring compliance through appropriate means including periodic environmental audits. The Chancellor shall coordinate presentation to the Audit Committee of an annual report describing the state of the University System's environmental health and safety efforts at each institution, including the findings of any environmental audit conducted during the reporting period.

The Council prepared this Annual Report following the elements and objectives stated in the USY Administrative Board Operation and Maintenance of Property Policy (VI.F.3.3.3). The Annual Report contains a summary of compliance status for each component institution, individual campus environmental health and safety reports and a comparison of institution specific compliance progress spreadsheets for 2021, 2022 and 2023.

Please do not hesitate to contact me if you require any additional information.

Sincerely,

Andy Glode, UNH, and Chair

USNH Council on Environmental Health and Safety

Cc: Julie Kroupa, KSC
Katie Caron, PSU
Lorna Jacobsen, USNH
Ashish Jain, USNH

Executive Summary

University System of New Hampshire

Annual Report 2023

This report details USNH Environmental Health and Safety (EHS) program activities for 2023 and presents operational data that represents EHS management efforts conducted by USNH EHS Offices and other University collaborators.

In 2023, USNH EHS staff continued to innovate, improve, and support environmental health and safety programs across the USNH system. Staffing vacancies continued to present significant challenges, but dedicated staff persevered to deliver excellent EHS services.

Activities are described by the disciplinary groups responsible for the respective EHS functions at each institution and reflect individual management system plans (goals and objectives) of the campuses. All EHS activities that monitor and otherwise influence operations that present potential environmental impacts are described together. Select program accomplishments are listed below and described in more detail elsewhere in the report; they highlight the scope and long-term value of the environmental health and safety programs at each campus. Each of the accomplishments is the culmination of persistent efforts of professional USNH EHS staff and all involve extensive collaborations with other USNH departments and support programs.

Keene State College

The primary activity of the Office is ongoing attention to occupational safety and environmental regulatory compliance programs related to hazardous materials and wastes, laboratory safety and facility issues, including underground storage tanks, air pollution and generator fuel storage tanks. This is done on a project by project basis, as current staffing levels preclude development and implementation of the Environmental Management System for these issues.

The Office also continued to address emerging Environmental Health issues, particularly Covid risk management on campus and other Indoor Air Quality concerns that have arisen. This work generally involves providing surgical masks and air cleaners for classrooms to manage infectious disease transmission concerns. Air monitoring and air cleaners are used to address IAQ concerns in dorms and faculty and staff offices when concerns in those locations arise.

The Office has actively supported academic departments by providing safety training and consulting services for faculty, staff and students upon request. This work includes support for development and testing of emergency management plans for specific campus units; and safety training for staff and students in the Chemistry, Biology, Theatre, Sustainable Product Design & Innovation, and Occupational Safety. In addition, the Office has mentored two upper level safety student interns and is currently supporting a class in the undergraduate Safety and Occupational Health Applied Sciences program.

The fourth activity of the EHS program is active involvement in regional and national Environmental Health and Safety professional networks in to identify and plan for emerging health and safety issues as they affect institutions of higher education. This involvement serves two purposes: providing access to peer experts for technical EHS advice and maintaining professional awareness of Keene State's presence in these groups, who are interested in hiring KSC safety majors upon graduation.

Plymouth State University

During 2023, Plymouth State University's Office of Environmental Health and Safety continued to play an instrumental role in managing the University's environmental health and safety compliance needs for the campus.

The main goal in 2023 for Plymouth State University's Office of Environmental Health and Safety was to focus resources and efforts on the transition from campus pandemic planning and mitigation, back to its core responsibilities. These duties include providing guidance, developing, and promulgating policies and practices which protect the campus, faculty, staff, and students from environmental and workplace hazards. The department did continue to provide guidance for campus pandemic related questions, but the main departmental focus returned to pre-pandemic goals and traditional EHS responsibilities. The EHS Office will continue to utilize industry consultants to assist with the identified regulatory compliance and programmatic gaps in order to obtain, and maintain, Environmental, Health and Safety compliance.

The Office of Environmental Health and Safety remains committed to providing, and continually improving, a healthy and safe living, learning, and working environment. It is the responsibility of the Environmental Health and Safety team to help every individual on campus understand their role and responsibility for safety.

University of New Hampshire

UNH Office of Environmental Health and Safety (OEHS) has provided essential support and leadership during the pandemic response. Notable accomplishments during 2023 include:

Research Fieldwork Safety Program

OEHS initiated a new Research Fieldwork Safety Program in collaboration with UNH Prevention Innovations Research Center. The new program emerged from a grassroots effort by researchers within campus community who desired to improve safety of researchers performing work off-campus and in remote locations. The program goals are to enhance physical safety of researchers and implement innovative strategies to prevent interpersonal violence. In September 2023, the program was recognized by the Association of Public Land-grant Universities (APLU) and was awarded their first Safety and Accountability for Researchers award.

Emergency Eyewash and Shower Audit

OEHS identified that over 60% of emergency equipment, including equipment within recently renovated buildings, was not being maintained correctly because AIM had missing or no information on mixing valves, eyewashes, and showers. EHS lead a project to close the gap of missing information for this emergency equipment by auditing all emergency mixing valves, eyewashes, and safety showers. A database was created for facilities to use while they collaborated with their consultants on tagging this emergency equipment and creating maintenance programs.

Completion of Campus Wide Hazardous Building Materials Survey

In an effort to identify and document asbestos containing materials in campus buildings, OEHS has conducted a survey project with various Industrial Hygiene firms since 2011. The Lawson Group surveyed the final three buildings in January 2023, thus completing the project. In total, 101 buildings were surveyed. This project has allowed OEHS to maintain a comprehensive inventory of suspected asbestos containing materials on campus, provide information to campus partners, and assist in project management in construction planning.

CEPS Accreditation Collaboration

Provided significant support for the successful CEPS accreditation review. EHS hazardous waste staff and laboratory safety staff performed waste pickups and laboratory inspections to ensure a successful accreditation process. EHS director met with the accreditation review team to discuss UNH safety programs and safety within CEPS.

Management of USNH Surplus COVID-19 Sanitizing Products

EHS staff, USNH Purchasing, and UNH Emergency management staff collaborated to Managed the transportation, disposal, and recycling of 337 tons of surplus USNH COVID-19 sanitizing products. The large volume of surplus products required significant staff effort to manage this project. 20 tractor trailer loads of material were removed from the storage location over 4 months. This represented many days of staff time and a large investment of resources to complete.

University System of New Hampshire Central Offices

The University System of New Hampshire's Central Office is committed to providing and maintaining a safe environment for its employees and visitors. USNH focuses on fire and life safety, hazardous material management, accident prevention, industrial hygiene, and safety and health training. The University System of New Hampshire Central Office complies with all required federal, state and local statutes and with USNH Policy.

USNH Component Institution Collaboration Efforts

Component institutions (KSC, PSU, and UNH) collaborate to assist with continuity of operations and ensuring safe and healthful environments. Institutions strategized on projects such as underground and above ground storage tank management, regulated waste stream compliance initiatives, laboratory safety program management, institutional biological safety and security program management, and integrated contingency and spill prevention control and countermeasure plans.

The Council provides system-wide review and comment at various stages of the rulemaking process for new or revised health and safety rules that might affect campus operations.

The Council reviews proposed bills being considered by the general court and provides input to each component institution's administration on the potential impact to campus operations.

Emerging Issues

In 2023, UNH EHS hired and trained new full-time staff and student employees. Additionally, campus-wide challenges with hiring and retention indirectly impact EHS operations as staff turnover and vacancies result in loss of institutional knowledge.

Like many facilities of this size, UNH Durham generates debris related to construction and site activities. While these materials are typically exempt from solid waste rules, OEHS will partner with an environmental consulting firm with experience with the management of solid wastes and assist UNH with developing policies and procedures for management

of waste materials derived from site activities such as construction, grounds management, and storm water management that ensure low risk and lasting impacts to the environment or human health.

OEHS has partnered with state and federal regulators along with the UNH research community to comply with state and federal surface water discharge requirements. Research activities at UNH marine research facilities require support and oversight to ensure compliance with federal and state discharge permitting requirements. Sampling of effluent streams from our coastal laboratories are being scheduled during active research processes and results will be submitted to USEPA and NHDES for review.

The UNH Research Computing Center and UNH Innovations are managing the development of UNHCEMS 3.0. In 2023 OEHS continued to participate in this multi-year project, providing assistance with functionality, knowledgebase expertise on the topic of Health & Safety programs, and beta testing in the new environment. UNH OEHS staff will continue working with members of the RCC and the UNH Innovations team as requested during the development and design process. UNHCEMS provides critical safety and compliance information for UNH institutions; modernizing this system will ensure that the UNH and participating institutions can continue to rely on this critical EHS resource.

USNH Council on Environmental Health and Safety
Annual Report - December 2023
Summary of System-wide Compliance Status

Program Elements	UNH	PSU	KSC	USNH
3.3.3.1.1 Injury and Illness Prevention				
3.3.3.1.2.1 Industrial Hygiene				
* Asbestos Abatement	●	●	●	●
* Lead Abatement	●	●	●	●
* Hearing Conservation	●	●	●	●
* Indoor Air Quality	●	●	●	●
* Personnel Exposure Monitoring for Toxic Materials	●	●	●	●
* Respiratory Protection	●	●	●	●
* Hazard Communication (GHS)	●	●	●	●
* Heat Stress	●	●	●	●
* Illumination	●	●	●	●
3.3.3.1.2.2 General Safety				
* Confined Space	●	●	●	●
* Fall Protection	●	●	●	●
* Ergonomic Evaluation	●	●	●	●
* Lock-Out/Tag -Out	●	●	●	●
* Accident Investigation	●	●	●	●
* Powered Industrial Trucks	●	●	●	●
* Cranes & Hoists	●	●	●	●
* Mobile Elevating Work Platforms	●	●	●	●
* Dig Safe Program	●	●	●	●
* Bloodborne Pathogens	●	●	●	●
* Workplace Safety Inspections	●	●	●	●
3.3.3.1.2.3 Radiation Safety & Laser Safety				
* Radioactive Material License	●	●	●	●
* Radiation Safety Committee	●	●	●	●
* Radioactive Material Inventory	●	●	●	●
* Radiation Safety Manual	●	●	●	●
* User/Awareness Training	●	●	●	●
* Radiation Safety Laboratory Inspections	●	●	●	●
* Dosimetry	●	●	●	●
* Magnet Safety	●	●	●	●
* X-Ray Safety	●	●	●	●
* Radioactive Waste Management	●	●	●	●
* Laser Safety	●	●	●	●

LEGEND	
Program in place	●
Program undergoing review, improvement, or under development	●
Program not in place	●
Not Applicable	●

USNH Council on Environmental Health and Safety
Annual Report - December 2023
Summary of System-wide Compliance Status

Program Elements	UNH	PSU	KSC	USNH
3.3.3.1.2.4 Occupational Health and Medicine				
* Respirator Medical Questionnaire	●	●	●	●
* Hepatitis B Vaccination	●	●	●	●
* Animal Handlers Occupational Health	●	●	●	●
3.3.3.1.2.5 Integrated Contingency Planning				
* Aboveground Storage Tank Program	●	●	●	●
* Underground Storage Tank Program	●	●	●	●
* Integrated Contingency/Spill Prevention Control and Countermeasures Plan	●	●	●	●
3.3.3.1.2.6 Biological Safety				
* Institutional Biosafety Committee	●	●	●	●
* Biosafety Manual	●	●	●	●
* Recombinant DNA Registration	●	●	●	●
* Biosafety Laboratory Surveys	●	●	●	●
* Inventory of Infectious Material	●	●	●	●
* FDA Food Biosecurity Application	●	●	●	●
3.3.3.1.2.7 Diving Safety				
* Diving Safety Control Board	●	●	●	●
* Diving Safety Officer	●	●	●	●
* Diving Safety Manual	●	●	●	●
3.3.3.2 Hazardous Materials & Environmental Management				
3.3.3.2.2.1 Hazardous Waste Management				
* Hazardous Waste Management Program	●	●	●	●
* EPA Identification Number	●	●	●	●
* Faculty/Staff/Student Training	●	●	●	●
* Contingency Plans for Central Accumulation Area	●	●	●	●
* Satellite Accumulation Area Inspections	●	●	●	●
* Universal Waste Management	●	●	●	●
* Biohazardous Waste Management	●	●	●	●
3.3.3.2.2.2 Hazardous Materials Inventory and Reporting				
* Chemical Environmental Mgmt System/Inventory System	●	●	●	●
* DEA Controlled Substances Inventory	●	●	●	●
* DHS Chemicals of Interest Inventory	●	●	●	●
* Community Right To Know/SARA Title III	●	●	●	●
* Safety Data Sheets	●	●	●	●
* Chemical Safety/Hygiene Plan	●	●	●	●
* Chemical Laboratory Inspections	●	●	●	●
* Chemical Safety Committee	●	●	●	●
* Title 5 Air Permit	●	●	●	●
* Stormwater Management Plan	●	●	●	●
* Refrigerant Management Plan	●	●	●	●
* Water Quality Permits	●	●	●	●
* Hazardous Materials Shipping	●	●	●	●

Keene STATE COLLEGE Wisdom to make a difference.

USNH Environmental Health and Safety Annual Report
Keene State College
Calendar Year 2023

In 2023, Ralph Stuart, the Keene State Environmental Health and Safety Manager, continued to serve the campus' needs on a variety of fronts:

1) The primary activity of the Office is ongoing attention to occupational safety and environmental regulatory compliance programs related to hazardous materials and wastes, laboratory safety and facility issues, including underground storage tanks, air pollution and generator fuel storage tanks. This is done on a project by project basis, as current staffing levels preclude development and implementation of the Environmental Management System for these issues.
2) The Office also continued to address emerging Environmental Health issues, particularly Covid risk management on campus and other Indoor Air Quality concerns that have arisen. This work generally involves providing surgical masks and air cleaners for classrooms to manage infectious disease transmission concerns. Air monitoring and air cleaners are used to address IAQ concerns in dorms and faculty and staff offices when concerns in those locations arise.
3) The Office has actively supported academic departments by providing safety training and consulting services for faculty, staff and students upon request. This work includes support for development and testing of emergency management plans for specific campus units; and safety training for staff and students in the Chemistry, Biology, Theatre, Sustainable Product Design & Innovation, and Occupational Safety. In addition, the Office has mentored two upper level safety student interns and is currently supporting a class in the undergraduate Safety and Occupational Health Applied Sciences program.
4) The fourth activity of the EHS program is active involvement in regional and national Environmental Health and Safety professional networks in to identify and plan for emerging health and safety issues as they affect institutions of higher education. This involvement serves two purposes: providing access to peer experts for technical EHS advice and maintaining professional awareness of Keene State's presence in these groups, who are interested in hiring KSC safety majors upon graduation.

Ralph Stuart retired in October of 2023 and sadly passed away in December. A new EHS Coordinator was hired at the end of November and will be taking over the occupational health, safety, and environmental portion of Ralph's position. No plans have been made to hire a new Chemical Hygiene Officer at this time.

USNH Council on Environmental Health and Safety
Annual Report - December 2023
KSC Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.1 Injury and Illness Prevention		
3.3.3.1.2.1 Industrial Hygiene		
* Asbestos Abatement	🟢	🟢
* Lead Abatement	🟢	🟢
* Hearing Conservation	🟢	🟢
* Indoor Air Quality	🟡	🟡
* Personnel Exposure Monitoring for Toxic Materials	🟢	🟢
* Respiratory Protection	🟡	🟡
* Hazard Communication (GHS)	🟡	🟡
* Heat Stress	🟢	🟢
* Illumination	🟢	🟢
3.3.3.1.2.2 General Safety		
* Confined Space	🟢	🟢
* Fall Protection	🟡	🟡
* Ergonomic Evaluation	🟡	🟡
* Lock-Out/Tag -Out	🟢	🟢
* Accident Investigation	🟢	🟢
* Powered Industrial Trucks	🟡	🟡
* Cranes & Hoists	⚫	⚫
* Mobile Elevating Work Platform	🟡	🟡
* Dig Safe Program	🟢	🟢
* Bloodborne Pathogens	🟢	🟢
* Workplace Safety Inspections	🟡	🟡
3.3.3.1.2.3 Radiation Safety & Laser Safety		
* Radioactive Material License	⚫	⚫
* Radiation Safety Committee	⚫	⚫
* Radioactive Material Inventory	⚫	⚫
* Radiation Safety Manual	⚫	⚫
* User/Awareness Training	⚫	⚫
* Radiation Safety Laboratory Inspections	⚫	⚫
* Dosimetry	⚫	⚫
* Magnet Safety	⚫	⚫
* X-Ray Safety	⚫	⚫
* Radioactive Waste Management	⚫	⚫
* Laser Safety	⚫	⚫

LEGEND	
Program in place	🟢
Program undergoing review, improvement, or under development	🟡
Program not in place	🔴
Not Applicable	⚫

USNH Council on Environmental Health and Safety
Annual Report - December 2023
KSC Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.2.4 Occupational Health and Medicine		
* Respirator Medical Questionnaire	🟡	🟡
* Hepatitis B Vaccination	🟢	🟢
* Animal Handlers Occupational Health	⚫	⚫
3.3.3.1.2.5 Integrated Contingency Planning		
* Aboveground Storage Tank Program	🟡	🟢
* Underground Storage Tank Program	🟡	🟢
* Integrated Contingency/Spill Prevention Control and Countermeasures Plan	🟡	🟢
3.3.3.1.2.6 Biological Safety		
* Institutional Biosafety Committee	⚫	⚫
* Biosafety Manual	⚫	⚫
* Recombinant DNA Registration	⚫	⚫
* Biosafety Laboratory Surveys	🟢	🟢
* Inventory of Infectious Material	⚫	⚫
* FDA Food Biosecurity Application	⚫	⚫
3.3.3.1.2.7 Diving Safety		
* Diving Safety Control Board	⚫	⚫
* Diving Safety Officer	⚫	⚫
* Diving Safety Manual	⚫	⚫
3.3.3.2 Hazardous Materials & Environmental Management		
3.3.3.2.2.1 Hazardous Waste Management		
* Hazardous Waste Management Program	🟢	🟢
* EPA Identification Number	🟢	🟢
* Faculty/Staff/Student Training	🟡	🟡
* Contingency Plans for Central Accumulation Area	🟢	🟢
* Satellite Accumulation Area Inspections	🟡	⚫
* Universal Waste Management	🟢	🟢
* Biohazardous Waste Management	🟢	🟢
3.3.3.2.2.2 Hazardous Materials Inventory and Reporting		
* Chemical Environmental Mgmt System/Inventory System	🟡	⚫
* DEA Controlled Substances Inventory	⚫	⚫
* DHS Chemicals of Interest Inventory	⚫	⚫
* Community Right To Know/SARA Title III	🟡	🟡
* Safety Data Sheets	🟢	🟢
* Chemical Safety/Hygiene Plan	🟢	🟢
* Chemical Laboratory Inspections	🟡	🟡
* Chemical Safety Committee	⚫	⚫
* Title 5 Air Permit	🟢	🟢
* Stormwater Management Plan	🟢	🟢
* Refrigerant Management Plan	🟢	🟢
* Water Quality Permits	⚫	⚫
* Hazardous Materials Shipping	🟢	🟢

2023
USNH Environmental Health and Safety Annual Report
For
Plymouth State University

EXECUTIVE SUMMARY

During 2023, Plymouth State University's Office of Environmental Health and Safety continued to play an instrumental role in managing the University's environmental health and safety compliance needs for the campus.

The main goal in 2023 for Plymouth State University's Office of Environmental Health and Safety was to focus resources and efforts on the transition from campus pandemic planning and mitigation, back to its core responsibilities. These duties include providing guidance, developing, and promulgating policies and practices which protect the campus, faculty, staff, and students from environmental and workplace hazards. The department did continue to provide guidance for campus pandemic related questions, but the main departmental focus returned to pre-pandemic goals and traditional EHS responsibilities. The EHS Office will continue to utilize industry consultants to assist with the identified regulatory compliance and programmatic gaps in order to obtain, and maintain, Environmental, Health and Safety compliance.

The Office of Environmental Health and Safety remains committed to providing, and continually improving, a healthy and safe living, learning, and working environment. It is the responsibility of the Environmental Health and Safety team to help every individual on campus understand their role and responsibility for safety. The following report summarizes the elements and activities of this office in 2023.

It is with sincere gratitude that I take this opportunity to thank those members of the Plymouth State University community for their dedication and continued collaboration as we navigated another challenging year. We have much to look forward to with our continued teamwork as a campus and a community.

Katie Caron, Director
Office of Environmental Health & Safety
Plymouth State University

CAMPUS PROGRAM ELEMENTS

Plymouth State University's Office of Environmental Health and Safety is responsible for the development and management of the University's environmental health and safety programs. Areas of responsibility include, but are not limited to:

- Industrial Hygiene
- Workplace Environmental Health & Safety Training
- Radiation Safety
- Fire and Life Safety
- Occupational Health
- Risk Management
- Integrated Contingency Planning
- Biological and Chemical Safety
- Material Management/Hazardous
- Accident Prevention
- Environmental Compliance
- Emergency Response

PSU is committed in its compliance with all required Federal, State and Local statutes and ordinances, as well as with USNH Policy. Plymouth State University utilizes a "Traffic Light Summary" system to assist in identifying the compliance status of a number of Plymouth State University's key EHS program elements. The "Traffic Light Summary" may be found as an attachment at the end of this report.

CAMPUS SAFETY COMMITTEE(s)

The Campus Safety Committee serves as a central coordinating body for several areas of the University concerned with aspects of safety and security. The committee consists of representation from a variety of disciplines and departments across campus including Athletics, Art, Science, University Police, Facility Services, as well as representation from both Professional/Technical (PAT) and Operating (OS) staff. Previously, membership also included a representative from the Human Resources Department. During 2021, the Human Resource's Office was part of a system wide initiative which included the restructuring and re-allocation of duties across the USNH system as well as at PSU. Based on the new organizational structure, Human Resources departmental membership was revisited during 2023 as noted in the 2022 report. It was determined that a Human Resources representative will be a part of the safety committee for the foreseeable future as long as resources allow. Human Resources participation is not a compliance requirement, but in the past has been beneficial regarding employee accident reporting and workers compensation updates. Additionally, during 2023 the safety committee published a winter safety newsletter which discusses a variety of topics, including the importance of following curtailment guidelines, subscribing to the University's text alert system as well as winter safety tips. The effort and emphasis on winter safety communication continues to serve as a proactive campaign to increase knowledge and awareness relative to winter hazards. The desired outcome of this campaign is to reduce the number of slip and fall cases reported during the winter months, all of which can directly affect workers' compensation claims and cost.

The Boyd Safety Committee, created in 2015, takes its name from the Boyd Science Center. This Committee specifically focuses on safe practices in the science disciplines at PSU and seeks to meet semi-annually or on an as needed basis. This committee is not required from a compliance

standpoint, but is a proactive, voluntary committee identified to address the science disciplines as noted. Membership includes representatives from Atmospheric Science, Chemistry and Biology, as well as the Center for The Environment. As stated above often, this committee meets on an "as needed" basis. This committee did not meet during calendar year 2023. The EHS Office's goal is to begin to meet again during 2024 as committee membership needs to be determined and finalized, based on organizational and staffing changes that have occurred over the last few years.

INJURY AND ILLNESS PREVENTION

WORKPLACE SAFETY & TRAINING

Plymouth State's Facilities Department has continued to undergo a significant reduction in available labor over the past few years due to staff turnover, retirements, and the overall impact of reduced resources surrounding the effects of the COVID-19 pandemic. With this staffing reduction came the loss of several seasoned trades employees familiar with many of the EHS programs discussed below. Comprehensive EHS training was prioritized in 2023 and this prioritization will continue into 2024, with a goal of ensuring that all new employees are trained appropriately and gaps due to employee changeover are managed while maximizing program and compliance education.

Specific comments for each EHS program are listed below.

INDUSTRIAL HYGIENE

During calendar year 2023 portions of two residential student (2) apartments located in the White Mountain Student Apartment complex (WMAC) were remediated due to visible mold growth. In addition to, but separate from the two smaller remediations noted above, PSU experienced a period of significant cold weather in February of 2023. The sprinkler system in two sections of the WMAC complex froze during this time. As the weather began warming up, pipes that were affected (pipes that froze) then burst, resulting in significant water damage. As a result of this incident, and the associated water intrusion, sizeable mold mitigation and remediation efforts were completed. Additionally, Memorial Hall (an academic building) also experienced burst pipes resulting in major water infiltration occurring in February 2023. Various windows in the building were left open during a similar period of cold weather. Because the windows were left open, the cold temperatures travelled through the building causing various pipes in the building to freeze. Once those pipes began to thaw, the pipes burst. Sizeable mold prevention, mitigation and remediation efforts were also made in this building as a result.

The Chapel, a circa 1900 building which was purchased by PSU in 2017, also had a mold concern raised during 2023. Air sampling confirmed that mold spores were elevated in the building, specifically the basement area. Currently the building is not in use due to this concern. Ventilation and dehumidification have been increased in space while long-term corrective actions are being evaluated including an external drainage review.

Generally speaking, PSU continues to see a steady increase in requests for mold investigation(s) due to building occupant concerns. Aging infrastructure and challenges with continued water intrusion contribute to the campus-wide concerns.

During 2023 a large capital project began at Hyde Hall to replace all mechanical, electrical, and plumbing (MEP) systems in the building, including air conditioning as well as the addition of sprinklers throughout the building. In addition to those changes, programmatic improvements are being made for the business and sales department. Hyde Hall is an academic building primary

housing the Business program at PSU. Prior to construction taking place, a hazardous building materials survey was conducted in preparation for this project. During the various phases of the project, asbestos abatement was required. Abatement primarily consisted of floor tile and mastic on levels three (3) and four (4), as well as the north stairwell. All abatements follow industry specific safety and environmental regulations. All monitoring reports are on file and available for review in the EHS office.

WORKERS COMPENSATION AND CLAIMS MANAGEMENT

When reporting on case totals, it is important to note the distinction between the types of claims included in this total. There are four criteria/distinctions considered when reporting total number of cases. The first distinction identifies "report only" claims and includes claims which are reported only and do not result in medical treatment or time away from work. The second distinction identifies "medical treatment only." These types of claims result in medical treatment, but the injury does not result in lost time or days away from work. The third distinction identifies claims resulting in lost time away from work that may or may not result in medical treatment.

During calendar year 2023, the data illustrates a significant decrease in overall cases, as well as a substantial decrease in workers' compensation costs. In 2023, total workers' compensation claims reported for PSU totaled six (6) cases and yielded $0 in expenses.* Out of those six (6) cases, there was one (1) medical case reported, while the remaining five (5) were report only cases. As stated, in 2023, the number of workers compensation claims was significantly less than prior years. However, it is important to note that workers' compensation and claims management is a multifaceted metric of performance. Additionally, the full spectrum of a claim, including total costs, can span over the course of multiple years (both calendar and fiscal). Calendar year 2023's winter was also on the milder side which tends to reduce the number of slip and fall incidents that occur during the winter months.

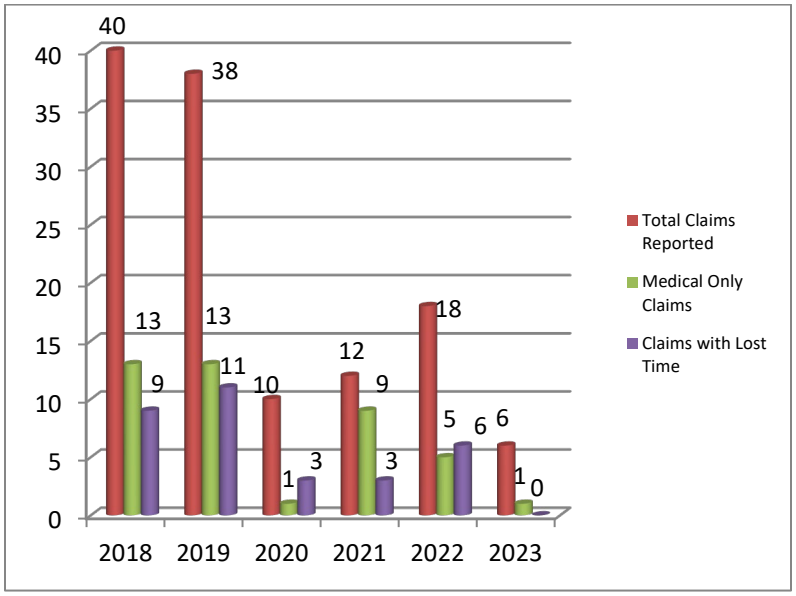
**The medical claim noted for calendar year 2023 may have medical costs that have not yet been billed by the physician's office.*

The following paragraphs discuss historical data and trending over the last five years. The first paragraph discusses the total number of cases as well as medical cases, while the second paragraph below discusses cases that resulted in lost time or days away from work.

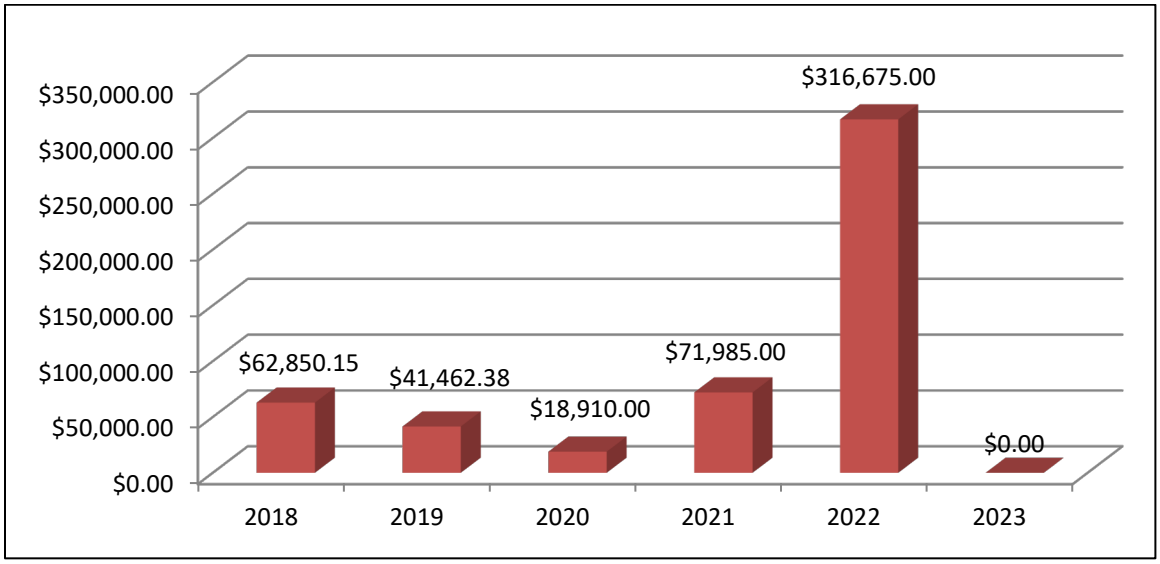
In 2022, there were a total of eighteen (18) cases which yielded expenses totaling $316,675 for the calendar year. Case totals decreased from 2022 to 2023 by a total of twelve (12) cases. Case totals increased during 2022 by six (6) cases from the previous year (2021), this includes cases that are determined report only, please refer to definitions above. Medical cases decreased by four (4) cases during the same timeframe (2022). In 2020, total cases resulting in medical treatment came in at a total of (1) case. 2019 and 2018 were identical with a total of thirteen (13) cases resulting in medical treatment. From a data trending perspective, both calendar years 2020 and 2021 saw a fairly significant decrease in the total number of cases (by about half). This is likely due to the impacts of COVID-19 and the transition to remote work plans as part of the University's pandemic response planning. During 2020, and through the summer of 2021, non-essential employees were encouraged, particularly during the peak of the pandemic, to work remotely while students were not living, learning, or working on campus. In calendar year 2020, PSU strategically ended the fall semester at the end of November in anticipation of COVID-19 peak transmission (2020 peak) in the state of NH. As indicated above, during this time many non-essential employees were working remotely until mid to late January of 2021. This coincides with peak slip and fall season related to winter weather, which likely accounts for a portion of the decrease in workers compensation claims in calendar year 2020.

The total number of claims that resulted in lost time or days away from work decreased during calendar year 2023 resulting in zero (0) cases. 2022 resulted in a total of six (6) cases. The following includes some historical information from the last five years when looking at lost time or days away from work. Cases increased in 2022 with a total of (6) cases. Calendar year 2021 had resulted in (3) cases. Additionally, to provide some historical context, 2020 resulted in (3) cases, 2019 (11) cases, and (9) cases in 2018**.** The charts shown on the following pages illustrate this information, and also provide a comparison of the total number of cases for the past five (5) calendar years as well as total costs incurred each year.

Worker Compensation Claim Count



Worker Compensation Costs by Calendar Year



**The medical claim noted for calendar year 2023 may have medical costs that have not yet been billed by the physician's office.*

During 2023 the one (1) medical case resulted from an employee falling off a low style bench while seated. The employee was scooting their body and fell off of the bench, which resulted in the employee hitting their head.

For calendar year 2022, the majority of PSU claims were slip, trip and fall related. During calendar year 2021, the majority of PSU claims did not indicate a clear trend. Prior to 2021, the majority of workers' compensation costs resided in the slips, trips and falls category.

The injury leading to the highest workers' compensation claim during calendar year 2022 was a slip and fall that occurred inside down a flight of stairs. The accident report stated that the employee lost their footing. This claim resulted in $99,590 in workers' compensation costs in 2022. The second leading injury regarding workers' compensation costs was a slip that occurred outside on a sidewalk during the winter months, resulting in a knee injury which required surgery. This claim resulted in $78,583 during calendar year 2022.

To provide some additional historical trending information, the injury leading to the highest workers' compensation claim during calendar year 2021 resulted in a total cost of $58,286. This case accounted for approximately 80% of the total expense associated with workers' compensation claims for the year. The injury was sustained while moving a couch (furniture) to vacuum underneath it. The employee's shoulder was injured during this task.

Reviewing the workers compensation costs from 2018 to 2022 illustrated in the above-noted chart, 2018, 2021, and 2022 stand out as higher than average years relative to trends with 2022 being the highest (injury and cost referenced above). In calendar year 2018, a slip and fall resulted in $36,471.11 of the total $62,850.15 in workers compensation costs. Lastly, in 2021 a shoulder related injury, as noted above, accounted for $58,286 out of the total $71,985 in workers compensation costs.

Please note that workers' compensation case numbers, as well as costs, are essentially a snapshot in time when reported in this format. It is possible that after a year is closed out, a case reported in a previous year has an additional cost associated that is added after this reporting takes place.

The EHS Office and the Human Resources Office continue to work together with PSU's workers' compensation insurance carrier, to investigate employee accidents and manage claims. MEMIC continued as the workers compensation carrier for USNH during calendar year 2023.

The Office of Environmental Health and Safety, along with the Safety committee, continues to encourage all faculty and staff to report hazards so they can be quickly addressed. As always, the Facility Services Grounds Department and Building Service Workers respond quickly to any reports of hazards in an effort to address concerns and/or potential for injury. Accidents involving visitors and students continue to be reviewed by the EHS Office, and investigated, as necessary. Parties to campus investigations include, as applicable, the Office of Environmental Health and Safety, Human Resources, the affected employee or student, and their respective managers and/or faculty as needed.

The EHS Office continues to conduct ergonomic evaluations as necessary or requested throughout the year. These evaluations typically result in changes to improve workspaces and ultimately alleviate existing medical issues or to help mitigate the potential for future concerns for an individual.

In addition, the EHS Office also serves as a liaison with the coordination of campus facility ADA needs.

During 2023 the were no specific ADA projects completed.

Residential facilities reported, and the EHS Office responded to, occasional reports of bed bugs in residential facilities during 2023. The EHS Office, Facilities Services, and Residential Life continue to work closely in prevention and response efforts to these reports. During calendar year 2023 all reports of bed bug problems were acted upon immediately. Investigations revealed no confirmation of bed bugs during 2023.

Fall Protection

Fall protection continues to be a priority for Plymouth State University's Office of Environmental Health and Safety. In 2018, a written fall protection and roof safety standard operating procedure was completed. The full scope of this project was exceptionally complex, requiring a full survey of facility roofs and the identification of intended fall hazard mitigation strategies. Strategy considerations included the installation of anchor points, railings, as well as various other means to mitigate fall potential. The Office of Environmental Health and Safety will continue to partner with Facility Services to develop a strategic implementation plan identifying cost, need, risk and a proposed implementation schedule. Future campus projects will incorporate this fall protection strategy during the architectural phase of planning. The Draper & Maynard roof replacement project, noted in the Fire Safety section of this report, is a good example of that on-going effort. Plymouth State University leadership approvals relative to project implementation and desired outcome for mitigation will be required/needed.

Confined Space

During calendar year 2023, the EHS Office continued to implement the existing confined space program. This program includes proper issuance of the confined space permit and/or alternative entry certificate as needed. PSU's internal reporting procedures involve regular communication with the Plymouth Fire Department. Permits are reviewed and/or completed by the EHS Office. Training was given to plumbing staff, as well as applicable employees within Physical Plant.

Lockout Tagout

The Control of Hazardous Energy Lockout/Tagout (LOTO) standard, established by OSHA, outlines the proper shut down and isolation procedures required prior to conducting any servicing or maintenance activities. The goal of this program is to securely de-energize a piece of equipment prior to conducting work and to prevent the equipment from being re-started while the maintenance or service activity is in progress. PSU has a written LOTO program which underwent extensive review in 2017. PSU continues to operate via the written program. However, this program should be one of the programs reviewed by the third-party consultant.

Powered Industrial Trucks

Governance in the use of powered industrial trucks regulated by the OSHA Powered Industrial Truck Standard, 29 CFR 1910.178, outlines specific operating procedures, training requirements and inspections. PSU has one powered industrial truck, a forklift, in the Facility Services Department. PSU has a written procedure specific to industrial truck usage and the completion of authorized user training is required prior to operating the forklift.

Cranes and Hoists

PSU does not currently own or utilize any cranes or hoists on campus.

RADIATION SAFETY

Radiation Safety has limited applicability at PSU, due to a relative lack of radioactive material. PSU previously owned three transmission electron microscopes (TEM) that required registration with the State of NH, Department of Health and Human Services (DHHS), Radiological Health Section. One TEM, rendered inoperable, remains on site strictly for display purposes inside the Boyd Science Center. The two remaining TEMs, also rendered inoperable during the summer of 2017, have been removed from campus and properly disposed of. All three TEMs have been removed from the NH DHHS registry.

The PSU Chemistry program acquired an Electron Capture Detector (ECD) during 2017. This device improves the chemical analytical capabilities of the program and is an important teaching tool. This device contains a relatively low activity Nickel 63 (Ni^{63}) source. The ECD requires an annual wipe test to confirm that no leakage from the device is taking place. Previously, PSU has utilized the wipe test procedure and conducted this test in place and has previously consulted with the full-time Radiation Safety Officer at UNH to ensure that proper procedures are being followed. This was not completed during 2023 and will be a priority to complete in 2024.

FIRE PROTECTION

The EHS office worked with Facilities Staff, as well as Residential Life Staff to ensure that fire and life safety equipment and programs were maintained during 2023. Efforts continue, in partnership with the State Fire Marshall's office, in continuing to conduct annual fire and life safety inspections of all campus buildings. Inspections are conducted in tandem with the State Fire Marshall's Office, and the Facilities Department. Local fire departments are also invited to these inspections and attend when time and resources allow. The EHS or Facilities office maintains copies of all inspection reports, assembly permits, and certificates of occupancy.

Fire drills are typically conducted each fall in all Residence Halls and Student Apartments. During calendar year 2023 these fire drills were conducted as planned.

PSU's Facilities Project Manager meets quarterly with the District Chief, or designee, from the State Fire Marshall's Office. These meetings also include representatives from Keene State College as well as the USNH system office. USNH is responsible for capital level projects throughout the University System of NH. In part, the purpose of these regularly scheduled meetings is to review project details and timelines, as well as campus fire protection and life safety issues pertaining to those projects. These meetings are not required from a compliance standpoint but are intended to incorporate proactive discussion and planning surrounding campus projects. Additionally, the SFMO streamlined their permitting inspection process with an online portal. This portal allows PSU to manage our permitting and project activities more effectively.

State Fire Marshall Office (SFMO) Life Safety Inspections

During calendar year 2023 PSU performed life safety inspections of all campus buildings with the SFMO. PSU is currently in the reinspection phase of the buildings to ensure corrective actions identified by the SFMO office have been implemented. During 2023, a devoted inspector from the SFMO was hired. This inspector makes weekly visits to PSU's campus in order to complete these inspections. Increased life safety inspections help to ensure that PSU meets life safety

requirements and increases safety and compliance as a result. However, these inspections have also required that a dedicated resource from the Facilities Department be assigned to oversee and manage the inspections themselves, as well as the corrective actions. This dedicated resource works closely with the EHS Office as needed.

Fire Marshal Approval-Projects

The EHS Office continues to work alongside management teams within the Facility Services Department during campus project planning and execution. This allows for input in areas such as fire, life safety, as well as compliance with the Americans with Disabilities Act (ADA). Notable projects in 2023, included but were not limited to:

Building Name	Project Completed
Hyde Hall	Hyde Hall Renovation - installation of sprinkler systems and improved exit signage.
Sewer Line Replacement	Failed PSU owned sewer line was replaced under the Pemigewasset River.
Draper & Maynard	Roof was replaced at D&M and safety rails were installed around exposed perimeter of roof as well as around the roof hatch.
Draper & Maynard and, Rounds Hall	Fire Alarm Replacements - the replacement of the fire alarm systems at D&M and Rounds Hall resulted in improvement life safety systems.
Center for Young Children and Families (CYCF) Boyd Hall	Fire Alarm Panel Replacements - Fire alarm panels were replaced at the Center for Young Children and Families and Boyd Hall.

Fire/Life Safety Communication

Plymouth State University (PSU) continues fire alarm communication with the use of radio boxes. In the event of any fire alarm activation, these radio boxes will notify Lakes Region Mutual Aid and the Plymouth Fire Department will be dispatched. The system completes a self-test daily.

During January of 2015 Plymouth State University received notification from the Plymouth Fire Department that the antenna tower located on Belknap Mountain collapsed and sustained significant storm damage. This antenna's job included sending a radio signal to Lakes Region Mutual Aid, who then notified the fire department with each fire alarm activation. The antenna was temporarily relocated in an effort to ensure continued service, not only for PSU, but for other Lakes Region Mutual Aid customers.

All Plymouth State University radio boxes transmit their signals to a piece of equipment located at the Plymouth Fire Department. This unit calls Property Protection Management via cell phone who then dispatches Plymouth Fire Department for emergency response. There was no change to this during calendar year 2023.

Plymouth State University continues to monitor and maintain the carbon monoxide detection devices required in some residential areas. At Plymouth State University (PSU), these residential areas are those having propane fired clothes dryers. These devices were installed in 2012 and continue to be connected to each building's fire alarm system. In the event of any carbon monoxide detection, the alarm will sound within the building and the Plymouth Fire Department will be dispatched.

OCCUPATIONAL HEALTH AND MEDICINE

During 2023, Plymouth State University continued to offer the Hepatitis B vaccination program to applicable employees. Plymouth State University continues to utilize the declination form as a way to document employees who decide to opt out of the vaccination program. As referenced in the calendar year 2022 report, Blood Borne Pathogens training was completed during 2023.

The Health and Human Performance Department, the Physical Education Center, Facilites, Health Services Center, and applicable departments within the Hartman Union Building (HUB) and student life operations, participate in this program.

INTEGRATED CONTINGENCY PLANNING

Above Ground Storage Tanks & Spill Control & Countermeasure Plan

The PSU main campus has 30 petroleum containers, including: (1) 2,500 gallon oil tank, six (6) diesel generators, a diesel generator day tank and fire pump, two (2) drum storage areas as well as nineteen small ASTs used for on-premises heating. All of these above ground storage tanks or oil storage areas are regulated and registered with NHDES. Additionally, PSU has a co-generation facility with three larger tanks that currently hold #2 fuel oil. The campus currently maintains two spill control and countermeasure (SPCC) plans. One for the main campus and one for the co-generation plant. All written SPCC plans require re-certification, typically by an engineer, once every five years.

Both the campus, and the Co-Generation Plant's SPCC plans, are currently being reviewed by a 3rd party consultant, with the ability to recertify via an engineering stamp. The goal of this review and recertification is to make continuous improvements to the plan as well as meet the campus's recertification requirements.

Underground Storage Tank Program

PSU has two underground storage tanks located at the PE Center on the Holderness side of campus. UST training is required for class A & B Operators on a biennial basis. This training was completed in CY 2022 and will be required again in CY 2024.

BIOLOGICAL SAFETY

PSU has one Biosafety Level 2 (BSL2) facility in Boyd Science Center, which actively conducts research using bacteria falling under the BSL2 federal classification category (these would include potential human bacterial pathogens).

During 2019, a formal Institutional Biosafety Committee (IBC) was created by PSU's Biological Safety Officer as well as the EHS Office. Creating a formal IBC was a priority for both the EHS Office and the Biological Safety Officer, Dr. Mike Son. Previously, there had been an informal committee in place to manage compliance requirements while a formal committee was being assembled. To become a formal IBC, there is a specific committee membership required to meet the National Institutes of Health (NIH) guidelines. Part of this membership includes two members of the local community. These individuals are to represent the interests of the community and surrounding areas with respect to the environment and public health. Due to the global pandemic and the restrictions placed on the PSU community, including those surrounding campus access, the IBC is undergoing a re-establishment of its members, particularly the community members.

At this time, we only have an informal committee until these roles can be filled, which will attempt to be filled during 2024.

In addition to the community membership component, the purpose of an IBC, as a whole, is to ensure that any lab conducting research with, or planning to conduct research with, biological organisms (i.e. animals, plants, bacteria, fungi, and viruses) or parts thereof (i.e. genetic materials (DNA/RNA) or proteins) is conducting such research in accordance with guidelines set forth by both State and Federal legislation. The PSU IBC is currently overseen by PSU's Biological Safety Officer, as well as the EHS Office. The formal IBC will begin having meeting(s) as needed and required. It is anticipated this committee will meet on a semiannual to annual basis. This requirement will be reassessed during 2024 so a plan is put in place for calendar year 2024. The IBC meeting goals were put on hold in 2021 as resources were shifted to meet the needs of the COVID19 response.

Additionally, since completion of the BSL2 facility, the lab space has been used to conduct both research activities and course related lab work across two different disciplines – Biological Sciences (also serving other departments to satisfy student interests) and Nursing. All research activities have been conducted in accordance with federally funded grants and have led to several milestones. These milestones include federally funded research activities from July 1, 2013 to present. Research by the graduate and undergraduate students has led to four peer-reviewed publications (most recently in 2021) and two book chapters (primarily contributed by the former undergraduate turned graduate students), in addition to numerous public presentations, both in poster and oral form, by the primary faculty member, and his students.

Initial safety, both personal and environmental, are constantly considered and are strictly enforced through Plymouth's current working standard operating procedures, especially with the new students for lab associated classes each semester and undergraduate research. These procedures are typically reviewed annually and modified, if necessary, by the IBC to remain compliant with State and Federal regulations. With the reprioritization of staff, resources, and responsibilities of COVID-19 response this review did not happen during 2022. This will be reassessed with a target date assigned during 2024.

Training for all authorized personnel is conducted on a yearly basis, through the CITI training program for which PSU has registered and is in compliance. This CITI training program is currently monitored/overseen by the Office of Sponsored Programs. In addition, faculty are asked to continue to practice annual training within each lab, as well as ensuring students and personnel are also trained through the safety program established by the Geisel School of Medicine at Dartmouth College, via the NH-INBRE (New Hampshire IDeA (Institutional Development Award) Network for Biomedical Research Excellence).

In addition to the ongoing research activities, approximately 90 students per academic year, are trained in the basics of microbiology and research (up to 50 students in fall under the Biology major, and up to 40 students in spring under the Nursing program). At the start of each semester, students are introduced to the safety regulations and restrictions of working in a BSL2 facility, raising public awareness of both State and Federal regulations, but also of the importance of basic research ongoing at PSU.

DIVING SAFETY

Diving safety was listed as "not applicable" in the Compliance Status "Traffic Light" summary in the 2017 EHS Report as PSU no longer offers archeology classes involving diving. This continues to apply for 2023. The only diving activities associated with PSU are four SCUBA classes that

are offered annually as part of Physical Education offerings, two classes in the spring semester, two classes in the fall semester. These are taught by an adjunct instructor who owns a local dive shop. Classes follow protocol set by the SSI (SCUBA Schools International) a worldwide diver certification agency.

HAZARDOUS MATERIALS/ENVIRONMENTAL MANAGEMENT

Hazardous Waste Management

The EHS Office oversees all hazardous waste activity on campus, including removal, and ensures the timely inspection of all waste accumulation and storage areas.

The micro scale techniques used in the Boyd Science building continue, resulting in very small waste streams for most programs. However, if research grants increase and cluster initiatives develop, it is possible that hazardous waste streams will increase. During 2023, the EHS office continued to work with the Science and Art disciplines to ensure all waste streams are handled properly. Currently both the Plymouth and Holderness campuses are small quantity-extended generators (SQG) of hazardous waste. Each site has its own separate EPA site number.

Additionally, during 2023, PSU completed the Self Certification and Declaration of Compliance Reports for both the Holderness and Plymouth campuses. This report is required once every three years for small quantity generators in the state of NH and is regulated by, and submitted to, NHDES.

Although not required for an SQG, PSU historically conducted weekly inspections of accumulation areas. These inspections were conducted by faculty and staff. Due to the COVID-19 pandemic, staff turnover, and competing priorities, these did not occur in 2020 through 2023. However, the EHS Office would like to return to completing these inspections in the fall semester of 2024. Again, although not required, they are proactive and aid in compliance.

The University continues to utilize Clean Harbors for hazardous materials and waste disposal. Clean Harbors provided guidance in assessing potential hazards and aided in regulatory compliance regarding hazardous waste on campus.

The hazardous waste program is a priority program for review. Review began during calendar year 2023 and will continue into 2024.

HAZARDOUS MATERIALS INVENTORY AND REPORTING

Chemical Environmental Management System (CEMS)

UNH (developer of the CEMS system) continues to host and maintain the software and data for Plymouth State University. A continued partnership and extended service agreement for the CEMS system is in place between institutions allowing PSU to gain improved compliance reporting capabilities. Automatic updates managed by UNH via the service agreement ensures up-to-date software tools. Plymouth State's Office of Environmental Health and Safety department relies heavily on specific campus liaisons (Art and Science disciplines) to continue to maintain their portion of the inventory.

The EHS Office continues to monitor the volume and use of numerous chemicals on the US. Department of Homeland Security's (US DHS) "Chemicals of Interest" list. If on-hand amounts exceed pre-set limits, PSU is required to notify US DHS within a specific timeframe.

Given the complexity of the CEMS system, and the associated compliance requirements involved with storing chemicals, inventory verification is a priority initiative for the Office of Environmental Health and Safety. Phase I of a multi-phase strategic plan involving PSU's CEMS system includes the verification and the development of a detailed inventory of all campus buildings which store and use regulated chemicals. Phase I had been identified as a priority goal for the department. However, due to competing priorities during the COVID-19 pandemic, as well as needing external consultants on site to complete this goal, it was put on hold during the duration of the pandemic. Efforts to undertake Phase I began during calendar year 2023 and will continue into 2024. Meetings with a third-party contractor, as well as obtaining a quote for the work has been completed. Efforts will focus on identifying those clusters which use and store the largest quantities of chemicals. Equal attention will focus on clusters storing regulated chemicals despite quantity. Primary buildings include the Boyd Science Center and its related laboratories, the Draper and Maynard art building, as well as the Silver Center for the Arts theatre building. Although not an exhaustive list of buildings needing review, the priority will be to inventory the buildings with the heaviest usage and storage of regulated chemicals. Future phases of the plan include compliance and governance relative to all campus safety data sheets (SDS). Oversight and management of the CEMS system requires significant resources both physical and financial in nature. The implementation of Phase I as well as future phases of this initiative will require additional leadership discussions and possible approvals to ensure the appropriate resources are in place to complete the goals as outlined.

Air Quality, State Permit to Operate

PSU currently operates air pollutant-emitting equipment under a State Permit to Operate, which covers our three Co-Generation Plant boilers and nine emergency generators located throughout campus. The Permit to Operate was renewed with the NH Department of Environmental Service (NHDES) and was formally issued in March 2019. This permit is valid for a period of five years after the date of issuance, the current permit expires on March 31st, 2024. PSU, working with a 3rd party environmental consultant, completed the required permit renewal documentation with NHDES during calendar year 2023. NHDES responded that the administrative portion of the application for renewal was determined to be complete. Formal issuance of the permit should take place during calendar year 2024. NHDES will first issue a draft permit that is available for public review and comment for a period of 30 days. Once the public review and comment period is over, NHDES will determine if a public meeting is necessary, and if not, the permit will be issued.

Additionally, as part of the air permit requirements, PSU annually quantifies the emissions from each device, and pays a fee to the New Hampshire Department of Environmental Services based on the total amount of emissions from campus.

Emergency Planning & Community Right-to-Know

The Emergency Planning and Community Right to Know Act (EPCRA), is a statute designed to improve community access to information about chemical hazards, and to facilitate the development of chemical emergency response plans by the State of NH and local government. As part of this statue, Plymouth State University is required to complete an annual TIER II Report by March 1st of each calendar year. This report requires a submittal to the State of NH, as well as to state and local emergency planning committees (SERCs & LEPCs) including the town

of Plymouth and Holderness fire departments. This report has been completed for 2023 as required.

For reporting year 2022 (submitted in 2023), the table below summaries the TIER II reporting for the campus over threshold quantities:

Substance	Threshold (pounds)	RY2022 Max Storage (lbs)
Batteries	10,000	11,743
Sulfuric Acid (Batteries)	500	2,349
Diesel	10,000	13,826
#2 Fuel Oil	10,000	513,074
Glycol	10,000	69,709
Hydraulic Oil (Elevators)	10,000	25,046
Compressed Nat. Gas	10,000	48,000
Propane	10,000	68,825
Salt	10,000	198,200
Sand	10,000	302,400
Sulfuric Acid	500	95
Transformer Oil	10,000	50,252
Waste Ammonia [(2)]	500	25,147
Wood Pellets	10,000	88,000
CEMS Inventory	Varies	All Below Reporting Thresholds
Biofuel [(3)]	10,000	0

MECHANISMS FOR COMPLIANCE

PSU utilizes several mechanisms to ensure it meets all state and federal requirements, including the requirements mentioned in this report. Methods include, but are not limited to, publications and membership in professional organizations such as the American Society of Safety Engineers (ASSE), Campus Safety, Health, and Environmental Management Association (CSHEMA), and the Association of Physical Plant Administrators (A.P.P.A.). Formal training and internal procedures are also utilized to ensure compliance. Regular inspections conducted by local fire departments and the State Fire Marshal's Office, combined with regular communication with state and federal agencies over various matters, also keeps the EHS Office up to date on any new or upcoming requirements. Efforts to determine which publication will be best suited to support department efforts this coming year will be reviewed and subscriptions will be renewed accordingly.

Lastly, the Office of Environmental, Health and Safety was left with a staffing vacancy in May of 2020. Due to the ongoing response required with the COVID-19 pandemic, the existing staffing vacancy remains unfilled since May of 2020. This position review is currently on hold and is scheduled to be reviewed at the beginning of fiscal year 2025 (July 2024). If approved, this position will help to provide additional operational support within the EHS Office.

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PSU Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.1 Injury and Illness Prevention		
3.3.3.1.2.1 Industrial Hygiene		
* Asbestos Abatement	🟢	🟢
* Lead Abatement	🟢	🟢
* Hearing Conservation	🟢	🟢
* Indoor Air Quality	🟢	🟢
* Personnel Exposure Monitoring for Toxic Materials	🟢	🟢
* Respiratory Protection	🟢	🟢
* Hazard Communication (GHS)	🟢	🟢
* Heat Stress	🟢	🟢
* Illumination	🟢	🟢
3.3.3.1.2.2 General Safety		
* Confined Space	🟢	🟢
* Fall Protection	🟢	🟢
* Ergonomic Evaluation	🟢	🟢
* Lock-Out/Tag -Out	🟡	🟡
* Accident Investigation	🟢	🟢
* Powered Industrial Trucks	🟢	🟢
* Cranes & Hoists	⚫	⚫
* Mobile Elevating Work Platform	🟢	🟢
* Dig Safe Program	🟢	🟢
* Bloodborne Pathogens	🟡	🟢
* Workplace Safety Inspections	🟢	🟢
3.3.3.1.2.3 Radiation Safety & Laser Safety		
* Radioactive Material License	⚫	⚫
* Radiation Safety Committee	⚫	⚫
* Radioactive Material Inventory	🟢	🟢
* Radiation Safety Manual	⚫	⚫
* User/Awareness Training	⚫	⚫
* Radiation Safety Laboratory Inspections	⚫	⚫
* Dosimetry	⚫	⚫
* Magnet Safety	⚫	⚫
* X-Ray Safety	⚫	⚫
* Radioactive Waste Management	⚫	⚫
* Laser Safety	⚫	⚫

LEGEND	
Program in place	🟢
Program undergoing review, improvement, or under development	🟡
Program not in place	🔴
Not Applicable	⚫

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Program Elements	2022	2023
3.3.3.1.2.4 Occupational Health and Medicine		
* Respirator Medical Questionnaire	🟢	🟢
* Hepatitis B Vaccination	🟢	🟢
* Animal Handlers Occupational Health	⚫	⚫
3.3.3.1.2.5 Integrated Contingency Planning		
* Aboveground Storage Tank Program	🟢	🟢
* Underground Storage Tank Program	🟢	🟢
* Integrated Contingency/Spill Prevention Control and Countermeasures Plan	🟢	🔵
3.3.3.1.2.6 Biological Safety		
* Institutional Biosafety Committee	🟡	🟡
* Biosafety Manual	🟢	🟢
* Recombinant DNA Registration	🟢	🟢
* Biosafety Laboratory Surveys	🟢	🟢
* Inventory of Infectious Material	🟢	🟢
* FDA Food Biosecurity Application	⚫	⚫
3.3.3.1.2.7 Diving Safety		
* Diving Safety Control Board	⚫	⚫
* Diving Safety Officer	⚫	⚫
* Diving Safety Manual	⚫	⚫
3.3.3.2 Hazardous Materials & Environmental Management		
3.3.3.2.2.1 Hazardous Waste Management		
* Hazardous Waste Management Program	🟡	🟡
* EPA Identification Number	🟢	🟢
* Faculty/Staff/Student Training	🟢	🟢
* Contingency Plans for Central Accumulation Area	🟢	🟢
* Satellite Accumulation Area Inspections	⚫	⚫
* Universal Waste Management	🟢	🟢
* Biohazardous Waste Management	🟢	🟢
3.3.3.2.2.2 Hazardous Materials Inventory and Reporting		
* Chemical Environmental Mgmt System/Inventory System	🟡	🟡
* DEA Controlled Substances Inventory	⚫	⚫
* DHS Chemicals of Interest Inventory	🟢	🟢
* Community Right To Know/SARA Title III	🟢	🟢
* Safety Data Sheets	🟡	🟡
* Chemical Safety/Hygiene Plan	🟢	🟢
* Chemical Laboratory Inspections	🟢	🟢
* Chemical Safety Committee	🟢	🟢
* Title 5 Air Permit	⚫	⚫
* Stormwater Management Plan	⚫	⚫
* Refrigerant Management Plan	🟡	🟡
* Water Quality Permits	⚫	⚫
* Hazardous Materials Shipping	⚫	⚫

University of New Hampshire

2023 Annual Report for the Office of Environmental Health & Safety

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Acronyms

AAL	Ambient Air Limits
ABSL-1	Animal Biosafety Level 1
ACGIH	American Conference of Governmental Industrial Hygienists
ACM	Asbestos Containing Material
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
AST	Aboveground Storage Tank
BIC	Biotechnology Innovation Center
BSL-1	Biosafety Level 1
BSL-2	Biosafety Level 2
CAAA	Clean Air Act Amendments
CEPS	College of Engineering and Physical Sciences
CFATS	Chemical Facility Anti-Terrorism Standards
CFR	Code of Federal Regulations
CHWAA	Central Hazardous Waste Accumulation Area
CLIA	Clinical Laboratory Improvement Amendments of 1988
COLSA	College of Life Sciences and Agriculture
CSC	Chemical Safety Committee
CTS	Chemical Transfer Station
DAW	Dry Active Waste
DFD	Durham Fire Department
DHS	Department of Homeland Security
DIS	Decay-in-Store
DNA	Deoxy Ribonucleic Acid
DOT	Department of Transportation
EHSC	Emergency Health and Safety Committee
EH&S	Environmental Health & Safety

Acronyms (Continued)

EPCRA	Emergency Planning and Community Right to Know Act
EPP	Emergency Procedures Program
FSP	Fieldwork Safety Plan
GC	Gas Chromatograph
HR	Human Resources
HVAC	Heating Ventilation and Air Conditioning
IACUC	Institutional Animal Care and Use Committee
IAQ	Indoor Air Quality
IBC	Institutional Biosafety Committee
ICP	Integrated Contingency Plan
IEQ	Indoor Environmental Quality
LED	Light Emitting Diode
LEPC	Local Emergency Planning Committee/Coordinator
LPG	Liquefied Propane Gas
LSC	Liquid Scintillation Counter
LSII	Laboratory Safety Inspection Initiative
LSP	Laser Safety Program
MCBS	Molecular, Cellular, and Biological Science
MOD-rate	Experience Modification Rate
MSP	Magnet Safety Program
NHDES	New Hampshire Department of Environmental Services
NHVDL	New Hampshire Veterinary Diagnostic Laboratory
NMR	Nuclear Magnetic Resonance
ODS	Ozone Depleting Substances
OEHS	Office of Environmental Health and Safety
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls

Acronyms (Continued)

PE	Professional Engineer
PEL	Permissible Exposure Limit
PIs	Principal Investigators
PIT	Powered Industrial Truck
PPE	Personal Protective Equipment
PSA	Public Service Announcement
RFSP	Research Fieldwork Safety Program
RFSC	Research Fieldwork Safety Committee
RMP	Refrigerant Management Program
RNA	Ribonucleic Acid
RPP	Radiation Protection Program
RSO	Radiation Safety Officer
RSC	Radiation Safety Committee
RSUG	Radiation Safety Users Guide
RTAP	Regulated Toxic Air Pollutants
SARA	Superfund Amendments and Reauthorization Act
SCUBA	Self-contained Underwater Breathing Apparatus
SDS	Safety Data Sheets
SERC	State Emergency Planning Coordinator/Committee
SM	Superconducting Magnet
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasure Plan
UIC	University Instrumentation Center
UNH	University of New Hampshire
UNHCEMS®	University of New Hampshire Chemical Environmental Management System
UNH-M	University of New Hampshire at Manchester
UNH PD	University of New Hampshire Police Department
US EPA	United States Environmental Protection Agency

Acronyms (Continued)

USNH	University System of New Hampshire
XPP	X-ray Protection Program

1.0 Major Accomplishments

- **Research Fieldwork Safety Program**

OEHS initiated a new Research Fieldwork Safety Program in collaboration with UNH Prevention Innovations Research Center. The new program emerged from a grassroots effort by researchers within campus community who desired to improve safety of researchers performing work off-campus and in remote locations. The program goals are to enhance physical safety of researchers and implement innovative strategies to prevent interpersonal violence. In September 2023, the program was recognized by the Association of Public Land-grant Universities (APLU) and was awarded their first Safety and Accountability for Researchers award.

- **Emergency Eyewash and Shower Audit**

OEHS identified that over 60% of emergency equipment, including equipment within recently renovated buildings, was not being maintained correctly because AIM had missing or no information on mixing valves, eyewashes, and showers. EHS lead a project to close the gap of missing information for this emergency equipment by auditing all emergency mixing valves, eyewashes, and safety showers. A database was created for facilities to use while they collaborated with their consultants on tagging this emergency equipment and creating maintenance programs.

- **Completion of Campus Wide Hazardous Building Materials Survey**

In an effort to identify and document asbestos containing materials in campus buildings, OEHS has conducted a survey project with various Industrial Hygiene firms since 2011. The Lawson Group surveyed the final three buildings in January 2023, thus completing the project. In total, 101 buildings were surveyed. This project has allowed OEHS to maintain a comprehensive inventory of suspected asbestos containing materials on campus, provide information to campus partners, and assist in project management in construction planning.

- **CEPS Accreditation Collaboration**

Provided significant support for the successful CEPS accreditation review. EHS hazardous waste staff and laboratory safety staff performed waste pickups and laboratory inspections to ensure a successful accreditation process. EHS director met with the accreditation review team to discuss UNH safety programs and safety within CEPS.

- **Management of USNH Surplus COVID-19 Sanitizing Products**

EHS staff, USNH Purchasing, and UNH Emergency management staff collaborated to Managed the transportation, disposal, and recycling of 337 tons of surplus USNH COVID-19 sanitizing products. The large volume of surplus products required significant staff effort to manage this project. 20 tractor trailer loads of material were removed from the storage location over 4 months. This represented many days of staff time and a large investment of resources to complete.

2.0 Mission Statement

The UNH OEHS works to ensure safe and healthful environments for all segments of the campus population, through programs of information and education, review and monitoring, technical consultation, and provision of direct services. OEHS is also responsible for developing programs to ensure compliance with applicable state and federal health, safety and environmental regulations, and campus policies on environmental health and safety. Areas of responsibility include hazardous materials, environmental management, and injury and illness preventionas highlighted in the University System of New Hampshire (USNH) Policy on Environmental Health and Safety. The protection of human health and compliance with applicable regulations are essential conditions for the successful operation of research, conduct of instruction, and provision of public service by the University. OEHS supports the University of New Hampshire'smission by providing leadership, resources, and services to assure a safe and healthful working environment for all members of the University and its surrounding community.

3.0 Vision Statement

OEHS will be a valued partner in the creation and maintenance of a safe and healthy University environment and will achieve excellence through its provision of leadership, oversight, stewardship, and services

4.0 Core Values

OEHS has adopted a Code of Professional Conduct. These core values describe the standards to which we aspire. They guide our actions and help to assure accountability, responsibility and trust as we interact with one another and our campus clients.

Excellence: We dedicate ourselves to the highest standards of quality in our professional work, outreach, public service, mentoring, and advising.

Integrity: We commit ourselves to an open, honest, and trustworthy approach to all endeavors we are working on. We value fairness, straightforward conduct, adherence to the facts, sincerity and transparency. We will make a reasonable effort to provide appropriate professional referrals when unable to provide competent professional assistance.

Responsiveness: We respond to and address the needs and expectations of our students, faculty, staff, partners, and external constituents.

Respect: We foster an environment of mutual respect. We listen to each other, encourage each other and care about each other.

Diversity: We commit to an inclusive community for diverse students, faculty and staff. We reject bigotry, oppression, degradation and harassment, and we challenge injustice toward any member of our community.

Accountability: We are personally and organization ally accountable for all that we do and commit to providing timely and comprehensive evaluation of our programs and efforts.

Figure 1: UNH Wildcat Statue located in front of Whittemore Arena

Innovation: We want to be at the forefront of change and believe that the best way to lead is to learn from our successes and mistakes and continue to grow. We are forward-looking and break new ground in addressing important community and societal needs.

Openness: We encourage the open exchange of information and ideas from all quarters of the university community. We believe that through collaboration and participation, each of us has an important role in determining the direction and well-being of our community.

5.0 Campus Program Elements and Objectives

UNH has adopted an Environmental Health and Safety Mission Statement that works to assure safe and healthful environments for all segments of the campus population, through programs of information and education, review and monitoring, technical consultation, and provision of direct services. OEHS has developed and implemented programs to ensure compliance with applicable state and federal health, safety and environmental regulations, and USNH policies on environmental health and safety.

6.0 Injury and Illness Prevention

6.1 Industrial Hygiene

Industrial hygiene is the art and science of the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the workplace, which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers or citizens of the community. OEHS performs worksite assessments to determine potential health hazards throughout the many locations associated with UNH and manages the campus Respiratory Protection and Hearing Conservation programs. Technical assistance is provided on issues involving chemical hazards that can contribute to exposure risks (including laboratory exposures), exposures as the result of chemical release incidents, noise, heat, and hazardous building materials. Advice is provided on protective measures that include the development and implementation of corrective controls or the use of personal protective equipment (PPE).

OEHS calibrates and maintains an inventory of thirty-one (31) direct reading/sampling instruments (Table 1).

Table 1 Direct Reading Instruments and Sampling Pumps Maintained by OEHS			
Instrument Make (# devices)	**Model**	**Use Type**	**Calibration Frequency**
Jerome (1)	431-X	Mercury vapor analyzer	Annual factory calibration, operation verified weekly
Sensidyne (5)	Gil-Air 3	Personal air sampler	Prior to and following use
Gillian (8)	BDX	Personal air sampler	Prior to and following use
RAE Systems (1)	MiniRae 2000	Photoionization detector	As-necessary, calibration verified weekly
Industrial Scientific (1)	Ventis MX-4	Multi-gas monitor	As-necessary, calibration verified weekly
Aeroqual (2)	Series 200	Ozone monitor	Annual factory calibration, operation verified weekly
Aeroqual (1)	Series 200	Dust Monitor	Annual factory calibration, operation verified weekly
Allegro Industries (2)	Rotary Vane Sampling Pump	High volume air sampling	Prior to and following use
Simpson (1)	884-2	Sound level meter	Annual factory calibration, checked before use
TSI (1)	P-Trak	Ultrafine particle analyzer	Annual factory calibration, operation verified weekly
TSI (2)	Q-Trak with 966 (3 total) and 982 (2 total) probes	Indoor air quality, air velocity	Annual factory calibration, calibration verified weekly
TSI (1)	9565-A	Air velocity	Annual factory calibration
Quest 3M (1)	QT-32	Heat stress monitor	Annual factory calibration
General (1)	MMD900	Moisture meter	As-necessary, checked before use
Casella (3)	dBadge2	Noise dosimeter	Prior to use

These instruments provide information relative to airborne constituents such as lead, asbestos, mold, particulates, and specific airborne chemicals.

OEHS responded to seventy-five (75) requests from the campus community for industrial hygiene technical services in 2023. Inquiries were related to hazardous building materials, potential exposures to hazardous chemicals, heat, and noise

Throughout the 2023 calendar year OEHS continued its efforts to evaluate potential hazardous exposures on campus for a variety of departments. These efforts included:

- Exposure monitoring for formaldehyde for the New Hampshire Veterinary Diagnostic Lab for assessing ventilation and chemical fume hood exhaust.
- Exposure monitoring for metals at the Interoperability Lab at Madbury Commons as part of a new 3D printing process.
- Exposure monitoring for Isoflurane at the Pet Access Wellness Services clinic in Barton Hall and in the surgical suite at the Rudman Hall Animal Resource Office. Isoflurane is used as an anesthetic during animal surgical procedures.
- Exposure monitoring for isopropyl alcohol in Morse Hall during cleaning of 3D printed components.
- Review of engineering processes at Kingsbury Hall for silica/dust exposures. The use of silica sand creates potential risks to faculty, staff, and students during use.
- Reviewed safety data sheets for Pro-Mar 200 paint for housing and provided recommendations for personal protective equipment during use.
- The evaluation of ozone within multiple dorm rooms following ozone treatment for odors.

During the summer months, OEHS monitors the weather to support the UNH Excessive Heat Advisory Program (see UNH On-Line Policy Manual, UNH VD 3.5). A 3M QUESTemp wet-bulb globe thermometer (Figure 2) is placed outside to measure the outdoor heat. When the outdoor temperature exceeds the consensus threshold for heat as established by the American Conference of Governmental Industrial Hygienists, OEHS will issue a heat advisory for the campus. The Heat Advisory contains a prescription of work and rest for those employees, athletes, visitors, and/or guests who may be working outside, and, as necessary, for those working inside. OEHS issued a total of eighteen (18) heat advisories throughout 2023, up six from the twelve (12) advisories that were issues in 2022.

Figure 2: Quest Wet Bulb Globe Thermometer used by OEHS to monitor weather for health advisories

6.1.1 Hazardous Building Materials

Hazardous building materials can be present in several forms throughout UNH campus buildings. Fortunately, the presence of these materials does not constitute a risk for occupants as long as the materials are maintained in good condition and their condition monitored on a regular basis. To assist in maintaining these materials OEHS oversees the Hazardous Building Materials Operations & Maintenance Manual that incorporates programs to manage the three more commonly associated materials: asbestos; lead; and polychlorinated biphenyls (PCB).

OEHS has been formally assessing all campus buildings for the presence of asbestos containing materials (ACM) and lead based paint since 2011. The assessment project was designed to identify suspected materials, and document their locations, quantities, and condition (see Figure 3). All known materials identified during the surveys are entered into UNH AIM and printed on work orders to alert Facilities personnel of the materials presence. AIM is an electronic asset management system utilized by UNH Facilities personnel for work orders and asset maintenance. In addition to the work orders, all employees whose jobs could put them in contact with ACM are required to participate in annual Asbestos Awareness training. This includes Housekeeping, Facilities Operations, Telecommunications, Facilities Project Management, and Housing. In 2023 OEHS conducted surveys for three campus buildings thus completing the survey project initiated in 2011. These buildings included the Whittemore Center, Hamel Recreation, and Smith Hall, bringing a final total of 101 campus buildings that have been formally surveyed for the presence of asbestos and lead with the respective data entered into AIM.

The Asbestos Operations & Maintenance Plan establishes responsibilities for specific operating groups that could encounter ACM as part of routine operations. The plan also outlines inspection procedures and frequencies, emergency procedures to follow in the event of a fiber release, and training requirements. Employees whose daily work routine requires possible contact with ACM, or who have related responsibilities are required to attend 2-hour Asbestos Awareness Training. In 2023, 102 employees participated in the 2-hour Asbestos Awareness training. To ensure identified materials are maintained in good condition, OEHS conducts visual inspections of all areas where known ACM are present. The conditions are documented annually, and each inspection record is maintained at OEHS. Copies of all inspections along with any recommendations are forwarded to the respective operating group responsible for the inspected building/area.

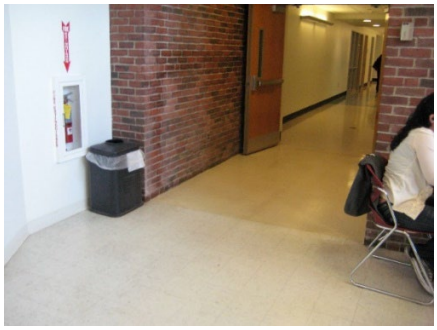


Figure 3: Example of flooring material that is known ACM located in the Iddles wing of Spaulding Hall

More recently, the presence of PCBs in caulking has created unique challenges for building renovation and/or demolition activities. Part of the Hazardous Building Materials Operations and Maintenance Manual includes the Caulking Management Plan. This plan was developed to outline specific procedures to be followed prior to and during construction-related projects where caulking materials may be impacted. In addition, the plan outlines additional procedures to be followed should caulking need to be impacted in an emergency (i.e. repair of a broken window).

OEHS works closely with Facilities Project Management during projects that require the abatement of lead, asbestos, or PCBs. Work involving abatement requires specific training and experience. To ensure only those qualified firms conduct hazardous building materials activities, OEHS, along with USNH Procurement Services, have approved term contractors for abatement, environmental engineering, industrial hygiene, and project oversite.

OEHS manages two PCB Monitoring, Maintenance, and Implementation Plans (MMIP) that were established as part of conditional approvals by the United States Environmental Protection Agency (USEPA) for the removal and replacement of windows associated with Stillings Hall and the Field House. Under each conditional approval, UNH is required to monitor locations where PCB contamination remains on an annual basis. The monitoring under each MMIP involves a visual assessment of each window for substrate damage, and the collection of air and wipe samples to evaluate the effectiveness of applied engineering controls.

6.2 Injury Prevention

The effectiveness of a safety program can be assessed in many ways. However, it is typically reviewed from a financial perspective. UNH losses are analyzed by OEHS to evaluate the frequency (number of incidents) and the severity (cost associated with an injury). OEHS, in conjunction with UNH Human Resources (HR) and our Workers Compensation Insurance Carrier, Maine Employer's Mutual Insurance Company (MEMIC) monitors monthly trends and costs and works to focus efforts on addressing those areas where a higher frequency and/or severity of accidents are occurring.

In 2023 UNH reported 228 incidents with 80 being compensable. A summary of the 2023 losses compared to the previous four years is provided in Table 2 below.

Table 2 Comparison of 2023 versus 2019-2022 Losses				
Year	**Total Reported**	**Net Paid Out**	**Reserves**	**Incurred Costs**
2023	228	$152,000	$418,000	$570,000
2022	242	$172,000	$243,000	$415,000
2021	181	$163,000	$143,000	$306,000
2020	171	$105,000	$65,000	$170,000
2019	293	$301,000	$142,000	$443,000
NOTE: Financial losses are reported as incurred costs that include both the actual costs paid to date (Net) and any potential future costs and reserves (Reserves). Actual losses can fluctuate both up and down based on the claim and settlement.				

As summarized in Table 2, 228 incidents were reported through the online UNH chemical and environmental management system (UNHCEMS®) to the OEHS staff and HR, of which 71 were report-only (meaning no significant injuries or medical treatment was required and therefore *non-compensable*). Of the remaining 157 reported incidents, 88 required basic first aid and 69 required medical treatment. As a result, the compensable injuries yielded approximately 570,000 in losses. While the number of incidents dropped approximately 9% when compared to the 168 in 2022, financial losses increased approximately 37%. Figure 4 summarizes UNH claims and monetary losses for the previous fifteen years.

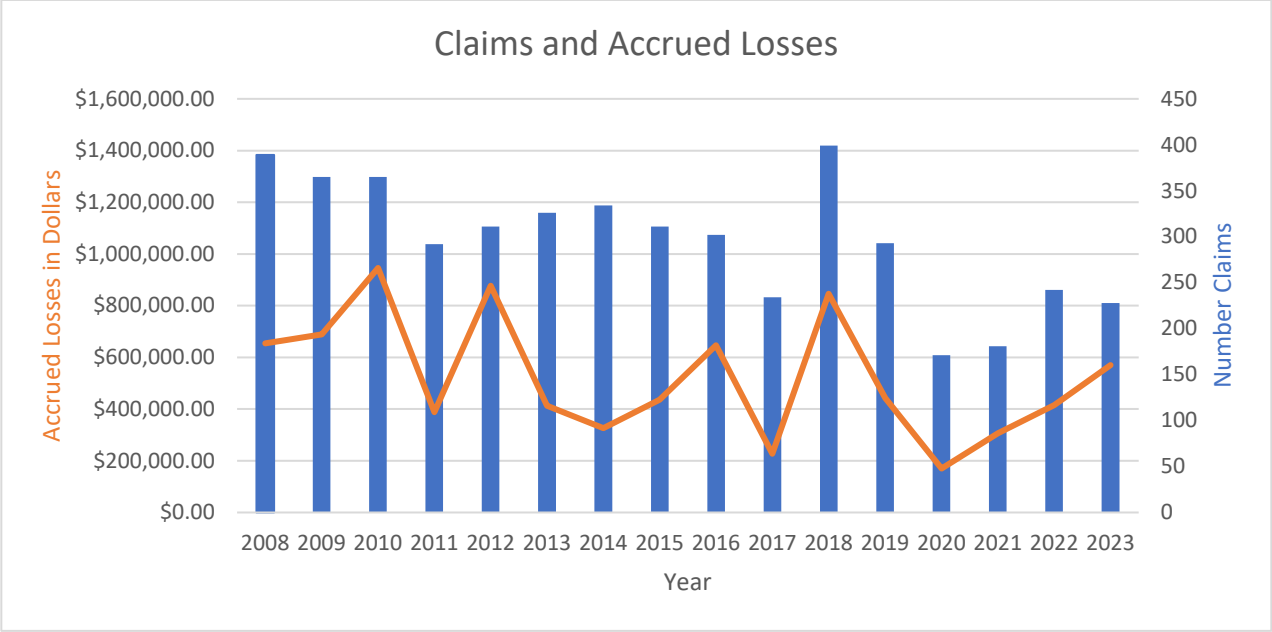


Figure 4: Total workers compensation claims versus losses paid over last 15 years at UNH.

It must be noted that financial losses are reported as incurred costs that include both the actual costs paid to date and any potential future costs and reserves. Actual losses can fluctuate both up and down based on the claim and settlement. The sum of total paid losses for 2023 is approximately $152,000 with an approximate $418,000 being held in reserves.

A second means to evaluate the effectiveness of an existing safety program is reviewing the experience modification rate (MOD-rate). The MOD-rate is a multiplier provided by the National Council on Compensation Insurance (NCCI) that is applied to an employer's workers compensation insurance premium. An employer with a strong safety record will have a MOD-rate of under 1, reducing the actual cost of insurance while those with weak safety records will have a MOD-rate in excess of 1. UNH's MOD-rate in 2023 was reported by NCCI as 0.59 which is lower than 0.70 reported in 2022.

OEHS conducts routine accident investigations to determine the root cause of an accident and develop corrective actions as necessary to prevent a reoccurrence. Many investigations involve a simple telephone call or e-mail requesting information on recommended corrective actions while more frequent or significant accidents involve a more formal site visit, interviews, and assistance from various operating groups. These are followed up with a more formal investigation report. In 2023 OEHS conducted eight (8) formal investigations.

6.3 Indoor Environmental Quality

OEHS investigates indoor environmental quality (IEQ) complaints and concerns filed by campus community members. While most complaints involve thermal comfort, odors, or non-specific symptoms, some are associated with reports of microbiological contamination/growth, specific health-related symptoms related to indoor air, or response to a water intrusion. Indoor Air Quality (IAQ) surveys and due diligence assessments are conducted following routinely practiced industry standards for the investigation of IEQ complaints. OEHS manages the UNH Indoor Air Quality Management Plan and conducts/coordinates evaluations; maintains two direct reading instruments to monitor basic IEQ parameters, two moisture survey meters to evaluate for damp conditions that can be conducive for microbiological growth, and an ultrafine particle analyzer (Figure 5) that can be used to assess for dusts/particles and determine their source.

Figure 5: TSI Q-Track IAQ Monitor, General Moisture Meter, TSI P-Trak Ultrafine Particulate Counter

In 2023, OEHS responded to one hundred forty-five (145) requests for IEQ services, up from one hundred twenty-seven (127) in 2022 (Figure 6). Twelve (12) request required remediation or corrective actions while OEHS requested assistance from IAQ consultants on twelve (12) occasions. Remedial efforts were funded primarily by the affected departments while the external sampling efforts were funded through the Environmental Health & Safety (EH&S) Mitigation Fund established in 2009. During 2023 OEHS saw a slight decrease in the number of mold concerns in dorms. Of the 145 IAQ complaints, 68 were concerns related to mold in UNH dorms, down from 80 reported in 2022. While most investigations of mold reports did not result in identification a hazardous mold conditions, 3 buildings underwent professional cleaning to remove microbial contamination.

Figure 6: Indoor Environmental Quality Requests Received by OEHS from 2012 through 2023

6.4 Occupational Safety

The safety programs at UNH focus efforts on injury prevention through the development and implementation of policies and procedures for the recognition and identification of hazards and the development of corrective actions. OEHS works with campus stakeholders on issues of safety to assist in assuring compliance with applicable regulations, regulatory interpretation, and by providing technical assistance. In 2023, OEHS responded to ninety-nine (99) requests for technical assistance on a broad range of safety topics including: walking and working surfaces; respiratory protection; PPE; cranes and hoists, contractor safety; fire safety and prevention; emergency action planning; confined space entry; fall protection; the control of hazardous energy (lockout/tagout); welding and cutting; fuel handling; electrical safety; powered industrial trucks; and Mobile Elevating Work Platforms (MEWP). This is up when compared to the sixty-three requests in 2022.

OEHS conducted an annual review of each of its thirteen written Occupational Safety Programs in 2022 to address any regulatory changes in the programs and for any operational questions or concerns from impacted campus representatives. The following documents are reviewed and maintained by OEHS Occupational Safety:

- Respiratory Protection Program
- Hearing Conservation Program
- Lockout/Tagout
- Hot Work Permit
- Confined Space Entry
- Powered Industrial Trucks
- ACM Operations and Maintenance Plan
- Fall Protection
- Crane & Hoist Safety Program
- Caulking Management Program
- Hazard Communication Program
- Indoor Air Quality Management Plan
- Mobile Elevating Work Platform *(formerly Aerial Lift Safety Program)*

6.4.1 Confined Space Entry

The UNH Confined Space Entry Program is designed to outline specific requirements and procedures to allow employees to safely enter and conduct work in spaces that have been identified, as permit required confined spaces. These procedures include training, air monitoring, the use of specific equipment to facilitate non-entry rescue, and the use of a permit entry system. OEHS receives, reviews, and maintains all permits for activities involving entry into UNH confined spaces. Figure 7, below, is an example of a confined space at UNH.

In 2023, OEHS received fifty-four (54) confined space entry permits. Permits are reviewed and if necessary, field verified on campus to ensure personnel are entering following current UNH program requirements. In addition, permits are reviewed with each applicable operating group as part of the annual program review and assessment. OEHS and UNH continue to partner with the Durham Fire Department (DFD) to provide confined space entry rescue services.

Figure 7: Equipment identified as a Permit Required Confined Spaces

OEHS has identified and inventoried 639 confined spaces on the UNH Durham campus. Recent demolition/renovation activities, as well as discoveries on campus have increased the number of spaces from 629 in 2022. These spaces include sewer manholes, tanks, pits, and vaults. The UNH Confined Space Inventory is managed in the Confined Space Inventory Database (CSID) accessed from the UNHOEHS web site. As part of the CSID, trained employees and contractors can access information regarding the hazards of identified spaces, complete, and submit entry permits electronically.

During 2023 OEHS reviewed forty-one (41) entry permits as submitted by Royal Electric for Verizon Wireless fiber optic cable upgrades that were conducted in February.

6.4.2 Fall Protection

OSHA requires that any employee exposed to a fall of four (4) feet or more be protected by means of protective measures. Fall hazards exist for any employee required to work on, in, or near roof systems, aerial lifts, scissor lifts, scaffolding, unprotected attic spaces, open pits, floor holes, or elevated walkways and platforms. The UNH Fall Protection Program outlines specific controls to be utilized when fall hazards exist. While the OSHA fall protection standards (29 CFR 1926, Subpart M and 29 CFR 1910, Subpart D) specify three methods to protect employees from falls; safety nets, the use of guardrails, and/or personal fall arrest systems; the UNH program recognizes only two, the use of guardrails and personal fall arrest systems. As part of the program OEHS conducts annual documented inspections of approximately 100 full body harnesses and lanyards located on campus that are used as part of a personal fall arrest system to protect employees against falls from elevated surfaces. Employees exposed to fall hazards receive training on the recognition of fall hazards and the use of protective systems.

Figure 8 shows an example of a fall protective system installed on Kingsbury Hall.

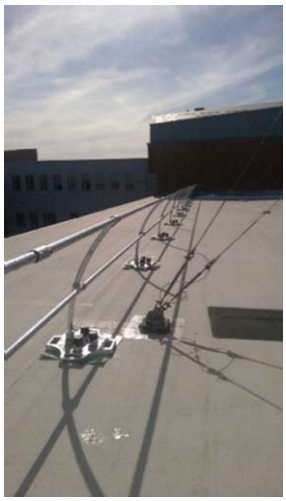


Figure 8: Guardrails installed on the roof of Kingsbury Hall

6.4.3 The Control of Hazardous Energy (Lockout/Tagout)

Lockout/Tagout can be defined as the complete physical isolation of all energy sources associated with a piece of equipment or machinery to ensure an employee conducting servicing or maintenance is not exposed to any hazardous energy sources through the accidental startup of the equipment or machinery or release of stored energy. To achieve this, OSHA has established its Control of Hazardous Energy (Lockout/Tagout Standard) 29 CFR 1910.147. To ensure UNH Compliance with the OSHA standard, the UNH Lockout/Tagout Program outlines the proper shut down and isolation procedures required prior to any servicing or maintenance activities. Employees conducting servicing or maintenance must identify all hazardous energy sources and once identified, they are shut down and physically isolated by the application of a lock on the isolation device (lockout). In addition, each lock is required to have a tag applied to it (tagout) that clearly specifies not to remove as lockout/tagout taking place.

Each applied lock and tag are to be applied by each person conducting servicing or maintenance on each energy source required to be isolated. The UNH Lockout/Tagout program applies to all UNH employees to somedegree. The selected Facilities personnel that would be required to shut off equipment and/or machinery and conduct servicing or maintenance activities are considered authorized employeesand receive specific training on the program elements. All other employees are considered affected as the work an authorized employee conducts could at any time affect anyone.

6.4.4 Powered Industrial Trucks

The UNH Powered Industrial Truck (PIT) Program outlines the practices and procedures to ensure the safe use and operation of PITs at UNH, formalize the required inspections, and outlines specific training requirements for those required to operate them. PITs are a valuable tool for material handling, but their use is not without risk. The OSHA Powered Industrial Truck standard, 29 CFR 1910.178 outlines specific requirements employers must follow to ensure their safe use. UNH currently has an inventory of thirteen (13) PITs that encompass three of the seven truck classes. They include two class II trucks that are used in Facilities Warehousing (Figure 9) and Chase Ocean Engineering, seven class III powered hand jacks that are used in Facilities Warehousing and Dining Services, and four class V trucks that are used in Facilities Warehousing, College of Engineering & Physical Sciences (CEPS), Campus Recreation, and the Coastal Marine Center. The class of PIT is designated based on their use and fuel source. Nine of the PITs at UNH are battery powered, three are powered by liquefied propane gas (LPG), while one is diesel fuel operated. Each class has specific operational characteristics, fueling/charging requirements, and inspection criteria that must be followed. In addition, training is required to include both formal instructions, practical hands-on training, and is complete when each operator successfully passes an operator evaluation for each PIT they would be required to operate. The PIT program standardizes how each truck is managed including training and inspections.

Figure 9: Typical Powered Industrial Truck in use at UNH

6.4.5 Cranes and Hoists

UNH currently has an inventory of thirty (30) operational cranes and hoists that service a variety of programs and departments on campus. They include the largest crane, a 10-ton bridge crane in Kingsbury Hall, to smaller cranes and hoists used by Facilities, the Dairy Farm, Jackson Estuarine Laboratory, the Water Treatment Plant, the Olson Manufacturing Center, and the Coastal Marine Center in New Castle New Hampshire. Formal training requirements, inspection procedures, and responsibilities are outlined in the UNH Craneand Hoist Safety program.

6.4.6 Mobile Elevating Platforms (formerly Aerial/Scissor Lifts)

A Mobile Elevating Work Platform (MEWP) can be defined as any vehicle mounted device, vertical, telescoping or articulating, or both, that is used to position personnel. Scissor lifts are considered a mobile-railed platform that can be raised straight up and down. Regardless of the definition, UNH departments, including Facilities Operations, Athletics, Memorial Union Building, the College of Liberal Arts (COLA), Campus Recreation, and Housing utilize both types of MEWPs for a variety of purposes.

The UNH MEWP Safety Program has several key elements that define responsibilities for those operating groups on campus that utilize them, establishes specific training requirements, and outlines limitations when it comes to non-UNH personnel (such as contractors). One of the significant components of the program is restricting MEWP use to only those trained and qualified UNH operators. A second key component is the establishment of training requirements for operators. Training is divided into two categories, Qualified/Competent Person Training and Restricted Person Training. Those employees that receive operator training and have experience and qualifications to safely utilize MEWPs are considered Qualified/Competent users. This allows them to utilize MEWPs in an unrestricted manner on campus.

Restricted Persons are those that have received operator training however lack any use experience. These employees can utilize MEWPs; however, their use requires oversite by a Qualified/Competent user. By dividing it up into two categories it allows key departments to utilize their own Qualified/Competent users to not onlytrain their own personnel, but to decide when a Restricted Employee can become a Qualified/Competent user.

6.4.7 Workplace Safety Inspections

OEHS conducts routine inspections of campus locations to evaluate for the presence of hazardous conditions and works with campus groups to develop corrective measures. Inspections are conducted to identify hazards and work with management to develop corrective actions and address observed unsafe behavior practices. By continually observing for both unsafe conditions and unsafe behaviors of employees, efforts can be made to remediate hazards and correct unsafe actions through targeted training.

6.4.8 Hearing Conservation

Exposure to elevated noise levels that exceed exposure thresholds can lead to a temporary or permanent threshold shift that can result in noise induced hearing loss. OSHA has established the Occupational Noise Standard, 29 CFR 1910.95, which requires employers to develop and implement a Hearing Conservation Program should it have employees that exceed the established action level of 85 decibels as averaged over the course of an 8-hour day. Since there are areas/jobs at UNH where noise levels can exceed not only the Action Level, but the permissible exposure limit (PEL) of 90 decibels, OEHS manages the campus Hearing Conservation Program. For those impacted employees the program requires they receive training on the components of the program, the OSHA Standard, effects of noise exposure, and the appropriate use of hearing protection. In addition, each employee included in the Hearing Conservation Program is required to participate in baseline and annual audiometric testing. This testing is coordinated through the UNH College of Health and Human Services and is conducted at Hewitt Hall while training is conducted by OEHS. Currently Grounds and Events are participants in the Hearing Conservation Program.

6.4.9 Respiratory Protection

Use of respirators at UNH is governed by a comprehensive OSHA Standard, 29 CFR1910.134 Respiratory Protection which outlines specific requirements that must be met prior to and during use. OEHS manages the campus Respiratory Protection Program to ensure employees are properly protected against potential airborne contaminants as well as UNH‘s compliance with the OSHA standard. A respirator acts as a barrier preventing hazardous airborne contaminants from entering the body through the respiratory system. Contaminants can be physical, chemical,or biological in nature. For a respirator to be effective, it must be used following strict guidelines and procedures to ensure proper selection, use, care, and maintenance.

In addition, all wearers of respiratory protection are required to participate in the UNH Medical Surveillance program and be fit tested annually. The fit test is the procedure where the employee dons the respirator they would be required to use and is challenged with a known agent. Should the employee detect thechallenge agent, the respirator is not approved for use. Only those respirators that achieve an acceptable fit will be worn by employees. OEHS conducts training for a variety of departments that are covered by the respiratory protection program. These include Facilities Operations, Health and Wellness, and the NHVDL.

In 2023, OEHS continued to provide support for various academic programs within the College of Health and Human Services. In 2023 an additional 24 personnel participated in the medical surveillance program with 27 UNH Personnel receiving fit tests for respirator use.

6.4.10 Hazard Communication

The use of hazardous chemicals in the workplace is highly regulated to ensure those working with chemical substances do so in a safe manner. Using hazardous chemicals can place UNH employees and students at risk of exposures that can lead to physical injuries and/or illnesses. One of the programs developed and managed by OEHS is the Hazard Communication Program. This program is mandated by the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and the State of New Hampshire Department of Labor Right to Know Law, Title XXIII, Chapter 277-A, Toxic and Hazardous Substances.

The Hazard Communication Program is designed to provide information to those who use or those who could be potentially exposed to chemical substances. The UNH Hazard Communication Program prescribes procedures for appropriate labeling of chemical containers, maintaining a comprehensive inventory of chemical materials at UNH, and ensuring that corresponding Safety Data Sheets (SDSs) are readily available for inventoried materials. In addition, training is provided on the provisions of the UNH Hazard Communication Program for all employees working with regulated chemicals. Hazard communication training was completed by 564 individuals in 2023. Facilities Division employees receive Hazard Communication training during their OEHS Orientation while others receive it while participating in laboratory safety programs.

UNH manages its chemical inventory and maintains approximately 20,000 SDSs electronically in UNHCEMS®. OEHS conducts an annual chemical inventory and is continually updating its compilation of SDSs to ensure the most up to date and accurate information is available.

6.4.11 Hot Work/Welding Safety

OEHS continues its advisory and administrative role for the Hot Work Permit Program. This program is designed to require those personnel who are required to perform welding, torch cutting, or any other heat and spark producing activities outside a designated hot work area to complete a Hot Work Permit (Figure 10). The program offers two options for hot work:

Option 1 - Those conducting hot work can opt to complete a single shift permit, which authorizes hot work for the single date specified on the permit. Completed by the UNH Facilities Project Manager and/or the Competent Hot Work Supervisor, the permit is forwarded to OEHS prior to the commencement of activities.

Option 2 - The second option available is to request a blanket permit. A blanket permit can be submitted to OEHS and will be reviewed on site with the appropriate UNH and/or contractor personnel. Once reviewed, the blanket permit is signed and approved. The blanket permit can be used for a time not to exceed 14 calendar days.

In 2023, OEHS received forty-six (46) single shift hot work permits and reviewed ten (10) blanket permit requests that were subsequently approved.

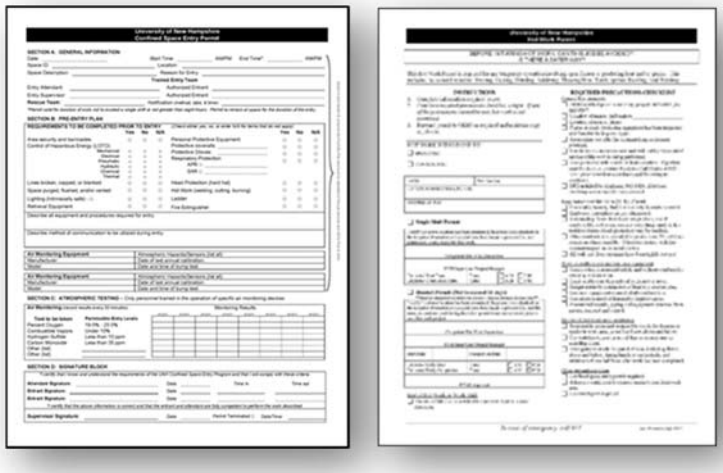


Figure 10: Sample Confined Space and Hot Work Permit Request forms

6.4.12 Construction Safety

OEHS provides technical guidance to UNH project managers on environmental health and safety concerns during construction, demolition, and renovation projects. Services include minor technical inquiries, pre-construction plan review, and pre-demolition hazardous building materials abatement planning. In 2023, staff from all disciplines in OEHS participated in projects associated with Spaulding Hall, Huddleston Hall, Hetzel Hall, New Hampshire Hall, Whittemore Center, University of New Hampshire at Manchester (UNH-M); and exterior locations involving utility upgrades throughout campus.

6.4.13 Occupational Safety Committee

The UNH Occupational Safety Committee assists with setting forth health and safety policies and programs that are adopted and implemented within the affected departments. The Occupational Safety Committee is a joint labor-management committee and is a vehicle through which the campus community can discuss safety concerns, disseminate information about programs and services from OEHS, and develop initiatives for future health and safety efforts. The Occupational Safety Committee incorporates representation from, Research Integrity Services, Housing, Campus Recreation, Athletics, Information Technology, Hospitality Services, Health &Wellness, Human Resources, Campus Stewardship, University Libraries, Memorial Union Building, College of Liberal Arts, College of Life Sciences and Agriculture, and the UNH Police Department (PD). OEHS coordinates and schedules the quarterly meetings, develops meeting agendas, and records and generates meeting minutes.

6.5 Safety Training and Education

Safety training is routinely performed and/or coordinated for those affected faculty, staff, and students on a variety of topics that include Hazard Communication, PPE, Respiratory Protection, Hearing Conservation, Control of Hazardous Energy (Lockout/Tagout), Confined Space Entry, Fall Protection, Asbestos Awareness, Material Handling, and Ergonomics. The responsibility for ensuring that affected staff receive the appropriate training falls under each individual department. OEHS offers training services that are pre-arranged with the affected departments.

Throughout 2023, OEHS continued its efforts to promote training to targeted areas where increased losses were occurring and to ensure compliance with regulatory training requirements. As part of their annual Associates Day, OEHS continued its partnership with Hospitality Services to address hazards and their controls associated with slips, trips, and falls, ergonomics/back/lifting safety, and cuts and burns. OEHS continued to provide training for the UNH Facilities Division and Housing by targeting specific areas that affect their operations that included the two-hour asbestos awareness training and the Facilities OEHS Orientation. OEHS continued its partnership with Housekeeping to provide them with the annual asbestos awareness training. Finally, OEHS provided the New Hampshire Agricultural Experimental Station (NHAES), part of COLSA, with a specific safety orientation catered to their farm operations.

In 2023 5,183 employees and/or students participated in various instructor led and on-line OEHS training. Training was conducted on a variety of OEHS topics that include, but are not limited to Fall Protection, Confined Space Entry, Lockout/Tagout, Respiratory Protection, Bloodborne Pathogens, Radiation Safety, Laboratory Safety, Hazardous Waste, and Oil Spill Response.

6.6 Ergonomics Programs

OEHS promotes its proactive approach to ergonomics by providing guidance to the campus community on ergonomic-related risks to reduce the number of claims involving musculoskeletal disorders associated with poor workstation design and manual material handling.

OEHS conducted sixty-one (61) workstation evaluations in 2023. Each evaluation consists of the following:

- Reviewing the employee's workstation.
- Discussing work processes and symptoms they may be experiencing.
- Adjusting and/or modifying the workstation; and
- Discussing with them proper body positioning.

Each assessment is followed up by a formal report that not only summarizes our observations and modifications but includes additional recommendations to further reduce ergonomic risk factors. Simple modifications may include adjusting the employee's chair height, repositioning the keyboard to an existing adjustable tray, or raising the monitor utilizing materials readily at hand such as books or reams of paper. More complex recommendations may include replacement of existing keyboards and mouse options, re-design of work processes to reduce repetitive motions or replacement of desks and chairs. Table 3 and Figure 11 summarize the ergonomic losses dating back ten years.

UNH experienced one (1) injury associated with computer workstations in 2023 resulting in $0.00 losses. In addition, UNH experienced thirteen (13) injuries associated with manual handling and lifting resulting in approximately $67,920 in losses.

Table 3 Losses (Claims) and Incurred Costs as a result of Ergonomic- Related Injuries at UNH

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Claims	1	3	2	5	9	18	19	20	25	14
Incurred Costs	$384	$15,603	$10,775	$13,994	$42,000	$61,800	$29,573	$135,000	$69,773	$67,920

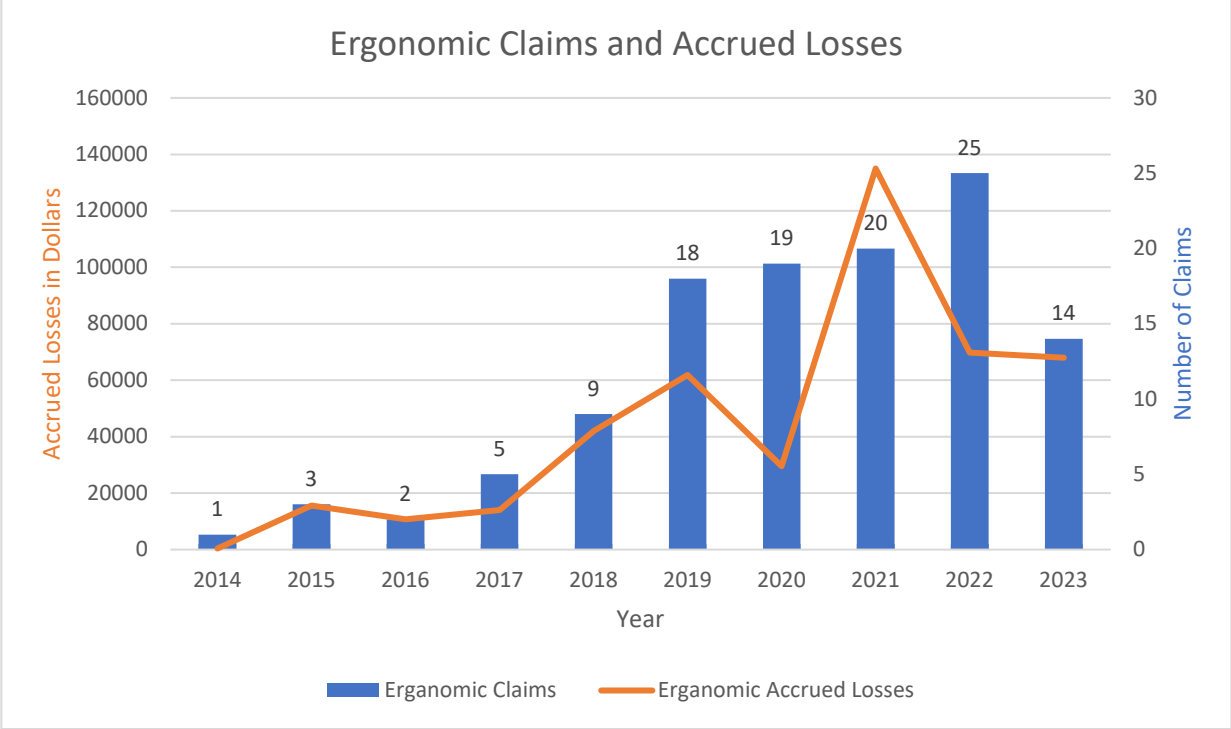


Figure 11: Ergonomic Claims from 2014 through 2023 compared with Accrued monetary losses over time

OEHS continued to field many employee requests for information on sit-to-stand workstations (Figure 12), their purchase, and installation. This ergonomic trend has been shown to increase employee productivity and overall wellness.

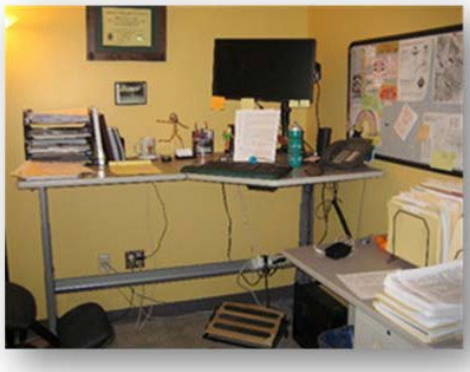


Figure 12: Example of a type of Sit-to-Stand workstation at UNH

6.7 Occupational Health Medicine

OEHS provides guidance to affected departments on medical surveillance requirements for faculty, staff, and students as required by state or federal regulations or as indicated by best management practices. Medical surveillance programs are established for respiratory protection, hearing conservation, asbestos, bloodborne pathogens and animal handlers. The management of the Animal Handlers Medical Surveillance Program and participant follow up is now under the responsibility of Research Integrity Services.

There are currently 837 faculty, staff, students, and visitors participating in medical surveillance programs at UNH. As displayed in Figure 13, the number of staff enrolled in medical surveillance programs has decreased when compared to 2022.

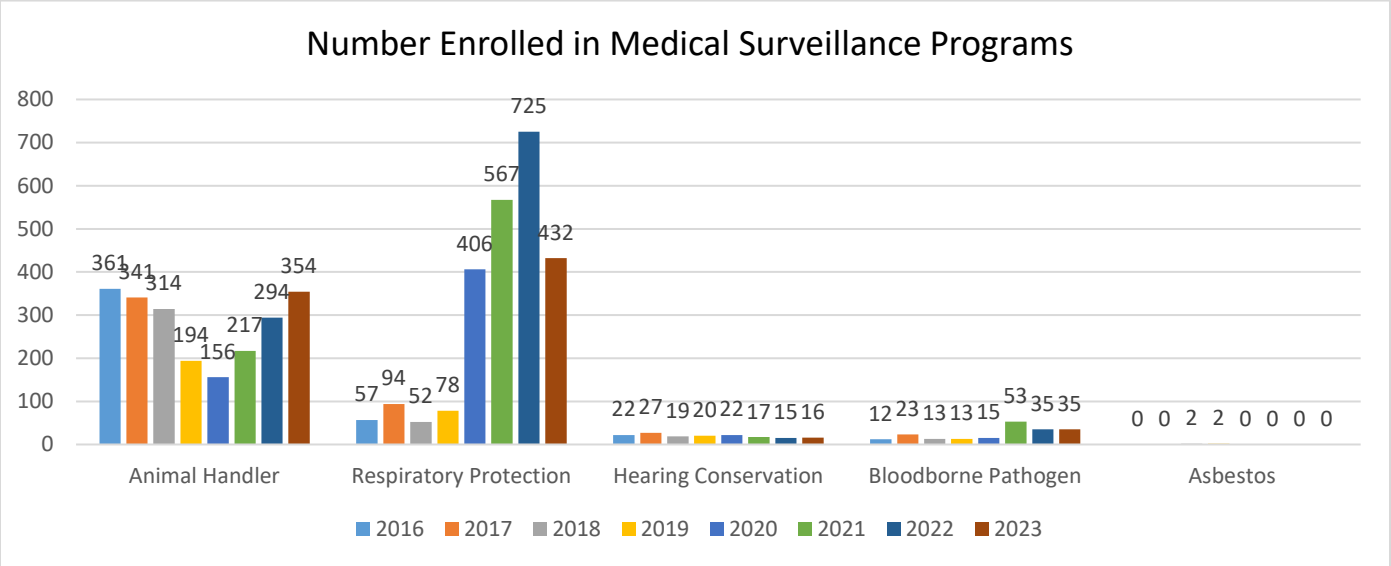


Figure 13: Number enrolled in Medical Surveillance programs from 2016 through 2023

7.0 Diving Safety

Scientific diving is defined by OSHA regulations as diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks. UNH is exempt from the regulations that govern commercial diving activities provided its program is defined as scientific diving and which is under the direction and control of a diving safety program containing at least the following elements:

A diving safety manual that includes at a minimum: Procedures covering all diving operations specific to the program; procedures for emergency care, re-compression and evacuation; the criteria for diver training and certification; and a diving safety officer.

The Diving Control Safety Board (with the majority of its members being active scientific divers) which shall, at a minimum, have the authority to: approve and monitor diving projects; review and revise the diving safety manual; assure compliance with the manual; certify the depths to which a diver has been trained; take disciplinary action for unsafe practices; and assure adherence to the buddy system (a diver is accompanied by and is in continuous contact with another diver in the water) for Self-Contained Underwater Breathing Apparatus (SCUBA) diving. UNH has implemented both of these elements and is in compliance with this exemption.

Due to the timing of data reporting, 2023 diving statistics will be available in the 2024 Annual Report.

8.0 Disaster and Emergency Preparedness

OEHS reviews and updates Disaster and Emergency Response plans required by the United States Environmental Protection Agency (US EPA) for the Campus. OEHS is responsible for maintaining the Integrated Contingency Plan (ICP), Spill Prevention Control and Countermeasure Plans (SPCC) (40 CFR Part 112) and reporting to US EPA for Emergency Planning and Community Right to Know Act (EPCRA) Superfund Amendments and Reauthorization Act Title III (SARA Title III) and National Pollution Discharge Elimination Systems (NPDES) Permitting.

OEHS at UNH manages spill prevention plans for the following facilities:

- UNH Durham – Integrated Contingency Plan with SPCC
- Combined Heat Plant, Durham Campus – SPCC
- Rochester Natural Gas Facility – SPCC
- Durham Water Treatment Plant - SPCC

OEHS at UNH files and manages EPCRA Tier II reporting for the following facilities:

- UNH Durham
- Shoals Marine Laboratory – Appledore Island Maine
- Rochester Natural Gas Facility- Rochester NH
- C&C Dimes/EnviroVantage Warehouse – Northwood NH
- UNH Manchester (annual review – but no need to file to date)

Reporting and plan maintenance for each is described in greater detail in the following sections.

8.1 Integrated Contingency Plan

The US EPA National Response Team passed guidance in 1996 allowing facilities to prepare an emergency response plan (the ‘one plan’) that consolidates the multitude of response plans required by several federal agencies including: the US EPA; OSHA; the Department of Transportation (DOT); the Mineral Management Service; the United States Coast Guard; and the Research and Special Programs Administration.

UNH originally drafted the ICP for the Durham campus in 2009 and continues necessary revisions to the campus ICP as needed or, at a minimum an internal review is conducted on an annual basis. The current plan is dated and stamped by a licensed Professional Engineer (PE) and was last formally updated in June 2019. This plan requires a formal review and update be approved by a licensed PE every 5 years,or earlier if conditions change at the Facility that will materially affect the plan. In June 2019, an Amendment to the ICP was submitted by a PE due to the addition of portable emergency generatorsto the University's storage tanks. A formal update to the plan is in process and should be finalized in the first quarter of 2024.

The intent of the UNH ICP is to establish the necessary procedures and equipment required to prevent and to minimize hazards to public health, safety, or welfare, or to the environment, from fires, explosions, spills or any other unplanned sudden or non-sudden release of hazardous materials to air, soil, surface water, or groundwater. The plan is also designed to prevent spills or releases of hazardous substances that violate applicable water quality standards, cause a sheen upon or discoloration of the surface waters, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

This plan contains three main sections: General Information, Spill/Release Response Procedures, and Spill/Release Prevention.

- Section I – General Information describes UNH's facilities and the administration of this plan,including procedures for the distribution, periodic review, and amendment of the plan.
- Section II –Fire, Explosion, or Spill/Release Emergency Response Procedures identifies and establishes the response and notification procedures to be used in the event of a spill/release, including steps to be taken when a spill/release is discovered; how to report a spill/release; guidance on mitigation and cleanup of a spill/release and disposal of related waste; and a description of spill/release response equipment maintained by UNH.
- Section III - Fire, Explosion, or Spill/Release Prevention identifies and establishes policies and procedures to be implemented with the goal of reducing the potential of a spill/release, including: a detailed description of areas of the facility where oil, petroleum products and hazardous materials and wastes are used, stored and generated; the associated containment systems; a description of the potential environmental receptors that may be affected; procedures for inspecting storage areas or equipment containing oil or hazardous waste; delivery/storage procedures; and a discussion and assessment of the potential spill/release scenarios.

The areas of the University of New Hampshire property that are covered by the ICP include:

- Durham campus;
- UNH Central Hazardous Waste Accumulation Area (CHWAA);
- Satellite Accumulation Areas in laboratories and research facilities throughout campus;
- UNH Facilities including the Heating Plant and shops;
- Transportation Garage;
- All other perimeter farms in Durham with the contiguous property boundaries of UNH Durham campus;
- Residential housing for college students and employees (single-family residences are exempt when oil is used exclusively for on premise heating); commercial properties owned or partially owned by the UNH, and situated contiguous to the main campus in Durham; and
- Other miscellaneous properties owned by the University of New Hampshire, with property boundaries contiguous to the Durham campus.

Due to their limited onsite storage of regulated materials, the Shoals Marine Laboratory (Appledore Island, Maine), Coastal Marine Laboratory (New Castle, New Hampshire), Burley-Demeritt Farm (Lee, New Hampshire), Kingman Farm (Madbury, New Hampshire) and UNH-M do not have formal SPCC or ICP plans. Although law does not require formal plans for fuel or hazardous materials spill responses at these locations, OEHS continues to monitor petroleum and hazardous materials storage and manages them as a best practice in accordance with US EPA and NHDES regulations.

8.2 Spill Prevention Control and Countermeasure (SPCC) Planning

The priority of the US EPA Emergency Management Program is to prevent, prepare for, and respond to oil spills that occur in and around inland waters of the United States. US EPA is the lead federal response agency for oil spills occurring in inland waters, and the United States Coast Guard is the lead response agency for spills in coastal waters and deep-water ports. The SPCC rule provides requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule (40 CFR Part 112) requires facilities that meet specific petroleum storage quantities to prepare, amend, and implement SPCC Plans.

OEHS provides oversight and training relative to spill prevention control and counter measures plans developed for the UNH Durham Campus Central Heating Plant, the Durham-UNH Water Treatment Plant, and the Landfill Gas Processing Facility in Rochester New Hampshire.

The SPCC plan for the Central Heating Plant was last certified in December 2019, however changes to fuel oil tanks on site the plan was updated in 2023. The SPCC plan for the Water Treatment Plant was last certified in June 2020 (due for update 2025). The Landfill Gas Processing Facility in Rochester New Hampshire has an SPCC plan last certified in August 2019 (due for update 2024).

In place of an SPCC for the Durham Campus, an ICP has been developed and maintained for UNH as discussed in section 8.1 above. The completion of the certified ICP meets the US EPA requirement for a spill prevention plan (40 CFR Part 112)

UNH Facilities staff conduct monthly inspections of 50 aboveground oil storage tanks (ASTs) on campus and 8 registered transformers, with an additional 104 transformer inspections occurring annually, as conducted by the UNH Energy office. There are several factors determining which equipment is inspected and at what frequency and is in part defined by the facility ICP, SPCC and or NHDES regulations.

OEHS worked with the Energy Office in 2023 to remove 1,500-gallons of fuel oil through the removal of 3 above ground storage tanks by replacing the systems with either natural gas or propane. EH&S continues to work with other departments at UNH to decrease use and storage of fuel oil and diesel on campus.

Per US EPA SPCC regulations (as detailed in the ICP), OEHS conducted in-person training for 153 UNH staff and contractors have received an awareness level for prevention of oil discharges and reporting and response procedures. Thirteen personnel were identified as oil handling personnel in 2023 and received training for the operation and maintenance of equipment to prevent oil discharges; discharge procedure protocols; applicable pollution control laws, rules and regulations; general facility operations; and the contents of the various facility ICP and SPCC Plans.

OEHS continues to monitor total oil storage at Shoals Marine Laboratory. Since the oil storage reduction of 2015, Shoals Marine Laboratory staff continue to reduce and minimize oil use and storage at the facility. This continued approach of overall reductions in oil storage and use on the Island means a SPCC plan is no longer required for the Shoals Marine Laboratory, as it does not meet the de-minimis threshold planning quantity of 1,320-gallons of above ground petroleum storage, in aggregate containers of greater than 55-gallons each. Current petroleum storage on the Island is now 1,256-gallons. To maintain best practices, OEHS will maintain oil spill response procedures in the Hazardous Materials Emergency Management Plan for Shoals Marine Laboratory and provide annual training to the Shoals Marine Laboratory staff for oil spill prevention and response.

8.2.1 Oil Spill Response

There were no reported releases of oil or hazardous materials for the UNH Campus in 2023. However, at the School of Law in Concord, a reportable release of hydraulic oil to soil and groundwater from a failed elevator jack has resulted in required reporting of the release to the NHDES. Facilities Project management and EH&S are working with Verdantas (hydrogeologic environmental consulting firm) to coordinate clean up measures and correspondence with the New Hampshire Department of environmental Services. The environmental clean-up and replacement of failed elevator components is expected late 2023 with reporting of results to the NHDES in early 2024.

8.3 Emergency Planning and Community Right-to-Know

EPCRA, also known as SARA Title III, is a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by State and local government. EPCRA requires the establishment of State Emergency Response Committees (SERCs) responsible for coordinating certain emergency response activities and for appointing Local Emergency Planning Committees (LEPCs). The emergency planning requirements of EPCRA are designed to develop state and local government emergency response and preparedness capabilities through better coordination and planning, especially within the local community. The submitted reports are known as Tier II reports and are submitted March 1st annually. The Environmental Compliance Manager within OEHS attends briefings annually held in the States of New Hampshire and Maine along with the USEPA Region 1 representatives to learn about changes and guidelines for reporting.

UNH maintains threshold planning quantities of extremely hazardous substances and chemicals in quantities greater than 10,000 pounds at the UNH Durham campus, the Shoal's Marine Laboratory on Appledore Island, Maine, and the Landfill Gas Processing Facility in Rochester New Hampshire. OEHS completed and submitted Tier II Reports for facilities to regulatory agencies in March 2023 (RY2022).

At the Shoal's Marine Laboratory, for reporting year 2022, OEHS identified sulfuric acid and lead found in batteries utilized in equipment and the solar panel array that required Tier II reporting under this EPCRA program. There were no changes in reporting or quantities from 2021 to 2022 for Shoal's Marine Laboratory. Changes in the battery back up systems over 2023 will likely change the reporting for SML in March 2024.

For reporting year 2022 (submitted in March 2023), OEHS notified the SERC and the LEPC that UNH stores 18 materials, chemicals, and or mixtures that fall above the threshold planning quantity that require reporting to local and state government. Table 10 below summarizes the Tier II Reporting for the UNH Durham campus from 2018 through 2022. OEHS anticipates few changes to reportable quantities for RY2023.

Table 10 EPCRA Tier II Chemicals reported for UNH Durham Campus for Reporting Years 2018 through 2022

Chemical	RY2018	RY2019	RY2020	RY2021	RY2022
Ammonia	3,398	2,034	2,044	2,039	1889
Chloroform	1,038	1,047	973	994	994
Diesel	25,915	29,596	35,013	35,013	35,013
Formaldehyde	751	436	350**	326	169
FR3 (transformer fluid)	108,416	113,125	138,600	138,600	128,576
Fuel Oil #2	590,805	521,944	521,944	521,944	498,934
Hydraulic Oil (elevators)	88,006	88,006	88,006	88,006	86,566
Mineral Oil (transformers)	104,710	88,016	64,284	64,284	87,346
Motor Oil	NR	NR	NR	NR	13,116
PCH-180 (Inorganic Aluminum Salt)	52,542	52,542	52,542	60,528	60,528
Propane	112,971	112,856	104,011	104,030	112,448
R-TEMP (transformer fluid)	44,664	38,440	42,741	42,741	44,598
Sand	100,000	100,000	100,000	100,000	100,000
Salt	607,350	607,350	607,350	607,350	607,350
Sodium Hydroxide	61,093	166,051	130,683	104,788	36,504
Sodium Hypochlorite	30,808	25,739	25,195	11,133	10,068
Sulfuric Acid	2,853	2,347	2,393	2,293	2,132
*Sulfuric Acid (Batteries)**	820	820	820	820	820

NR Not Reported, did not meet threshold planning criteria
All quantities reported in pounds

Additionally, the UNH EH&SO completed and submitted a Tier II report to the Town of Northwood New Hampshire. The filing of a Tier II report for this location is a result of isopropyl alcohol and ethanol in hand sanitizer above the reporting thresholds. UNH Emergency Management was storing roughly 325,000 pounds of hand sanitizer as part of the COVID pandemic response efforts. UNH OEHS assisted Emergency Management and the University System Office with proper shipment and disposal of overstock sanitizer in Summer 2023. To account for the partial time sanitizer was stored on site during 2023, UNH will prepare one final Tier II for the Norwood facility which will notify state and local emergency planning coordinators the hazardous materials are no longer at the site.

8.4 Ammonia

In 2022 UNH began the construction of a new and upgraded ice rink. Although the system still utilizes ammonia for refrigeration, the amount of ammonia required in the system decreased. In addition, upgrades to the mechanical and alarm systems have enhanced the overall safety of the ammonia refrigeration system.

In 2019 the USEPA began outreach about their Compliance Assurance and Enforcement Focus to improve safety at facilities with small ammonia refrigeration systems (between 1,000 and 10,000-pounds). The University system stores quantities of ammonia within this threshold. The USEPA campaign was initiated to ensure facilities with ammonia, which is listed as an Extremely Hazardous Substance, are complying with the General Duty Clause and Section 112® of the Clean Air Act, to reduce the risk of chemical accidents. Under the General Duty Clause, owners and operators of stationary sources producing, processing, handling, or storing extremely hazardous substance have a general duty to:

1. Identify Hazards that may result for accidental releases of such substances using appropriate hazard assessment techniques (commonly referred to as a Process Hazard Analysis);
2. Design and maintain a safe facility, taking such steps as are necessary to prevent releases (Mechanical Integrity and Inspection Program; and
3. Minimize the consequences of accidental releases that do occur (Emergency Management and Response).

To ensure UNH met these requirements, the EH&S office has worked closely with Facilities Project Management, Asset Management, Facilities Management, Emergency Management and others to be sure we are meeting the requirements of the General Duty Clause.

The new ammonia system went online in August 2022. A Process Hazard Analysis has been conducted for the ammonia refrigeration plant along with a Mechanical Integrity Plan. EH&S will continue to work with the facilities and project management to assist with safe operation and regulatory guidelines interpretation.

9.0 Environmental Monitoring

9.1 Air Quality

9.1.1 *Title V Air Permit*

UNH applied for a renewal of the Title V Air Permit (TV-OP-010) for the campus Central Heating Plantand Co-generation Facility on August 25, 2022. The renewal application also requests that NHDES incorporate the requirements of Temporary Permit and Prevention of Significant Deterioration and Non- Attainment New Source Review permit (TP-B-0531) for the construction and operation of combustion devices associated with the Landfill Gas to Energy facility at Rochester and on the Durham campus, as well as the requirements of Temporary Permit (TP-0161) for the replacementof one of the Central Heating Plant boilers. NHDES is currently drafting the renewed Title V Permit, which is expected to be issued at some point during 2024. Because UNH submitted the renewal application in a timely manner, it continues to operate under the existing Title V permit under the application shield provisions.

The NHDES issued Temporary Permit (TP-0215) for the construction of a biomass boiler system at The Thompson School of Applied Science on March 20, 2018. UNH submitted a request to NHDES on July 29, 2019 for a minor modification to its Title V Operating Permit TV-0010 to include all of the permit terms and conditions related to the Thompson School District Biomass Boiler System (EU26) from Temporary Permit TP-0215. On January 7, 2020, NHDES issued a minor modification to UNH's Title V Operating Permit TV-0010 to include all permit terms and conditions from UNH's Temporary Permit TP-0215.

UNH's current Title V and Temporary permits contain specific conditions that the campus must adhere to, including an annual compliance certification report. UNH filed all periodic reports on a timely basis in 2023.

9.1.2 Air Toxics

An Air Toxics Control Program for the State of New Hampshire was established in 1987 to help protect the health of New Hampshire residents and preserve the environment. This program, together with the US EPA program to control hazardous air pollutant emissions as set forth in Section 112 of the 1990 Clean Air Act Amendments (CAAAs), is designed to reduce the emissions and ambient air impacts of a number of toxic air pollutants likely to be emitted by businesses and industry in the state. Title III of the CAAAs identified 188 hazardous air pollutants (HAPs) that are likely to have the greatest impact on ambient air quality and human health on a national level. The list of HAPs regulated by EPA is published in Section 112 of the CAAAs.

The NHDES Air Toxics Control Program regulates HAP emissions, as well as over 800 regulated toxic air pollutants (RTAPs), which have a health-based risk to humans. The aim of the regulatory program is to protect public health and the environment by establishing ambient air limits (AALs) and requiring businesses in the state to reduce their emissions of any of the RTAPs, such that they do not impact the downwind air quality at levels that may exceed the established AALs. The list of RTAPs, published in NH Code of Administrative Rules Chapter Env-A 1400 Regulated Toxic Air Pollutants includes:

(1) those compounds listed as HAPs by US EPA; (2) those chemical substances for which a threshold limit value has been established by the American Conference of Governmental Industrial Hygienists (ACGIH); and (3) those compounds not otherwise includedthat are regulated by OSHA. The AALs are reviewed and updated every year as new scientific data on toxicity becomes available.

In May 2022, OEHS updated the University of New Hampshire's air toxics compliance demonstration required under New Hampshire Air Regulation, Chapter Env-A 1400 that was initially prepared in December 2000 and subsequently updated in September 2003, March 2007, February 2009, October 2010, March 2011, April 2013, July 2013, January 2015, February 2016, March 2017, June 2017, March 2018, July 2019, and July 2020.

UNH's compliance demonstration is for the Durham campus, Manchester campus, Law School (Concord) and the Landfill Gas Processing Facility located in Rochester. As part of this updated compliance demonstration, the following activities were carried out:

- As of 2020, UNH Printing Services no longer used any chemicals in their printing operations. OEHS confirmed that no RTAP containing materials were used in UNH's printing services in 2021.
- Reviewed and updated emissions from the combustion of Landfill Gas (LFG) at the Landfill Gas to Energy (LGTE) facility.
- Reviewed and updated compliance demonstration for cooling tower RTAP emissions.
- Reviewed SDS and determined compliance for degreasing materials used at the Heating Plant and vehicle maintenance shop.
- Reviewed activities at the Paul Creative Arts Center (PCAC) and Morse Hall 145 paint booths.
- Reviewed existing activities identified in UNH's previous compliance demonstration to identify any significant changes to operations and/or equipment.

Upon completion of the review, the results indicate that UNH is in compliance with the ambient air limits listed in Chapter 1400 based on uncontrolled emissions and that a permit for controlling RTAP emissions is not required.

UNH will be updating its air toxics compliance demonstration following issuance of updates to NHDES's regulation, Chapter Env-A 1400. UNH has 90 days from publication of Env-A 1400 updates to review and if necessary, update its compliance demonstration.

9.1.3 Refrigerant Management Program

The purpose of UNH's Refrigerant Management Program (RMP) is to:

- Maximize the recycling of ozone depleting substances (ODS) and to minimize the release of ODS to the ambient air from the servicing, repairing, maintaining, and disposing of refrigeration appliances on its Durham, Manchester, and Concord campuses;
- Utilize certified technicians for the servicing, repairing, maintaining, and disposing of refrigeration appliances on its Durham, Manchester, and Concord campuses;
- Maintain proper records of refrigerant consumption, technician training, and recycling and recovery equipment certification;
- Ensure proper repairs are made for units with significant leak rates; and

- Ensure UNH is in full compliance with Section 608 of the Clean Air Act (CAA) and the requirements of 40 CFR Part 82, Subpart F.

To achieve the stated objectives above, UNH requires all employees and contractors whose job duties require the handling, ordering, repairing, servicing, maintaining, or disposing of refrigerant or refrigeration appliances to review and comply with this written program.

An RMP stakeholder meeting was held in March 2022, and the subcontractor agreement form was revised to ensure compliance more clearly with all applicable refrigerant handling regulations. The new process includes completion of a signed agreement between the receiving company and the UNH facilities department and applies to refrigerant containing items being sent offsite for disposal.

Annual updates to the RMP in 2023 included updates to inventory of refrigerant and recycling equipment, certified technicians, and HVAC vendors. UNH is currently in compliance with Section 608 of the Clean Air Act (CAA) and the requirements of 40 CFR Part, 82, Subpart F – Recycling and Emissions Reduction.

9.2 Impacted Soils Management – Urban Fill

OEHS continued support of Facilities and Planning Division with management of Historic Fill (formerly referred to as Urban Fill) and marginally impacted soils with hazards materials on campus throughout 2023.

As discussed in the 2019 Annual report, Historic Fill has been noted in several areas across campus, and as construction activities include breaking ground, UNH should anticipate that Historic Fill may be encountered. Historic fill commonly consists of granular native soil or fill that contains combustion derived materials such as coal ash, wood ash, slag, and/or cinders, along with anthropogenic materials that may include brick or concrete. Historic fill encountered on campus is likely associated with the former incinerator that was housed on campus where the current heating plant exists.

Initial soil sample analytical results of historic fill found on campus indicated the subsurface material contained low levels of polycyclic aromatic hydrocarbons (PAH's) among other combustion by-products at varying concentrations. In 2018, OEHS developed a Soil Management Plan - Urban Fill Soil (Soil Management Plan) and a Health & Safety Plan (HASP) specific for working in areas where Urban Fill is encountered to address the recommendations for self-management by the NHDES.

The Soil Management Plan includes measures for proper stockpiling of site soils with onsite management (bury with cap) or offsite disposal, management of workers and implementation of engineering controls to minimize migration of material and the protection of the community from contact with soils during construction and after the projects are completed.

In addition, the Soil Management Plan includes information on how to visually identify Urban Fill, provides information on the chemical constituents found in Urban Fill on campus, proper management techniques and site controls to minimize migration of soil and dust, as well as proper procedures when burying the soil on-site. The Urban Fill HASP addresses proper procedures for engineering site controls and personnel protective equipment and procedures to protect human health.

UNH OEHS teamed up with the UNH Planning Geographic Information Systems group to map (in UCAT) areas on campus known or suspected to have potentially recognized environmental conditions. Mapping locations in UCAT provides Facilities Project Managers and Planners with one more tool to help manage and realize potential impacts to construction and utilities projects. EH&S met with Facilities Project Management staff in the summer of 2023 to review Urban Fill protocols with project management team members.

Large quantities of historic fill were excavated during several projects on campus in 2023 that were not suitable for reuse due to compaction needs at each site. The required disposal of the marginally contaminated fill added considerable costs to each project.

Since 2018 UNH has gained more information relative to the historic fill on campus. As a result EH&S contracted with a consulting firm (GZA) familiar with management of historic fill and marginally contaminated soils and provide recommendations for updates to the UNH Soil management Plan and Health and Safety Plan. EH&S has invited FPM to participate in plan development. The goal is to ensure the plan meets recommended guidelines and best management practices for areas on campus where historic fill is encountered and assist FPM by coming up with a thoughtful approach to identifying historic fill prior and during the project to help control costs.

9.3 Land Management

UNH acquired a property located on Garrity Road in Lee New Hampshire on or about 1965. At the time of the acquisition and up through at least 2004, the property was utilized as a ‘borrow’ pit from which sand was excavated and used for UNH projects. At some point UNH began using the pit for other purposes, such as temporary storage of hardscape left over from projects and brush and debris from grounds maintenance. More recently, as a result of USEPA MS4 Stormwater Management permitting, UNH will construct a site at the Garrity parcel to manage sludge from storm drains until shipped off-site for disposal.

Because parcel use has changed over the years, OEHS began a review with a 3rd party consultant to develop a management plan for the property that is consistent with ensuring a healthy and safe environment that is in accordance with NHDES rules. OEHS anticipates phase one of the review of Garrity Pit use to begin in 2024.

10.0 Laboratory Safety

10.1 Biological Safety

10.1.1 Institutional Biosafety Committee

The UNH Institutional Biosafety Committee (IBC) develops guidelines and procedures to ensure the health and safety of all faculty, staff, students, patients, and visitors to UNH and to ensure all federal, state, and local regulations for biological safety are followed. Committee membership includes twelve people with expertise in various life science and engineering disciplines including micro and molecular biology, genetically modified organisms, plant and animal research, and biological safety. Community representation is required on the committee based on the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant and Synthetic Nucleic Acid Molecules, or simply “The Guidelines”. Community members represent public interests which creates transparency in research with recombinant and synthetic nucleic acid molecules at the University. Louise Griffin, Associate Vice President and Chief Research Administration Officer, serves as the Institutional Official of the IBC and biological safety programs.

Table 11: 2021 IBC Membership

Name	Representing	Affiliation
Audrey Cline	Municipal: Durham Code Enforcement	Community
John Collins	Molecular, Cellular, and Biomedical Sciences	UNH
Sherine Elsawa	Molecular, Cellular, and Biomedical Sciences	UNH
Andy Glode	Environmental Health and Safety	UNH
Stephen Jones	Natural Resources and the Environment/Jackson Lab	UNH
Linqing Li	Chemical Engineering	UNH
Carol Loring	Private Industry	Community
Kyle MacLea (CHAIR)	UNH Manchester Life Sciences	UNH
Subhash Minocha	Biological Sciences, plant expert	UNH
Linnea Morley	Animal Resource Office, animal expert	UNH
Nathan Oldenhuis	Chemistry	UNH
Dana Buckley	Environmental Health and Safety	UNH

There are 66 active protocols across four colleges being overseen by the Committee. The protocols represent research and teaching projects in Biosafety Level 1 (BSL-1) and Biosafety Level 2 (BSL-2) containment (Figure 14, below).

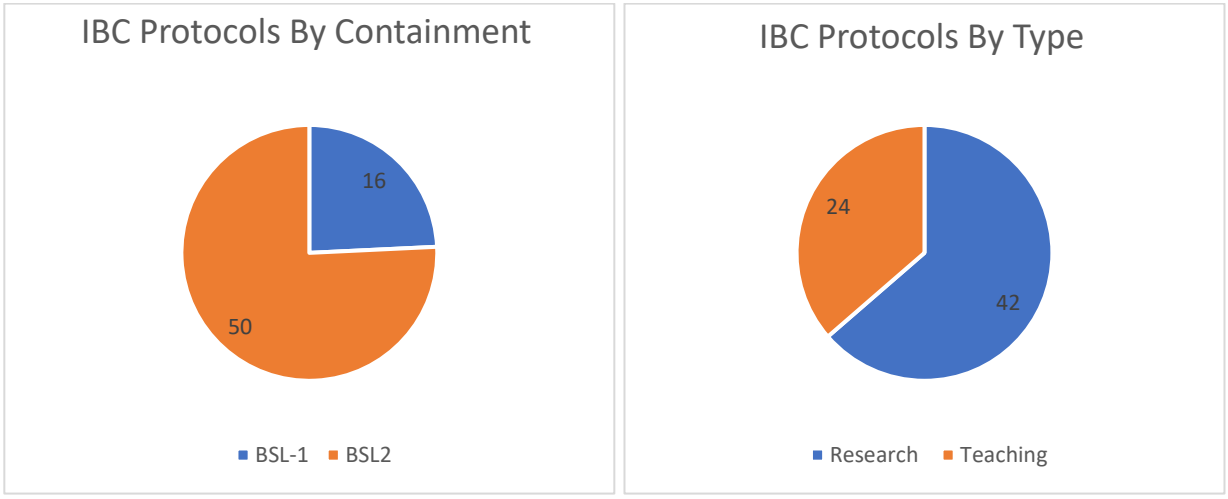


Figure 14: Research and teaching projects in Biosafety Level 1 and Biosafety Level 2 containment

The annual report for the Institutional Biosafety Committee was submitted to the National Institutes of Health on May 19, 2023 and was accepted on June 27, 2023.

There were 14 new protocols approved in 2023. Laboratory inspections were completed in support of all registered protocols.

10.1.2 Biocontainment Laboratories

UNH Durham and UNH Manchester campuses operate labs using Biosafety Level 1 and Biosafety Level 2 containment. Biosafety Level 1 includes laboratories that work with defined and characterized strains of viable biological agents not known to consistently cause disease in healthy adult humans[i]. Biosafety Level 2 includes laboratories that use a broad-spectrum of biological agents and toxins that are associated with causing disease in humans of varying severity[ii]. The UNH campuses have a total of 191 biolabs and of those 66 are BSL-1 containment and 110 are BSL-2 containment.

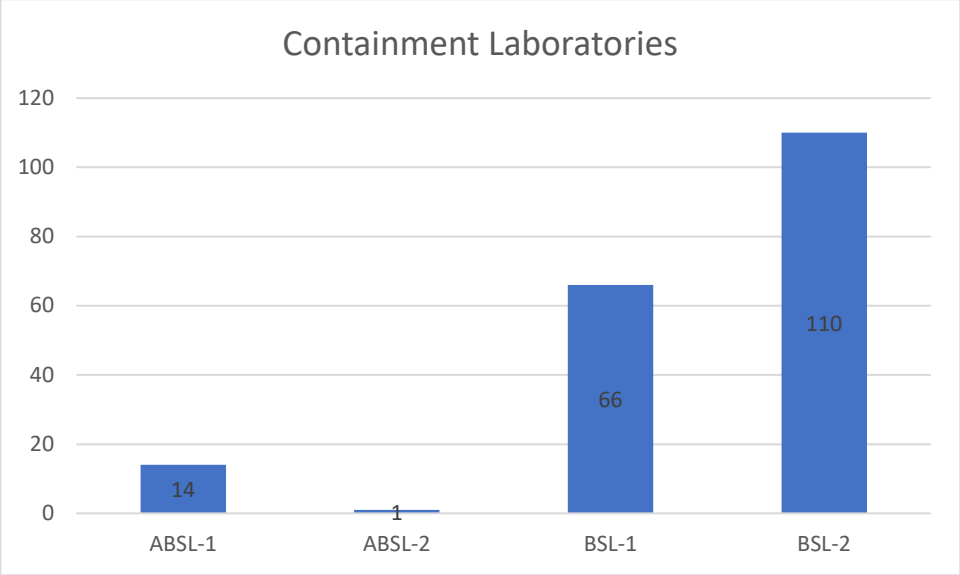


Figure 15: Biosafety lab type distribution

10.1.3 Controls Engineering

Biological Safety Cabinets (BSC) are the primary engineering control for containment of infectious aerosols when handling biohazardous materials. Durham and Manchester campuses have Class IIA2 recirculating cabinets, which are appropriate for the research and teaching labs handling biohazardous materials. There are 100 cabinets on the campuses.

Equipment is certified annually by the department that owns it and OEHS maintains certification data in UNHCEMS®.

10.1.4 Autoclave Treatment of Biohazardous Waste

UNH decreased the number of autoclaves used for steam sterilization of biohazardous waste in 2022; therefore, in 2023, collection of most biowaste was through the “red bag” system which is removed and treated by the contracted licensed waste provider, Advowaste Medical Services. An industry donor provided OEHS with 53 biobox lids and dollies which saved the university $4695, the cost of the units if OEHS has purchased these materials. This aided in the transition of the biowaste program to red bag waste.

Laboratories that continue to use steam sterilization have units with local steam and include the NH Veterinary Diagnostic Laboratory, Jackson Estuarine Laboratory, Barton Hall Plant Diagnostics Facility, and James Hall Soil Testing Laboratory. Regulatory compliance for these autoclaves is maintained by the equipment owners.

10.1.5 Institutional Animal Care and Use Committee

The Institutional Animal Care and Use Committee (IACUC) meets monthly to review animal research activities. Two members from OEHS participate on the committee as non-voting members to provide input for biological safety and occupational safety issues. The IACUC and Institutional Biosafety Committee overlap in the review of transgenic animal work and biological vector use in animals. Coordination between both committees is essential for timely review and approval of scientific research.

10.1.6 Bloodborne Pathogens Program

The annual review and revision of the campus Exposure Control Plan was completed in December 2023 and no changes were necessary. A non-OSHA recordable needlestick was reported in 2023. The incident occurred with a clean, unused needle that was free of any blood or Other Potentially Infectious Materials (OPIM) with no injury.

Compliance data for other OSHA Bloodborne Pathogens Standard requirements include:

- 859 people completed training
- 19 employees completed the Hepatitis B declination form
- 7 people completed the safety engineered sharps survey

Departments such as UNH Police, Athletics, Campus Recreation, Nursing, and Health and Wellness maintain their own training and vaccine records. OEHS maintains records in UNHCEMS® for departments that elect to take online training.

10.1.7 Biosecurity

COLSA continues its biosecurity program for the second floor of Rudman Hall where infectious agents are stored. Principal Investigators are responsible for keeping an accurate record of their biological inventory and OEHS provides technical support as needed for any PI requesting to keep their inventory in UNHCEMS®.

UNH Manchester's Biotechnology Innovation Center duplicated the biological inventory tracking database created by OEHS for the Durham campus and is tracking all tenant biological inventory in UNHCEMS®.

10.1.8 Training

Multiple training requirements were completed in 2023. Figure 16 shows training by requirement type and the number of people who attended training, either in person, or online through UNHCEMS®.

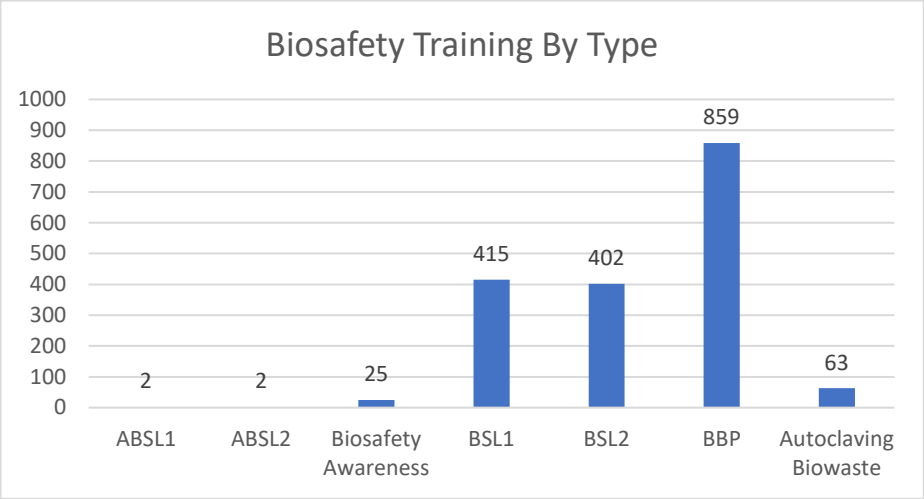


Figure 16: Participation in biosafety training by type of requirement

10.2 Chemical and Laboratory Safety

10.2.1 Laboratory Safety Inspections

Formal, laboratory safety inspections were performed throughout the year. These included CEPS inspections ensuring compliance prior to the ABET Certification, Olson Center, and White Island SML. Of the formal inspections, 289 findings were identified and have been or are being corrected. Fire extinguishers maintenance, correct owners of rooms, housekeeping, and training were the most common findings. In addition to scheduled lab inspections, laboratory safety issues observed during visits, such as chemical inventory deliveries, the annual chemical inventory verification, chemical storage, NFPA, safety equipment, and chemical fume hood inspections were shared with PIs for follow-up.

10.2.2 Chemical Safety Committee

OEHS continues to administer and support the UNH Chemical Safety Committee (CSC). Representatives from OEHS organize and attend quarterly meetings, compile minutes, draft appointment letters, and fulfill other administrative requirements for the committee. Additional discussions included topics such as the Chemical Hygiene Plan, the hazardous waste program updates, training, laboratory safety updates, laboratory safety renovations, emergency equipment, laboratory ventilation, UNHCEMS updates.

10.2.3 Regulatory Compliance Services

OEHS continued to monitor and ensure institutional compliance with the US Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS). As of July 28, 2023, Congress allowed the statutory authority for the Chemical Facility Anti-Terrorism Standards (CFATS) program (6 CFR Part 27) to expire. OEHS monitored and ensured compliance up to this date. This regulation required facilities that possess or transfer certain “Chemicals of Interest,” to file an in-depth screening report with DHS and comply with certain security requirements. The list of Chemicals of Interest includes over 300 chemicals that could potentially be used for sabotage or the creation of a weapon of mass effect.

OEHS administration of the UNHCEMS® Parsons Hall Flammable Liquid Report in 2023 resulted in successful maintenance of compliance obligations. UNHCEMS® automatically sends an alert to OEHS, Principal Investigators, and the DFD when volumes of flammable liquids in laboratories in Parsons Hall exceed fire code storage limits. In addition, UNHCEMS® sends a warning to OEHS and Principal Investigators (PIs) when inventories approach the storage limit, allowing us to evaluate inventories internally before reporting to the fire department is required. OEHS continues to work with PIs to facilitate accurate reporting of flammable liquid inventories and accurate reporting to our emergency responders. This year there were no threshold or over-limit alerts. Monthly checks on inventory and reaching out to PIs when the threshold was close resulted in no alerts.

10.2.4 Chemical Fume Hood and Laboratory Ventilation Assessments

OEHS continued to perform detailed evaluations of laboratory chemical fume hood operation and performance in 2023 ensuring essential functions. OEHS assesses the operation of each UNH’s 430 fume hoods annually and whenever hoods are reported to have operational deficiencies. This year, OEHS conducted 1,672 fume hood assessments (Figure 17), up from 1,297 in 2022. The chemical fume hood is the primary engineering control protecting workers in research laboratories from hazardous chemical exposures; as a result, OEHS dedicates significant resources to evaluate fume hoods for safe operation.

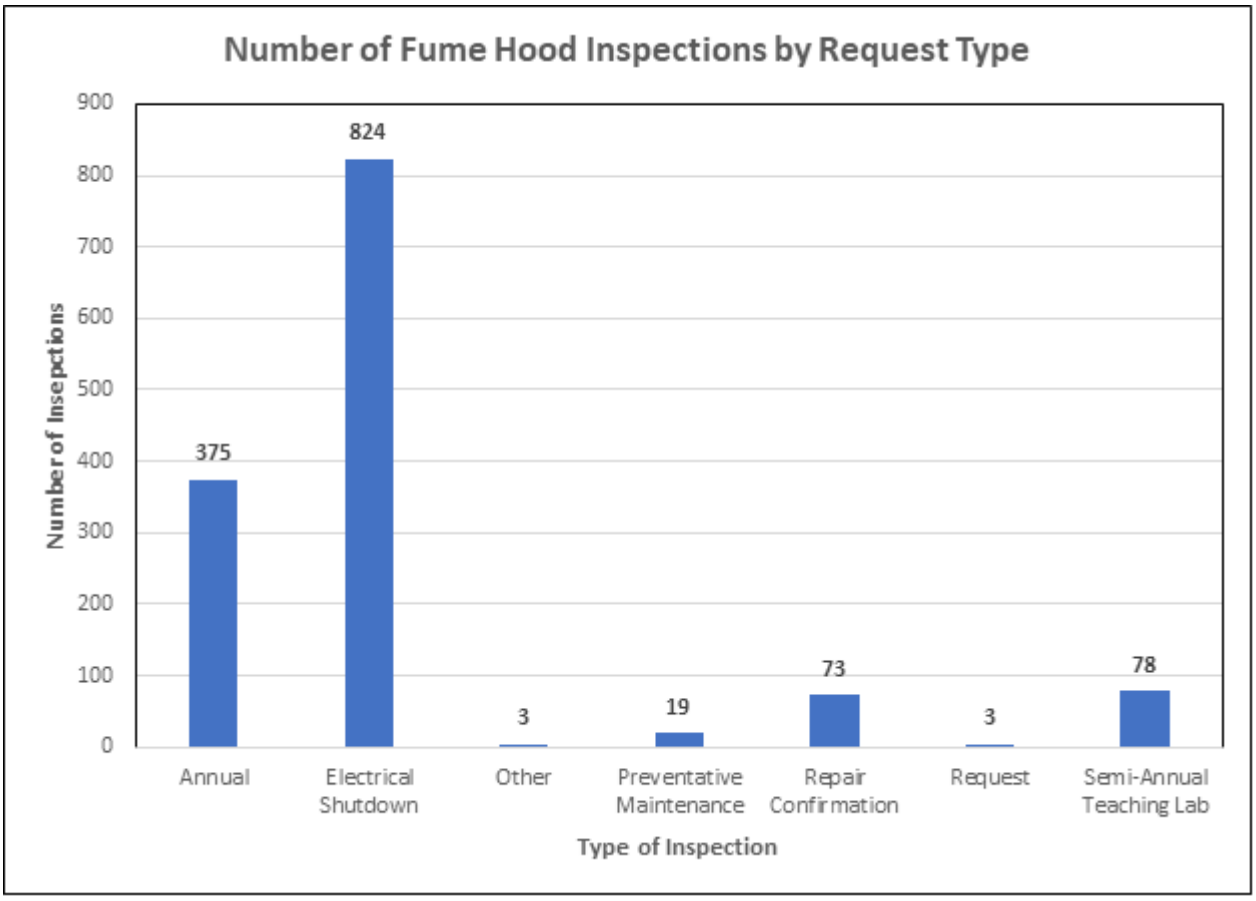


Figure 17: Fume Hood inspection and inspection types performed by OEHS

In addition to evaluation of chemical fume hoods, OEHS also assesses operation of other laboratory ventilation components that may influence worker health and safety. These components include gas cabinets, snorkel exhausts, canopy exhausts, other point source ventilation, valve and actuator operations, dampers, and alarms and control devices including face velocity monitors and flow controllers.

10.2.5 Laboratory Safety Technical Services

OEHS staff provides technical safety services to teaching and research laboratories at UNH and UNH-M. These services include providing chemical safety information, incident investigation, odor investigations, laboratory exhaust evaluation, recommendations for chemical storage and segregation, assessment of PPE, reproductive health assessments, and regulatory compliance services. Examples of select projects and services performed in 2023 include the following:

- Identified gasket leaks in fume hood exhausts located inside maintenance and attic spaces for Kingsbury, Veterinary Diagnostic Laboratory, and Keener. Collaborated with facilities to seal the leaks and we created a program to annually test the gaskets reducing potential exposure risk to employees entering maintenance and attic spaces. Keener is scheduled to be sealed early 2024. Currently a safe entrance plan is being used for any who need to enter this space.

- Continued support for labs in James after identifying the energy wheel was recirculating lab exhaust into the building. This support included process review, space and engineering control review, and collaborating for the hiring of Waldron Engineer to replace the wheel with a proper laboratory HVAC system.
- Fume hood monitors in Parson are discontinued and the software cannot be updated. OEHS collaborated with facilities to send this project to bid. IBC Controls has been hired to replace the monitors in phases starting with the broken monitors.
- Revamped the Peroxide Former Management Program removing hundreds of peroxide formers on campus.
- Participated in planning efforts for helium recovery systems in Demeritt.
- Worked with COLSA to evaluate all the eyewash stations in Rudman to replace the outdated units with cracked caps with new units.
- Created communication around on lithium-ion battery for housing.
- Worked with facilities to trouble shoot and fix a low exhaust issue with an instrument in the Morse clean room.
- Provided technical assistance with new researcher in the Greenhouse.
- Provided technical assistance with SOPs and hazardous chemical review in Chemistry.
- Reviewed last year's laboratory ventilation shutdown procedures and updated them to allow for better communication for facilities.
- Developed procedure to trace ventilation using Axe Body spray for building unable to have smoke due to specific safety equipment, recirculation, or other engineering controls.
- Assisted BIOL411 Lab in green chemistry by removing high hazardous materials for less hazardous material in undergraduate classes.
- Provided technical assistant and monitoring to the Veterinary Diagnostic Laboratory (VDL) redesign.
- Created process for leases to evaluate risk and communicate OEHS policy prior to the signing of the lease.
- Completed Teaching Assistance and New Graduate Lab and Chemistry training.
- OEHS started supporting the COLSA Safety committee. OEHS is aiding COLSA in assessing the safety needs across each department.
- Advised youth program lab safety protocols for Parsons Hall summer camps.

- Provided lab check in support for COLSA general use.

10.2.6 Laboratory Safety Training

OEHS provides laboratory safety training for the campus community. Below is a list of trainings provided and number of individuals who completed the training (Table 12).

Table 12 Laboratory Safety Training Provided in 2023

Training Title and Description	2023 attendees
Laboratory and Chemical Safety Training: fundamentals of chemical safety, hazard communication, controlling hazards, and emergency response procedures.	407
Review of Laboratory and Chemical Safety: Live review session for those who have already completed Laboratory and Chemical Safety Training	6
Cryogenic Liquid Safety Training: required for those using liquid cryogens	54
Dry Ice Shipment Training	17
Hands on EHS Intern Training	40

11.0 Hazardous Materials

11.1 Chemical Transfer Station

OEHS continued to operate the Chemical Transfer Station (CTS) in 2023. Chemical orders for all research chemicals, except those for the Chemistry Department, are received at the CTS.

OEHS staff receive chemical deliveries at the CTS, barcode the chemical containers, and collect information required for the chemical inventory. Packages are then re-sealed and delivered directly to research laboratories on the same day the package is received.

Annual trends for 2023 (Figure 18) showed an increase in containers from 2022. The sum of containers added to the inventory in 2023 includes routine new containers, chemicals ordered by the lessees, chemical containers found in labs during inventory verification without barcodes.

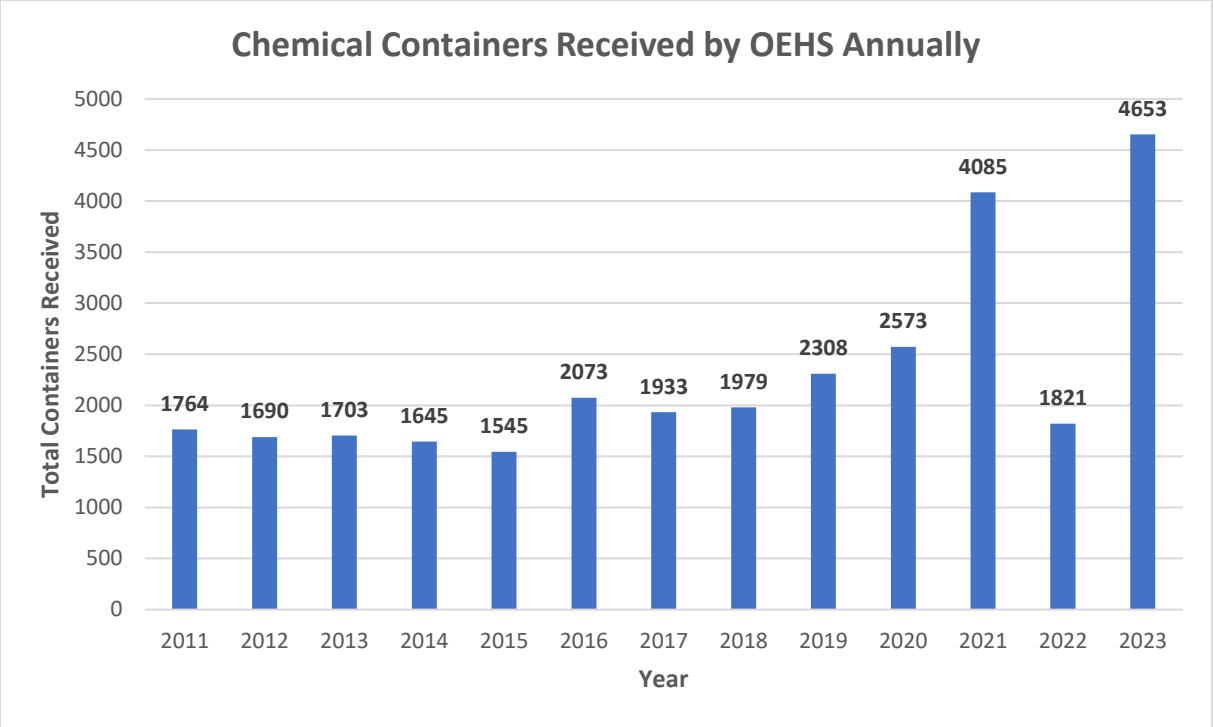


Figure 18: Chemical containers received, processed and delivered by the OEHS Chemical Transfer Station per year.

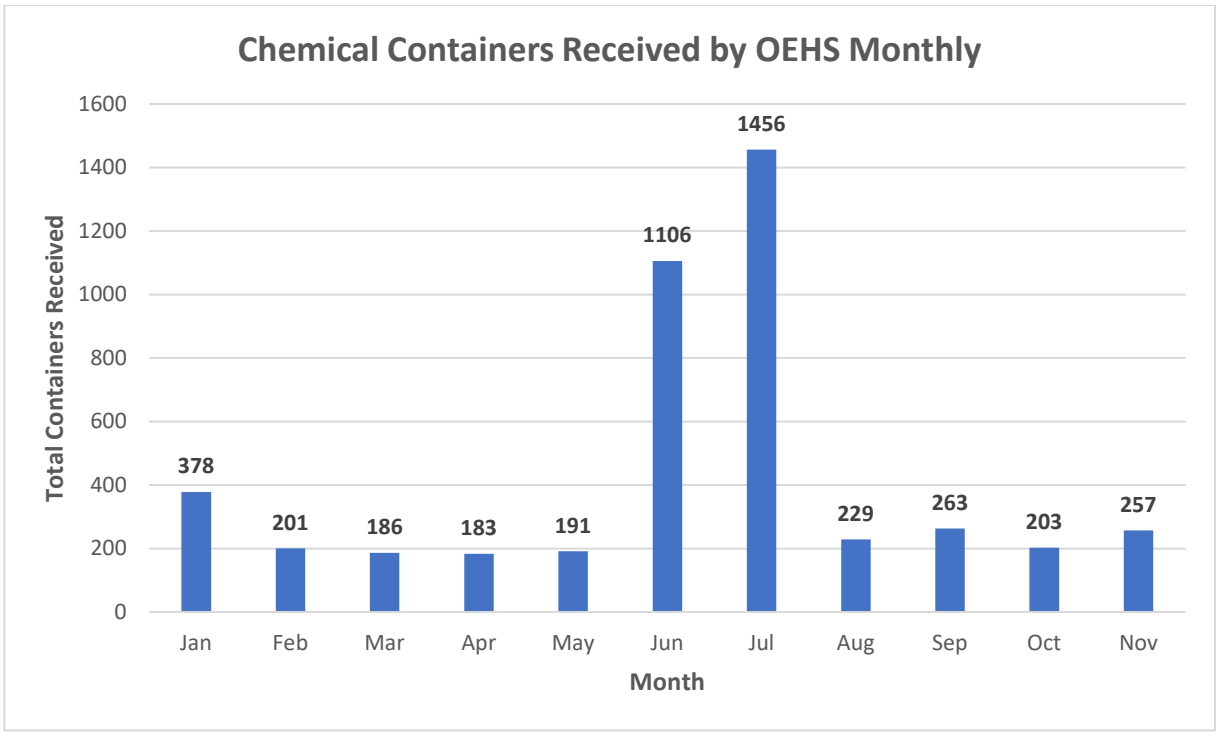


Figure 19: Monthly breakdown of chemical containers processed by OEHS throughout 2023

11.2 Chemical Inventory Verification Program

A chemical inventory audit was performed from June 5th through July 28th, 2023. This operation is essential in verifying the numbers of chemicals on site and ensuring UNH stays within permitted limits for occupancy agreements. In 53 days, the inventory team scanned approximately 31,000 chemical containers throughout 25 buildings containing research laboratories, arts and physical sciences, among others, across the UNH Manchester and UNH Durham campuses. An additional 2,429 containers were barcoded while in the field and approximately 1,082 containers marked empty during the program.

11.3 UNHCEMS® Inventory

Data collection and compliance reporting for OEHS relies heavily on UNHCEMS®. Indeed, the entire University Community uses UNHCEMS®. Approximately 23,705 active users (as compared to 25,021 active users from 2022) accounting for faculty, staff, students, visiting researchers, and contractors, among others that access the UNHCEMS® software program online. UNHCEMS continues to be the primary resource tracking compliance with regulatory obligations, chemical inventories, training and continuing education course tracking, emergency response modules and safety data sheets. OEHS assists the UNH community with gaining access to resources provided by UNHCEMS®, including training and technical support and acting as a liaison between the software development team in research computing center and campus stakeholders.

Additional UNHCEMS® statistics for the calendar year of 2023, relative to the UNH Durham campus chemical inventory and hazard communications include:

- 38,172 active containers on campus
- 4,829 containers marked empty
- 60,468 SDSs in library
- 653 active Door Signs

OEHS collaborates with researchers and staff to reduce the amount of legacy chemicals across campus. UNHCEMS® is instrumental in identifying legacy chemicals and keeping track of laboratory moves. Data from UNHCEMS® is exported to the Laboratory Safety Manager for review once a researcher or faculty has retired or has been assigned new laboratory space to not only review the inventory for disposal but also to identify chemicals that may be valuable to other researchers and have them redistributed. All chemical waste disposal is tracked in UNHCEMS® providing readily exportable datasets for the Hazardous Waste Manager in OEHS.

11.4 Hazardous Materials Shipping

OEHS continued efforts to maintain compliance with hazardous material shipping regulations by offering guidance, training, on-site review, and reference material to the UNH community. OEHS provided professional guidance and training to PPP UNH research groups in 2023. This included providing guidance for domestic and international research material shipments.

OEHS offers shipment of dry ice online training ice online. In 2023, nine (18) researchers passed the training requirements to receive a certificate to ship dry ice by air. OEHS also shipped 4 hazardous material packages for research purposes.

11.5 Hazardous Waste Management

OEHS provides hazardous waste management support to faculty, staff, and students at the Durham campus as well as the Manchester campus, UNH School of Law, Jackson Estuarine Laboratory, Coastal Marine laboratory, Shoals Marine Laboratory, John Olson Advanced Manufacturing Center and the UNH Automotive Garage. We manage US EPA, State of New Hampshire and State of Maine regulated hazardous waste materials generated throughout the year as a byproduct of research, teaching and facilities operations. In addition, the staff have been involved in several projects and initiatives to limit the university's environmental liability by assuring proper transportation and disposal of hazardous materials and wastes and by reducing the quantity and toxicity of hazardous waste streams generated.

This year OEHS hazardous waste staff were involved in the following special projects:

- Coordinated the recycling of 14,000 pounds of lead acid batteries from the Shoals Marine Lab.
- Coordinated the disposal of peroxide forming chemicals from the University inventory in conjunction with OEHS Laboratory Safety.
- Managed the cleanout of reactive chemicals from Dr. Berda's organic chemistry research laboratory.

11.5.1 Inventory Reductions

OEHS disposed 1,807 containers of hazardous material, increasing safety and reducing liability in 2023. These materials included:

- Disposal of legacy and surplus chemical reagents from Rudman (795), Parsons (493), Kingsbury (266), Conant (157), Gregg (46), Research Greenhouses (36), and Morse (14). This represents the following chemical inventory reductions by building: Conant (51%), Kingsbury (7%), Rudman (26%), Research Greenhouses (8%), Parsons (1%), Gregg (1%), Morse (1%).

11.5.2 Summary of Hazardous and Universal Wastes Generated

As a result of various campus activities, the following statistics represent chemical and biological waste generation and disposal for the University in 2023.

Total Chemical and Biohazardous Waste generated:

- Chemical Waste: 16,106 kilograms
- Biohazardous Waste: 1,660.5 cubic feet

Quantities of hazardous chemical waste generated across campus departments and buildings are displayed in Figures 20 and 21 below. Overall, approximately ninety percent of the waste is generated through academic activity, with operation and support functions contributing the remaining ten percent.

In 2023, the Chemistry Department (Parsons Hall) continued to be UNH's largest generator of hazardous waste. Chemistry will likely continue to lead hazardous waste generation due to the nature of the science. Teaching required chemistry courses for approximately fourteen hundred undergraduate science and engineering students each semester accounted for twenty eight percent of the department's waste generation.

The hazardous waste produced by Cooperative Extension (Lakes Lay Monitoring Laboratory) in Spaulding Hall and the Department of Natural Resources and the Environment in James Hall is generated primarily by the research of two laboratories. These laboratories produced 95 percent and 73 percent of the hazardous waste generated at Spaulding and James Hall, respectively.

Annual waste production at the Co-Gen/Central Heating Plant is significant and variable year to year due to periodic maintenance requirements. Routine waste streams, however, such as used oils and contaminated wipers have been static.

The New Hampshire Veterinary Diagnostic Laboratory (NHVDL) generates histopathology chemical wastes related to veterinary laboratory services provided to New England region veterinarians, various NH state agencies, and state and local law enforcement agencies and contract services.

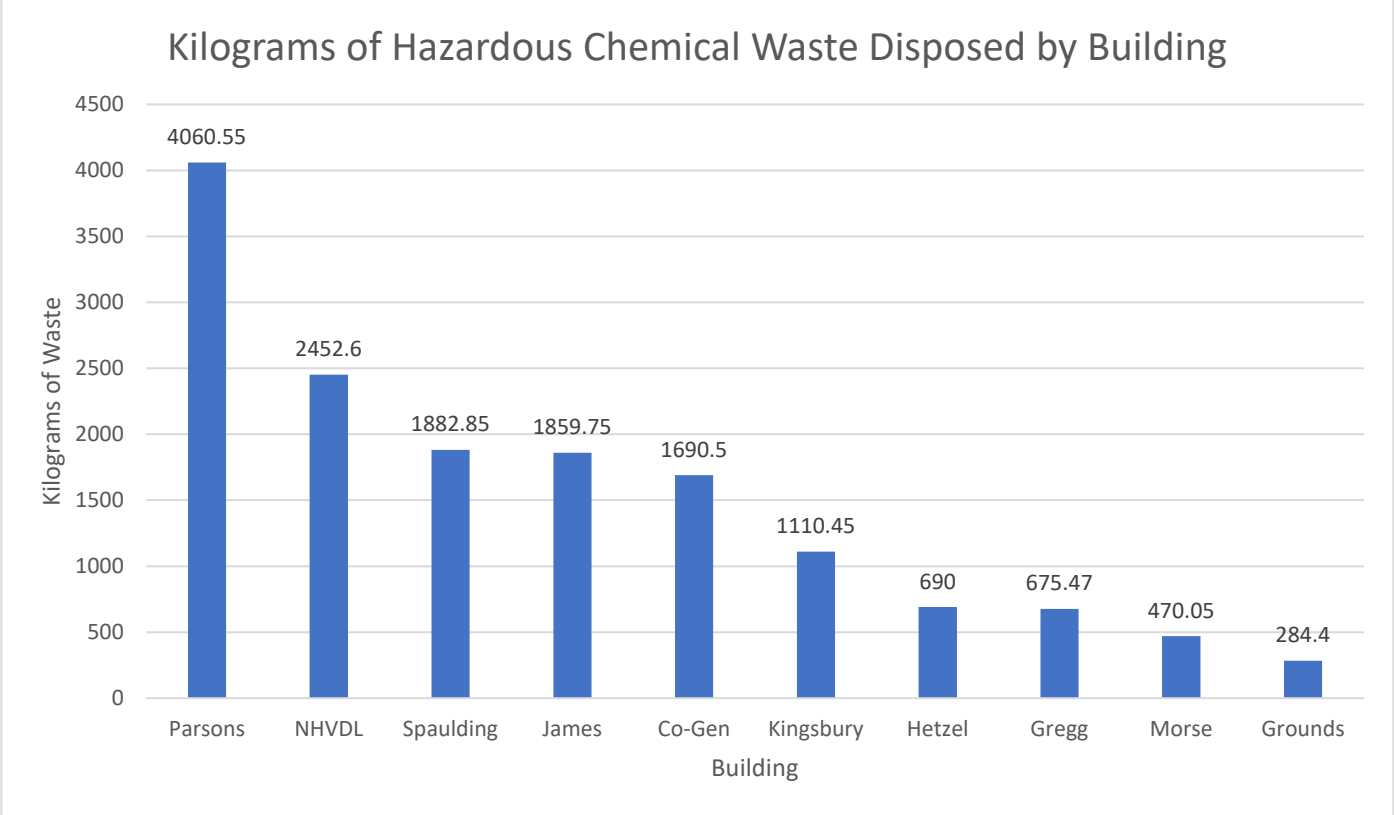


Figure 20: Kilograms of Hazardous Chemical Waste disposed in 2023, by Building

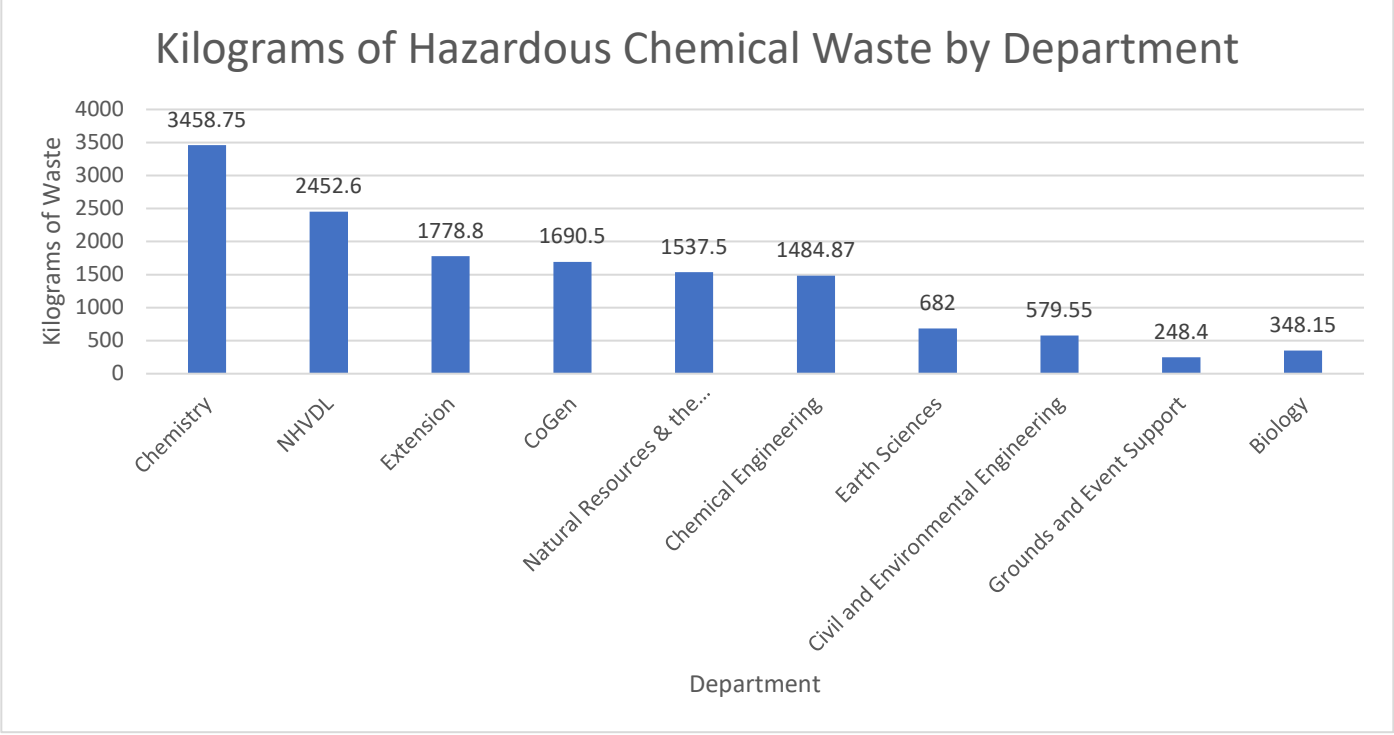
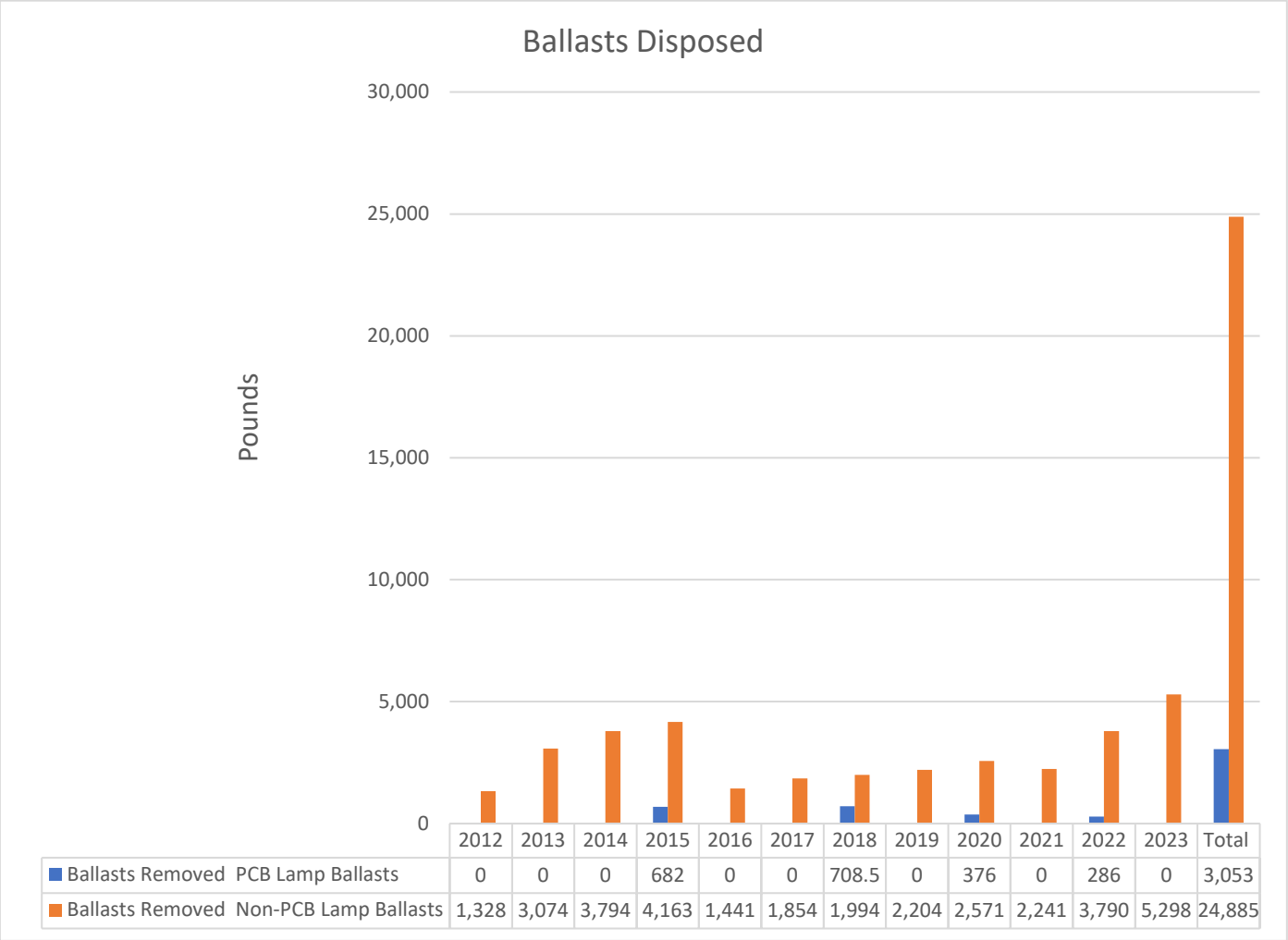


Figure 21: Kilograms of Hazardous Chemical Waste Disposed in 2023, by Department

11.5.3 Universal Waste

Universal Waste generation in 2023 saw a significant upswing in the disposal of lamp ballasts for recycling (34%). Nearly seven miles of fluorescent lamps went out to recycling which is roughly equivalent to the distance between Durham and Portsmouth. Two and a half tons of ballasts were likewise recycled. The increase is attributed to the ongoing replacement of fluorescent lamps with LED lamps which do not require ballasts. HID lamps received for recycling continued with low numbers (139) consistent with phasing out of the type of lamp (Figure 27). In 2023 lead acid battery recycling saw recycling rates slightly above historical trends with 2.1 tons sent for recycling (Figure 28). This is likely due to the regular replacement of batteries from back-up lighting and computer systems throughout the university. Figure 25 shows figures for the disposal of alkaline and other types of batteries from the University. Last year over 1100 pounds of these other types of batteries were sent for recycling. Figure 26 shows an elevated rate of disposal of fluorescent U lamps over historical trends but down 26% from the previous year. It is noted that a good proportion of these u-tubes are new old stock being cleared out of storage. Fluorescent circline lamps are virtually non-existent. In addition to universal wastes, 150 pounds of copper wire and 500 pounds of steel were diverted from the trash and recycled in 2023.



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Ballasts Removed PCB Lamp Ballasts	0	0	0	682	0	0	708.5	0	376	0	286	0	3,053
Ballasts Removed Non-PCB Lamp Ballasts	1,328	3,074	3,794	4,163	1,441	1,854	1,994	2,204	2,571	2,241	3,790	5,298	24,885

Figure 22: Ballasts Removed from Campus from 2012 through 2023

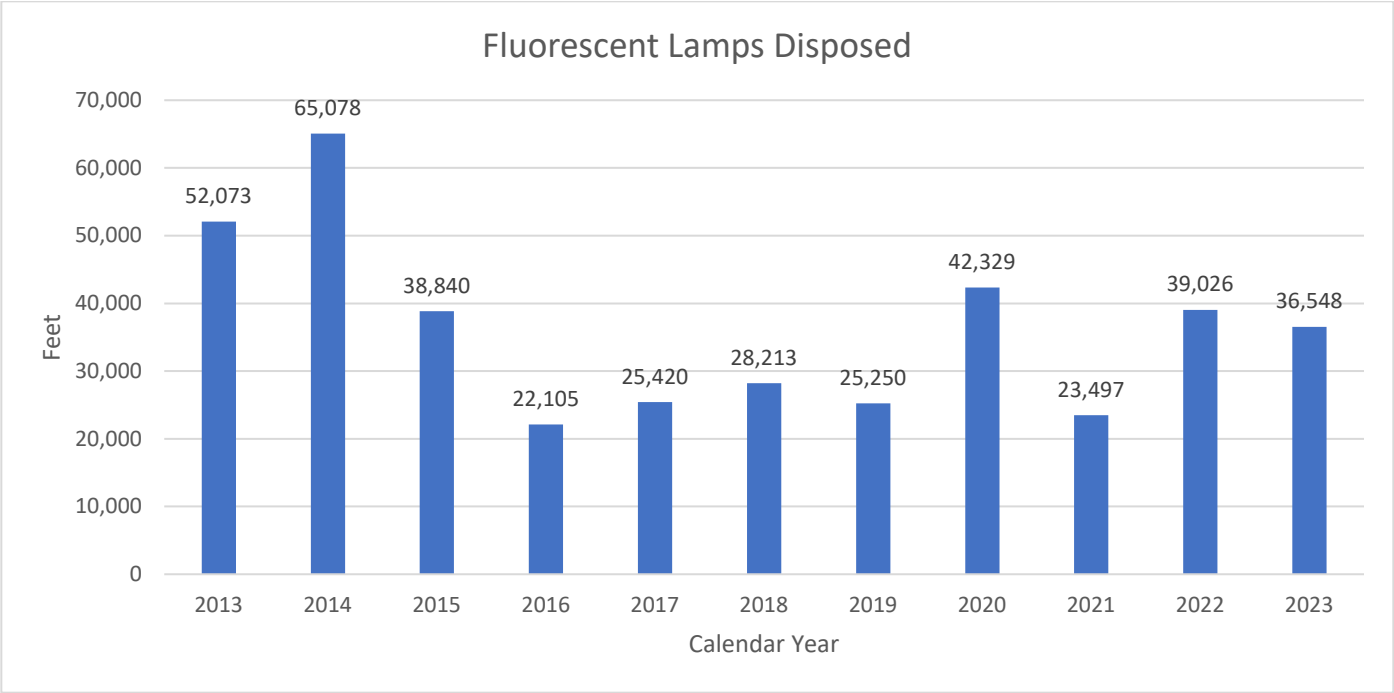


Figure 23: Fluorescent Lamps Disposed by OEHS from 2012 through 2023

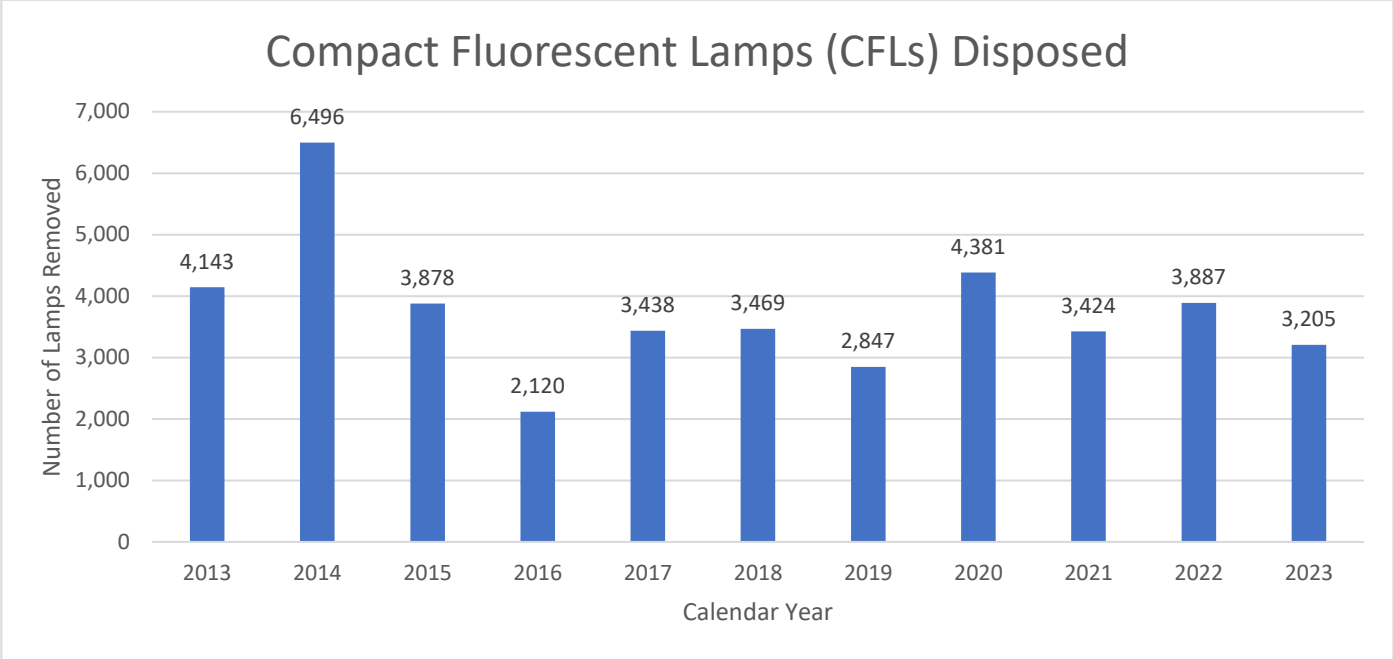


Figure 24: Compact Fluorescent Lamps Disposed by OEHS from 2012 through 2023

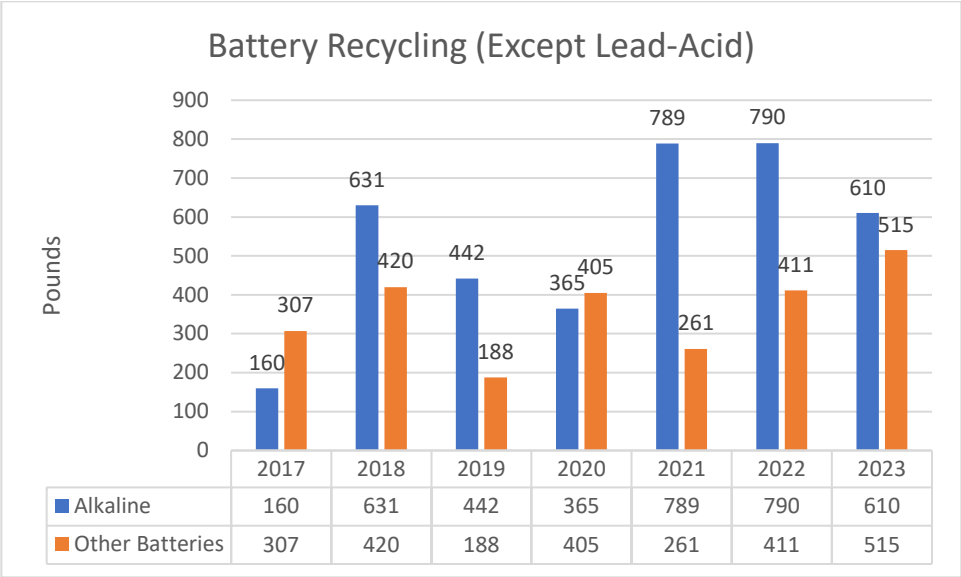


Figure 25: Alkaline and other batteries recycled by OEHS from 2017 through 2023

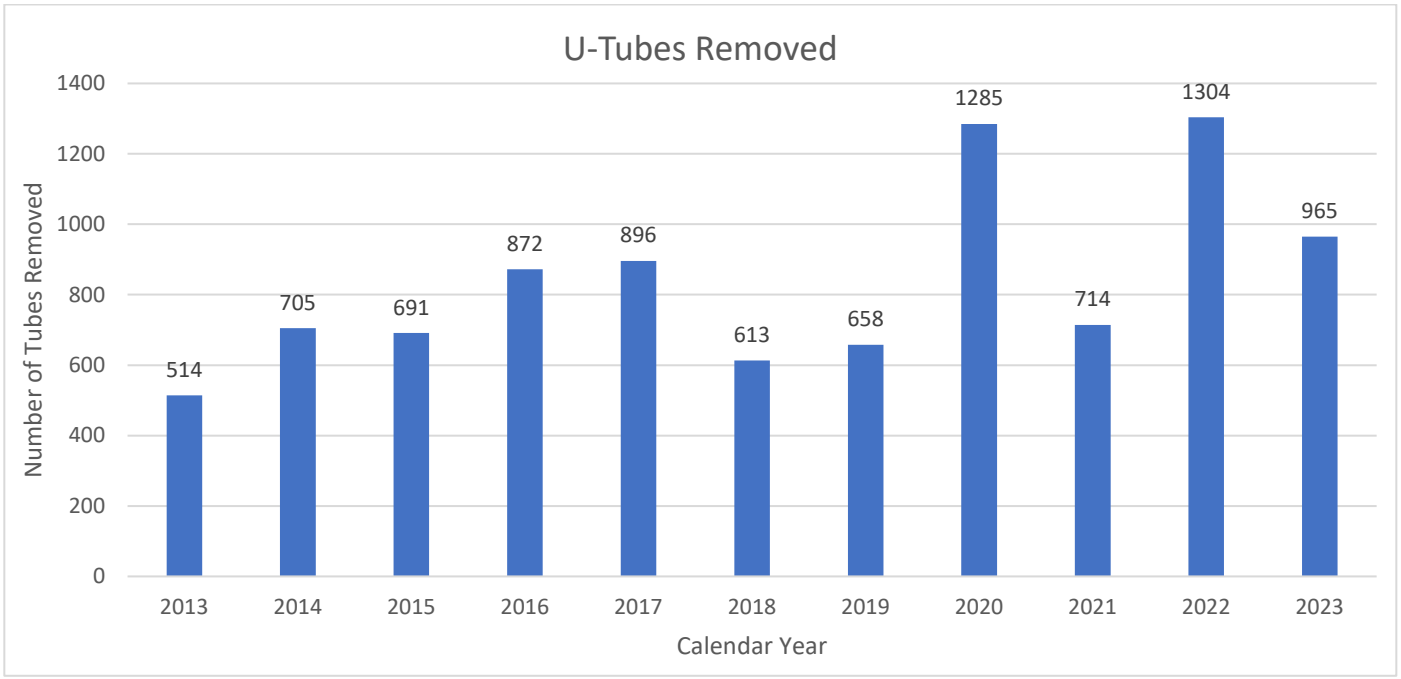


Figure 26: U-Tube lighting disposed of by OEHS from 2012 through 2023

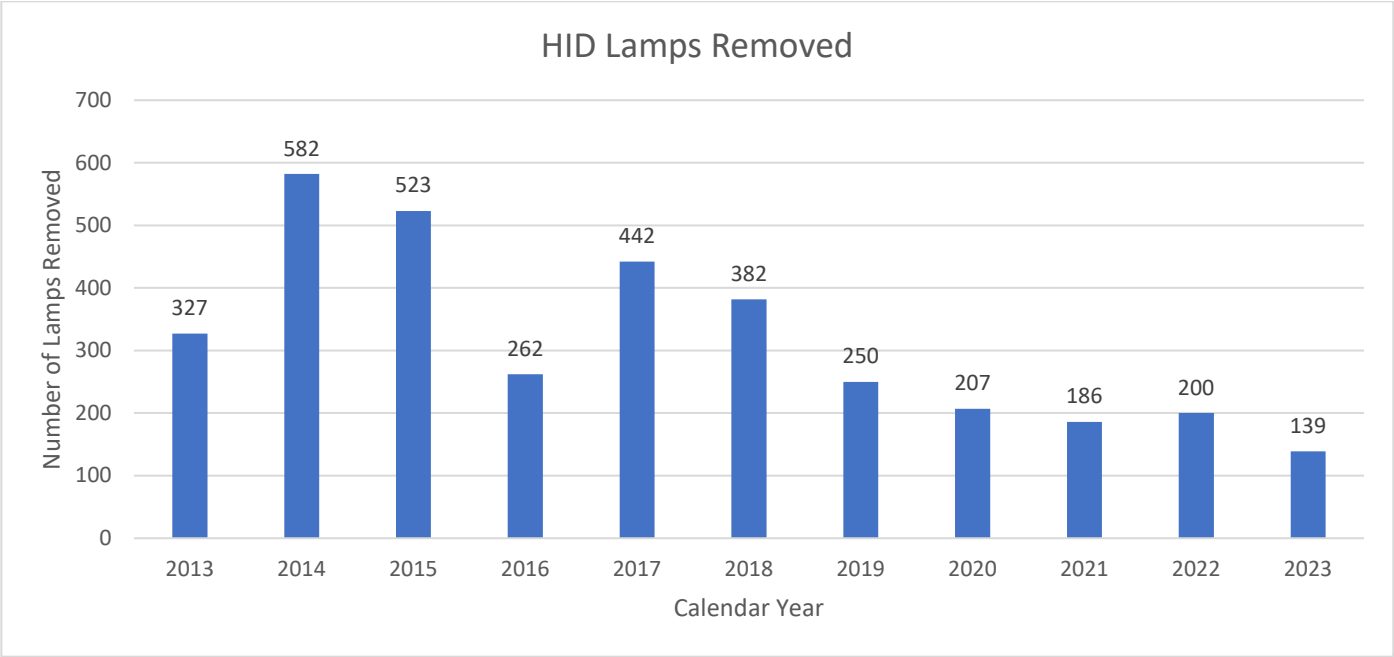


Figure 27: Number of HID Lamps Disposed by OEHS from 2012 through 2023

Figure 28 summarizes the pounds of lead-acid batteries disposed of between 2012 and 2023. Since 2012 the quantity of lead-acid batteries has been reasonably consistent averaging 3488 pounds per year plus or minus 500 pounds. In 2019 a significant increase was seen in waste lead-acid battery generation due to the University purchasing two solar power arrays and the replacement of lighting units to use LED technology. 2023 saw a generation rate slightly above historic trends.

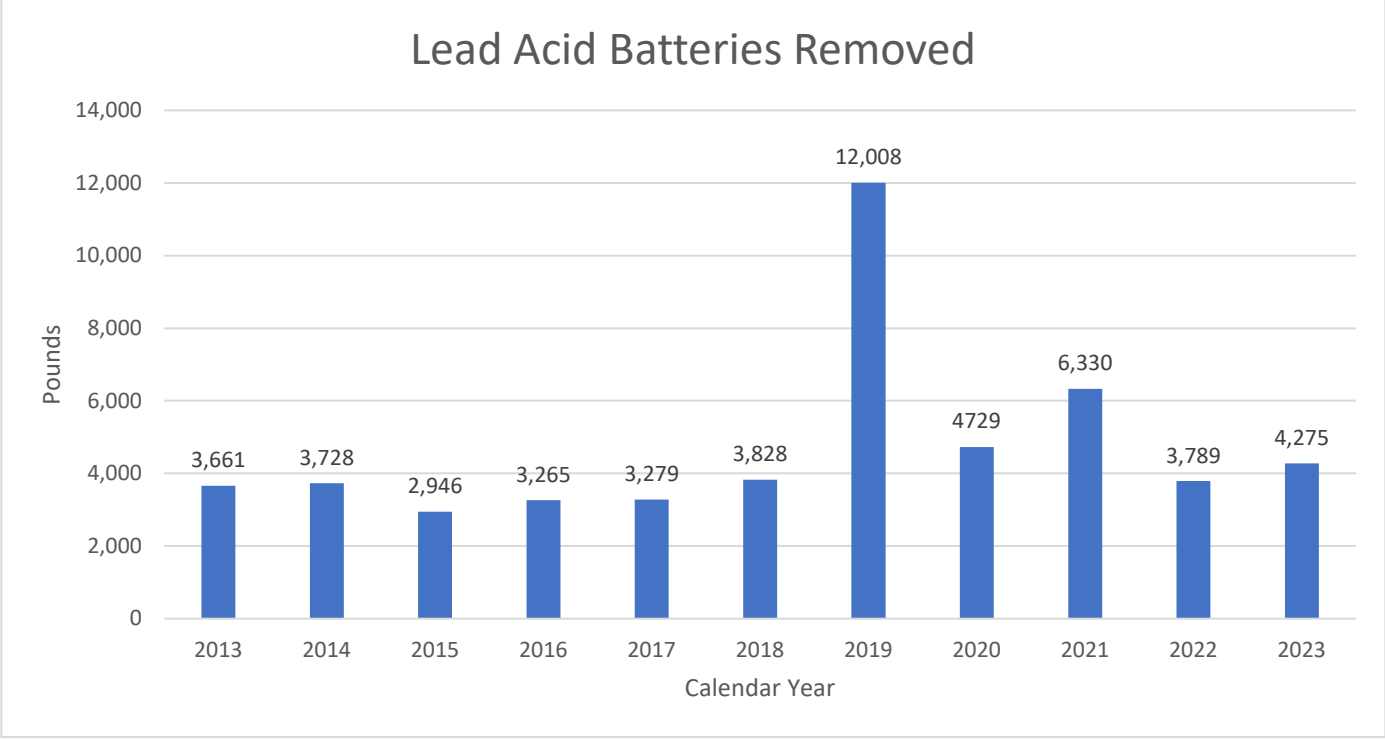


Figure 28: Lead Acid Batteries Disposed by OEHS from 2012 through 2023

Routine maintenance of emergency lighting is the primary source of lead-acid batteries being recycled by the OEHS.

As existing emergency lighting fixtures are replaced with modern, efficient light emitting diode (LED) type designs we may see a reduction in lead-acid battery generation and an increase in other regulated battery types such as nickel-cadmium or lithium.

Figure 29 summarizes the Infectious Waste Disposal. The spike in 2020 is due to the COVID Testing Lab infectious waste being handled by EH&S that year. During 2021 and until its closing in early 2023, COVID Testing Lab infectious waste disposal was not managed by OEHS.

In 2022 UNH reduced the number of autoclaves used for steam sterilization, transitioning to off-campus incineration. This increased the generation of boxed infectious waste in 2022-2023.

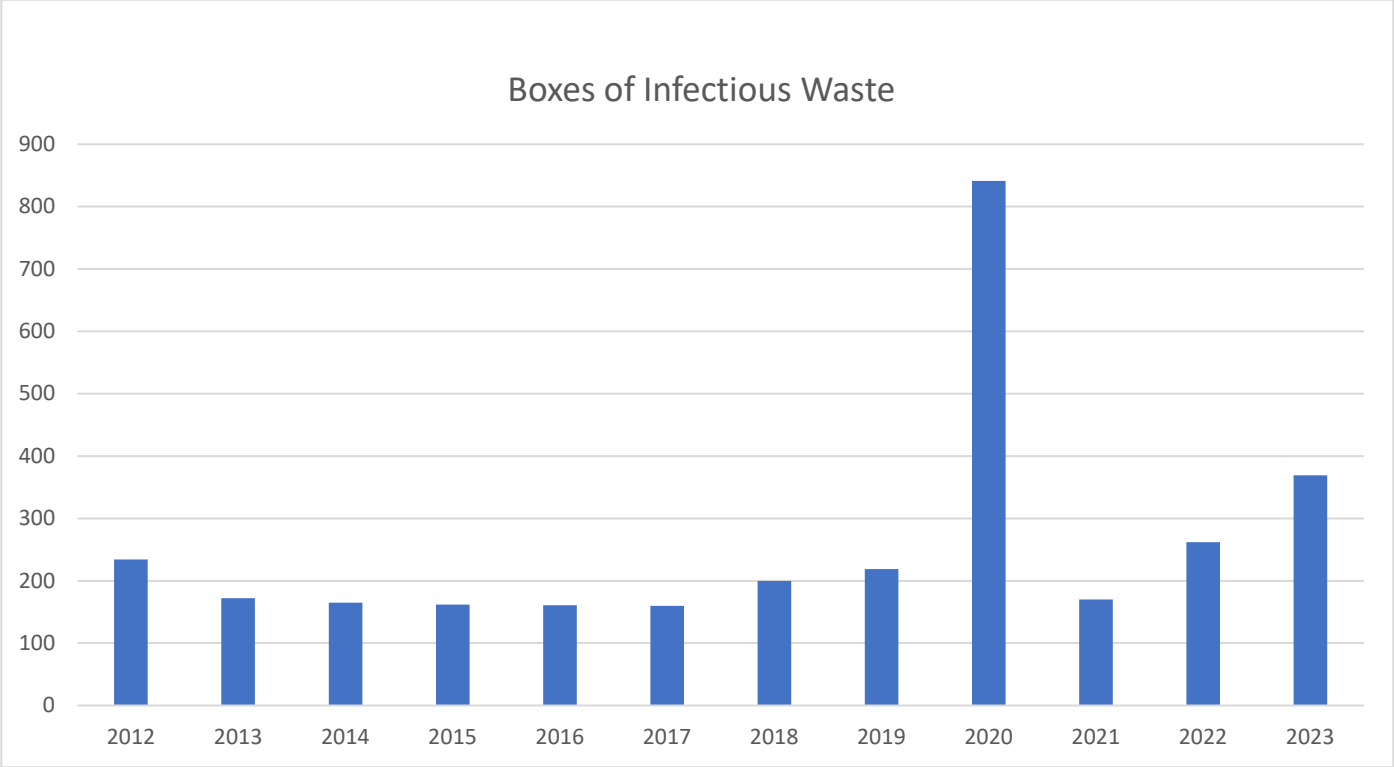


Figure 29: Boxes of Infectious Waste Disposed of by OEHS from 2011 through 2023

12.0 Research Fieldwork Safety Program

In response to impending proposal requirement changes at the National Science Foundation and calls to action from the UNH Research Community, UNH Research Office has directed the creation of a Research Fieldwork Safety Program (RFSP) the Research Fieldwork Safety Committee. The RFSP is a collaborative effort between EHS and the UNH Prevention Innovations Research Center. The program aims to develop safety protocols and trainings, as well as establish safety standards for researchers conducting fieldwork (off-campus activity) in association with UNH. This program's focus is to provide researchers with resources, training, and guidance to plan for and implement safe and inclusive fieldwork campaigns. Below are projects undertaken by the program in 2023.

- A Fieldwork Safety Plan (FSP) Template is now available on the Research Fieldwork Safety Program webpage to assist researchers in their safety planning. The template will allow researchers to collect safety information about their fieldwork into one document. This document will then be shared with members of the field team before departure and discussed in detail as a group. Any information or modification requests will be completed before departure.

- Collaborations continue with UNH's Sponsored Programs Administration to establish workflows and provide documentation templates for researchers submitting proposals to the National Science Foundation (NSF) that include off-campus/off-site research. Beginning in January 2023, NSF requires certification that a safety plan exists for proposed research involving fieldwork. The RFSP Coordinator is now notified when a proposal that involves fieldwork is routed for SPA internal view.

- The Research Fieldwork Safety Committee (RFSC) continued to meet regularly during Spring and Fall 2023 semester to develop a framework for peer-review of fieldwork safety plans, develop safety standards and resources needed by the UNH research community. The RFSC recently voted in Kate Gladstone (Prevention Specialist, SHARPP) and Dr. Elizabeth Burakowski (Research Assistant Professor, Earth Systems Research Center) as co-chairs beginning in Spring 2024. The RFSC continues to review the FSP template and update it as the need arises.

- The RFSP Coordinator has established collaborative working group consisting of UNH's Assistant Director of Emergency Management, UNH's Executive Director of Public Relations, EHS Director as well as Professor of Recreation Management and Policy to develop a Crisis Management Plan for off-campus activities in the event of serious bodily injury or fatality.

- The RFSP Coordinator is working with UNH's M365 Development team to create a designated SharePoint site for fieldwork safety plan submissions by UNH researchers and peer-review and approval by the RFSC.

- The RFSP is currently on track for mandating a UNH campus-wide requirement for all researchers conducting off-campus/off-site fieldwork to submit a Research Fieldwork Safety Plan Template for peer-review and approval by the RFSC by Summer 2025.

13.0 Radiation, Laser, and Magnet Safety

13.1 Radiation Safety

13.1.1 Program Information

UNH possesses a Type-A Broad Scope License issued by the New Hampshire Department of Health and Human Services, Radiological Health Section, for usage and storage of radioactive materials. OEHS manages the associated Radiation Protection Program and ensures compliance with license conditions and applicable rules and regulations. OEHS annually reviews and updates the Radiation Protection Program and the Radiation Safety Users Guide. OEHS distributes and reviews new and renewal applications for radioactive material usage by University personnel and issues permits to Authorized Users as granted by the UNH Radiation Safety Committee (RSC).

13.1.2 Training

State regulations require Radiation Worker training for incoming employees as well as Radiation Worker Refresher training once per year. Radiation Worker training prepares workers to use radioactive material and is a 3-hour training that includes on-line through instructor-led elements. Nine students, staff, and faculty completed Radiation Worker training, and 47 students, staff and faculty participated in Radiation Worker Refresher training on-line. Live presentations and on-line trainings are revised annually by the Radiation Safety Officer (RSO). Radiation Worker Refresher is updated annually as needed, to reflect compliance with state regulations.

For those students, staff, or contractors that need to access radioactive laboratories, but do not use radioactive material, Radiation Awareness training is conducted.

Training for UNH contractors is conducted via an instructor-led course. In addition to the basics of radiation awareness this training includes elements of laser, magnet, x-ray, laboratory, and biological safety.

13.1.3 Radiation Protection Program Maintenance

OEHS maintains the Radiation Protection Program (RPP) manual and the Radiation Safety Users Guide (RSUG). These documents are revised at least every two years as a best management practice, with the last review completed in 2023. The RPP was updated with a new OEHS organization chart and a new delegation of authority letter from President Dean. The RSUG had minor edits and formatting corrected.

13.1.4 Audit and Regulatory ReviewThird Party Audit

State regulations require an annual review of the radiation safety program. UNH contracts with Clym Environmental Services, LLC each year to review the radiation safety program at UNH. The annual review includes a site walk of laboratories, wipe tests for possible contamination, and a document review. The 2023 audit found no areas of non-compliance but suggested minor improvements to radiation safety program and these suggestions are currently being implemented.

13.1.5 Radiation Safety Monitoring Instruments

OEHS tracks the annual calibration of survey instruments, such as Geiger counters and Sodium Iodide detectors. Gas Chromatographs (GC) and Liquid Scintillation Counters (LSC) are inventoried twice per year for the sealed sources internal to the machine. OEHS has eight survey instruments and one LSC. Permitted laboratories have three survey instruments, seven GCs, and one LSC.

Table 13 Radiation Safety Monitoring Instruments Maintained by OEHS

Model Number	Instrument Type	Manufacturer	Calibration
RSO-5		Bicron	Annual
ESP	NaI Meter	Eberline	Annual
ASP2E	Neutron Monitor	Eberline	Annual
ASP2E		Eberline	Annual
Gr-130		Exploranium	Annual
3	GM Counter	Ludlum	Annual
3	GM Counter	Ludlum	Annual
3-241R		Ludllum	Annual
3	GM Counter	Ludlum	Annual
14C-084R	GM Counter	Ludlum	Annual
3	GM Counter	Ludlum	Annual
3	GM Counter	Ludlum	Annual

13.1.6 Occupational and Public Doses-Dosimetry Program

OEHS manages a dosimetry program to track doses from external sources of radiation for applicable faculty, staff, and students. State regulations dictate individual exposure limits over a one-year period. OEHS tracks these doses each quarter to assure compliance with these regulations. This program switched from a bi-monthly to quarterly exchange program in 2019. OEHS interprets results of dose reports for Authorized Users and Radiation Workers, Health Services staff, and Veterinary Technology staff and students. OEHS also tracks area monitors in Space Science, Veterinary Technology and the OEHS radioactive waste room. Area monitors are dosimeters placed in hallways adjacent to radioactive materials work or storage locations to track the potential dose to non-radiation workers and the visiting public. OEHS issued annual occupational dose history reports to Radiation Workers, which documents doses for the previous year. OEHS processed 18 termination dose history reports for individuals who have ceased using source of radiation at UNH. Typical types of dosimetry badges and rings are shown in Figure 30, below.

Figure 30: Typical Dosimeter

For Veterinary Technology there have been 21 dosimeters exchanged every two months. Health Services had 4 dosimeters exchanged every three months and Authorized User Radioactive Permits had 21 dosimeters exchanged every three months.

13.1.7 Surveys and Monitoring

Surveys were conducted quarterly in 2023. The RSO, or designee, performed surveys in laboratories every quarter. Surveys include direct monitoring with a Geiger counter and wipe testing with a filter paper to identify surface contamination and a compliance review of lab records. No items of non-compliance were found during these routine surveys.

13.1.8 Leak Test Procedures

Sealed sources are solid forms of radioactive materials that do not normally pose a threat of contamination. In rare instances, these sources may leak radioactive contamination, therefore leak tests are performed on sealed sources at a frequency prescribed by the State of New Hampshire, Radiological Health Section. There are 128 active sealed sources on campus and all sealed sources are inventoried twice per year.

OEHS completed 76 leak test evaluations across the UNH campus. The RSO, or designee, performed forty-eight (48) three-month leak tests on alpha sources.

Semi-annual leak tests are performed on beta, gamma, and neutron sources as required by the State of New Hampshire, RadiologicalHealth Section. Twenty-eight bi-annual leak tests were performed by the RSO, or designee for OEHS, in 2023.

13.1.9 Waste Management

OEHS manages the pick-up, storage, and disposal of radioactive waste including Dry Active Waste, (DAW), Liquid Scintillation Vials, and other radioactive materials as necessary.

Liquid scintillation vial waste is deregulated and is stored until a 55-gallon drum is full and shipped out for incineration. In 2023, OEHS picked up approximately 25-gallons of liquid scintillation vial waste.

Dry active waste is contaminated solid material such as gloves, absorbent pads, and paper towels generated in laboratory activities using long-lived radioisotopes. OEHS picked up approximately 55-gallons of DAW in 2023. DAW is stored on site for disposal over an approximate three-year cycle. The next estimated DAW waste disposal year is 2025.

OEHS also manages disposal of naturally occurring compounds such as uranyl acetate, thorium nitrate, and uranium. These are generally licensed materials when purchased and need to be disposed of as radioactive waste when no longer needed. OEHS picks up these materials from principal investigators and stores the material for subsequent shipment for disposal as radioactive or mixed waste.

13.1.10 Waste Minimization

OEHS maintains a waste minimization program by instructing researchers to limit long-lived radionuclides that need to be shipped for burial. Waste minimization techniques are taught to Radiation Workers by the RSO, such as excising small pieces of contaminated bench pads rather than discarding the whole pad after each experiment.

13.1.11 Sealed Source Security and Exposure Minimization

OEHS provided financial assistance to one Authorized User permitted to store and manipulate radioactive sealed sources, to improve security of the sources and to lower radiation levels during storage. A new secure safe was acquired and installed which adds a more robust level of physical security while concurrently reducing ambient radiation levels from the sources (see Figure 31).

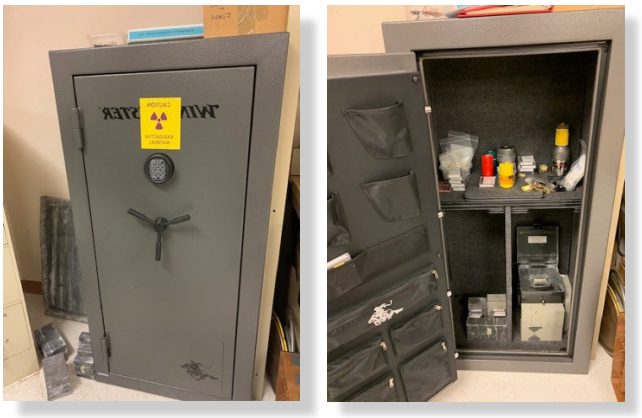


Figure 31: Secure Safe

13.2 Radon Management Program

Radon is a radioactive gas emitted from rock or soil, which may be hazardous to breathe into the body. OEHS maintains a program to monitor for radon in any new building, rental property, or any large-scale construction project to a building. Charcoal vials (Figure 32) placed in the building for the weekend are then sealed and sent to an outside laboratory for analysis.

As an example, in 2020 radon testing was requested for a residential property located at Mast Road in Durham, New Hampshire. The property was set-up as a resource for COVID-19 pandemic quarantine and isolation response.

Figure 32: Radon sampling media

13.3 Magnet Safety

13.3.1 Program Information

UNH teaching and research programs utilize instruments that generate large, static magnetic fields such as Nuclear Magnetic Resonance (NMR) spectrometers and Superconducting Magnets (SM). In response to the hazards posed by such instruments, UNH has implemented a Magnet Safety Program (MSP) as a best practice. The program elements include a safety manual, training, standard operating procedures (SOPs), and area audits. The MSP falls under the purview of the Radiation Safety Committee.

13.3.2 Training

The NMR training program was developed between OEHS and the University Instrumentation Center (UIC). Students, staff, and faculty take an on-line course through UNHCEMS® for part 1 of their training. The UIC then trains the individual on the SOP and issues a key to the NMR room. Refresher training is tracked by the RSO each September. Twenty-nine (29) students, staff, and faculty were trained in Magnet Safety in 2023.

13.3.3 Registration and Instrumentation

Magnet registration is required by the MSP. For ease of access for magnet owners a module was created in UNHCEMS® to register magnets with OEHS. There are four active superconducting magnets or NMR units on campus, as summarized in Table 14. Figure 33 shows a typical superconducting magnet in use at UNH.

Figure 33: Superconducting magnet located at UNH Durham

Table 14 Magnet Instrument Inventory 2022

Model Type	Strength Tesla	Vertical Distance to 5g line	Horizontal Distance to 5g line	Status	Location
Oxford AS400/54 NMR	9.395	1.49	0.88	Active	Parsons Hall W124
Oxford AS500/51 NMR	11.744	1.84	1.31	Active	Parsons Hall W124
American Magnetics NMR	5, 7 max	92-inches	72-inches	Active	Demeritt Hall 103
High Resolution NMR	7.05	1.7 m	2.3 m	Active	Demeritt Hall 103

13.3.4 Surveys and Audits

Visual surveys are conducted twice per year in the two superconducting magnet laboratories. Surveys are performed by the RSO or designee. The State of New Hampshire does not inspect superconducting magnets used for research. Survey inspection items include, proper area postings, updated operating procedures and adequate designation of the 5-gauss line. Magnetic fields are measured in units of magnetic induction, such as gauss. The 5-gauss line designates how close someone with a metallic implant such as a pacemaker can get to the magnet without any harm.

13.3.5 Program Maintenance

The MSP is updated every two years by the RSO and reviewed by the Radiation Safety Committee. The on-line training program through UNHCEMS® is updated once per year in preparation for refresher training. SOPs are updated by the magnet laboratories annually.

13.4 X-Ray Safety

13.4.1 Program information

UNH is committed to maintaining the highest quality X-Ray Protection Program (XPP). Likewise, UNH commits to full and complete compliance with all relevant requirements in the State of New Hampshire Rules for the control of radiation. The XPP is designed to control operations conducted at UNH Research and Educational Facilities which may result in the potential exposure of UNH personnel, members of the general public, and/or the environment to X-Ray Radiation.

The University of New Hampshire's commitment to the XPP is based on the fundamental principle that levels of radiation to be used, and exposures to all sources of ionizing radiation, are to be maintained As Low As Reasonably Achievable (ALARA).

The XPP is administered by the UNH RSO and supported by OEHS and the UNH Radiation Safety Committee. UNH has X-Ray diffraction machines and electron microscopes, as well as diagnostic machines for the Veterinary Technology program.

13.4.2 Training

All students, staff, and faculty who use X-Ray producing machines take X-Ray Safety training on-line through UNHCEMS®. Refresher training is offered once per year based on state regulatory requirements. Eighty-seven (87) individuals completed X-Ray Safety or X-Ray Refresher training in 2023.

13.4.3 Registration and Instrumentation

State registration and payment is required to operate an X-Ray producing machine on campus. All X-Ray producing machines are registered each summer and the certificate of registration is posted in the laboratories. An instrumentation inventory is maintained by the RSO and summarized in Table 15 below.

Table 15 X-Ray Machines Registered at UNH in 2023

Model	Room or Area	Location	Type
Shimazdu	XRD-6100	Parsons N123	Diffractometer
Bruker-Axs	GADDS	Parsons N123	Diffractometer
Siemens-Kristalloflex	D-5000	James 284	Diffractometer
Kratos Analytical	Supra	Parsons W118	X-Ray Fluorescence
ZEISS	Incidental to use	Parsons NB17AC	Electron Microscope
Tescan	Lyra 3 GMU	Parsons NB17AD	Electron Microscope
Teltron	Tabletop Model	Demeritt 317	Diffractometer (X-Ray)
Ultra	EPX-F1200	Barton 132	Diagnostic
Sedecal	R108	Barton 119C	Diagnostic: General Purpose, Animal
Sirona	Heliodent Plus	Barton 119E/F	Diagnostic: dental, ani-mal
All Pro Imaging	Provectav	Barton 205	Demo only: dental, ani-mal

13.4.4 Surveys

X-Ray laboratories were surveyed twice in 2023. The RSO, or designee, completes these surveys, totaling twenty-two (22) X-Ray surveys in 2023. For cabinet machines, surveys include testing the interlocks. Tests are completed for leakage of radiation for all X-Ray producing machines and postings are verified.

13.4.5 Postings

Signage is posted per State of New Hampshire Regulations in X-Ray laboratories including the Notice to Employees (Form RHS-5), which provides workers contact information to notify the state of unsafe conditions, the Certificate of Registration of the machine, and the Standard Operation Procedure to properly use the machine.

13.4.6 Audits and Regulatory Reviews

Clym Environmental surveys the X-Ray laboratories as part of the annual third-party audit of the program. No items of non-compliance were found in the X-ray program in 2023. The State of New Hampshire, Radiological Health Section audits the UNH XPP once every three to five years. UNH was last audited by the State in 2022, with no findings of non-compliance.

13.4.7 Program Maintenance

The XPP is revised every two years. Dosimetry records are analyzed every two months for Veterinary Technology students and every three months for faculty. Additional surveys are conducted if machines are repaired.

13.5 Laser Safety

13.5.1 Program information

The Laser Safety Program (LSP) presents guidelines to protect UNH employees and students from the hazards associated with lasers and laser system operations. The intent of this program is to ensure the safe use of lasers through engineering and administrative controls. This objective shall be accomplished by identifying potential hazards, providing recommendations for hazard control, and training laser operators and incidental personnel. The LSP manual outlines the laser safety recommendations for UNH and is based on the American National Standard for the Safe Use of Lasers, or American National Standards Institute (ANSI) standard guidelines. There are currently no state regulations that pertain to laser safety, although the Radiological Health Section would like to regulate lasers in the future. A typical laser set up with posted SOP at UNH is shown in Figure 34.

Figure 34: Picture of a laser device at UNH

13.5.2 Training

On-line training through UNHCEMS® is offered for Laser Operators. Laser Operator training includes hazard identification, proper signage, use of protective eyewear, laser registration requirements, and SOP requirements. All laser trainings are updated annually. In 2023, OEHS Laser Operator training was completed by four (4) students, staff, and faculty. Live and on-line Laser Awareness training is offered for those individuals that need to enter laser laboratories, but do directly work with lasers. Twenty-four (24) students, staff, and contractors completed Laser Awareness training in 2023.

13.5.3 Registration and Inventory

All active and inactive lasers are registered with OEHS. OEHS has an inventory of 42 class 3B and class 4 lasers, of which 3 are in active use. Figure 35 represents the number of lasers in each building on campus. The Laser program has been determined by both Clym Environmental and the Radiation Safety Officer as an area that needs more attention. This program will undergo a full internal audit in the future.

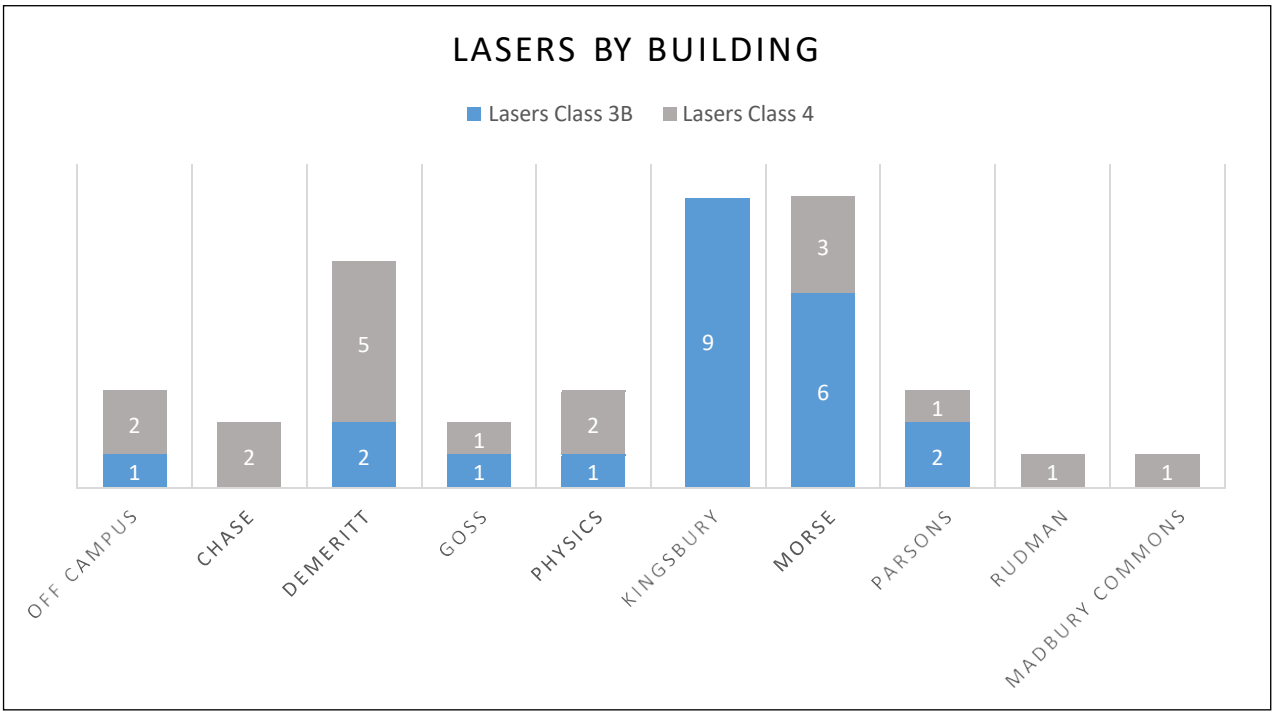


Figure 35: Total Lasers on Campus by Building (includes Active Lasers and Lasers in storage)

13.5.4 Standard Operating Procedures

Written SOPs are required for both the regular use and alignment of class 3B and 4 lasers. SOPs are updated by the Authorized User, approved by the Laser Safety Officer, and signed by the students and facultythat will be using the laser. The SOP should be referenced each time the laser is used.

Some examples of the safety precautions in a laser SOP include: validation of required training; removal of all reflective jewelry, watches, and belt buckles; laser-in-use lighted signs; securing all laser safety curtains or barriers; and proper use of required personal protective equipment.

13.5.5 Personal Protective Equipment

Laser safety eyewear and laboratory coats are examples of PPE. Laser safety eyewear has an optical density and wavelength specific to the laser. The calculated wavelength and optical density are described in the SOP for Authorized Users. Laboratory coats are recommended with ultraviolet lasers to protect the skin. Flame retardant laboratory coats are recommended for Class 4 lasers.

13.5.6 Surveys

Laser Safety surveys are conducted twice per year in all laser laboratories, by the LSO or designee. Survey inspection items include: proper registration; current training; appropriate PPE use; SOPs posted; Appropriate curtains and/or barriers; and accident / incident reporting and documentation.

Significant findings are reviewed by the Radiation Safety Committee.

13.5.7 Audits

Third party audits are performed every fourth quarter by Clym Environmental. Similar to laser surveys, inspection items are reviewed, and an interview is completed with the Authorized User. Discrepancies identified during any audits are immediately addressed.

13.5.8 Program Maintenance

The LSP is reviewed and approved by the Radiation Safety Committee every two years as a best practice. The LSP is currently being reviewed and revised with revisions scheduled to be completed in 2023.

14.0 UNH at Manchester

14.1 UNHCEMS® - Chemical Inventory and Training

Chemicals maintained at the University of New Hampshire Manchester's campus are recorded and tracked using the UNH Barcode system, which links chemical containers to the UNHCEMS® online inventory program.

Data maintained in UNHCEMS® regarding the chemical inventory at UNH at Manchester from 2010 through 2022 is summarized in Table 16, below.

Table 16 Chemical Inventory Statistics for University of New Hampshire Manchester			
Year	Removed Containers	Added Containers	Active Containers
2010	68	36	577
2011	12	11	576
2012	44	38	570
2013	29	48	589
2014	62	32	559
2015	58	59	560
2016	31	60	557
2017	14	150	693
2018	29	134	798
2019	97	162	863
2020	18	84	927
2021	21	161	1,067
2022	274	250	1,065

14.2 Contingency Planning

A contingency plan was prepared for the University of New Hampshire Manchester campus in 2016 and updated in 2021. The plan establishes preparedness, planning, spill response and spill notification procedures for hazardous materials at this campus. The University of New Hampshire at Manchester campus does not meet the minimum threshold quantities requiring a formal ICP or SPCC as prescribed by the US EPA Oil Pollution Prevention Regulations (40 CFR Part 112) and Hazardous Waste Regulations (40 CFR 260-265), the New Hampshire Hazardous Waste Rules (Env-Hw 100-1100) or the OSHA Emergency Response requirements for facilities engaging in hazardous waste operations (29 CFR 1910.120). However, a modified ICP was prepared as a best management practice for responding to spills for the limited quantity of hazardous materials stored at this campus.

Included within the contingency plan is a list of emergency contacts for the UNH Manchester facility and city and state agencies, a spill release response reporting quick reference summary, Initial Spill/Release Response Flow Chart and Spill Response Reporting Flow Chart, and a copy of the Emergency Assistance Agreement Response Form signed by the City of Manchester Fire Chief.

14.3 Biotechnology Innovation Center

Environmental Health and Safety continues to support the Biotechnology Innovation Center (BIC) at UNH Manchester. The BIC provides rentable lab space to private industry clientele and serves as a collaborative research and teaching space for biotechnology and cellular biology. Members of EHS work closely with the BIC lab manager to ensure all tenants, faculty and students that use the facility are compliant with regulatory and UNH safety requirements. Routine support includes the areas of biosafety, laboratory safety, hazardous waste, training, and chemical inventory. A monthly check in meeting was established in 2022 to provide a setting for regular EHS Q&A support to the BIC. In addition, quarterly audits are completed by EHS to ensure compliance and provide documentation.

15.0 UNH Franklin Pierce School of Law

15.1 Emergency Health and Safety Committee

The UNH Franklin Pierce School of Law established a formal EHSC in 2015. The charge of the Committee is to assure a safe work environment for faculty, staff, students and visitors through the creation and maintenance of effective health and safety programs. The EHSC reports to the UNH Law School Dean and the Office of the Provost and Vice President for Academic Affairs on matters related to emergency preparedness, industrial hygiene, and workplace safety compliance. Specific tasks include:

- Develop, review, and update written programs and procedures to ensure compliance with OSHA, New Hampshire Department of Labor and other applicable regulations, and recognized consensus safety standards;
- Serve as an advisory body to the UNH Environmental Health and Safety Committee on policies and procedures to ensure the health and safety of all faculty, staff, students, and visitors at UNH-M; and
- Obtain and analyze available data on past injuries and illnesses, identify trends, and suggest appropriate corrective actions

The EHSC is a deliberative body that is representative of the Franklin Pierce community and includes members from academic and administrative divisions on campus. It is the committee's responsibility to advise the Dean, and to administratively coordinate the various safety-related efforts of the university community. Full voting membership of the EHSC includes the Facilities Manager, the Security Supervisor, the Reference and Public Services Librarian, the SR Human Resource Assistant, the Information Technology Administrator, the UNH Director of Environmental Health and Safety and the UNH Assistant Director of Emergency Management. Chair and Vice-Chair are elected for 3-year terms with a majority vote. The EHSC Chair is a member of the UNH Environmental Health and Safety Committee.

15.2 Other Accomplishments

Other accomplishments completed by the UNH Franklin Pierce School of Law EHSC in 2022 include, but are not limited to:

- Invited Ron O'Keefe to a school-wide staff meeting to discuss the school's Emergency Action Plan

16.0 Emerging Issues

16.1 Staffing Challenges

In 2023, UNH EHS hired and trained new full-time staff and student employees. Additionally, campus-wide challenges with hiring and retention indirectly impact EHS operations as staff turnover and vacancies result in loss of institutional knowledge.

16.2 Solid Waste Management

Like many facilities of this size, UNH Durham generates debris related to construction and site activities. While these materials are typically exempt from solid waste rules, OEHS will partner with an environmental consulting firm with experience with the management of solid wastes and assist UNH with developing policies and procedures for management of waste materials derived from site activities such as construction, grounds management and storm water management that ensure low risk and lasting impacts to the environment or human health.

16.3 National Pollution Discharge Elimination System Permits

OEHS has partnered with state and federal regulators along with the UNH research community to comply with surface water discharge permits. Research activities at UNH marine research facilities require review and oversight to ensure compliance with federal and state discharge permitting requirements. Sampling of effluent streams from our coastal laboratories are being scheduled during active research processes and will be conducted early 2024, with results being submitted to USEPA and NHDES for review.

16.4 UNHCEMS 3.0

The UNH Research Computing Center and UNH Innovations are managing the development of UNHCEMS 3.0. In 2023 OEHS continued to participate in this multi-year project providing assistance with functionality, knowledgebase expertise on the topic of Health & Safety programs, and beta testing in the new environment. UNH OEHS staff will continue working with members of the RCC and the UNH Innovations team as requested during the development and design process. UNHCEMS provides critical safety and compliance information for UNH institutions; modernizing this system will ensure that the UNH and participating institutions can continue to rely on this critical EHS resource.

17.0 Communication and Outreach

OEHS uses many ways to communicate our mission to the campus. The department also provides invaluable information to the general public. This is accomplished in the form of a departmental website (Figure 36), face-to-face and group meetings, electronic communications, telephone consultations, on-site investigations, group trainings, and other effective communication methods.

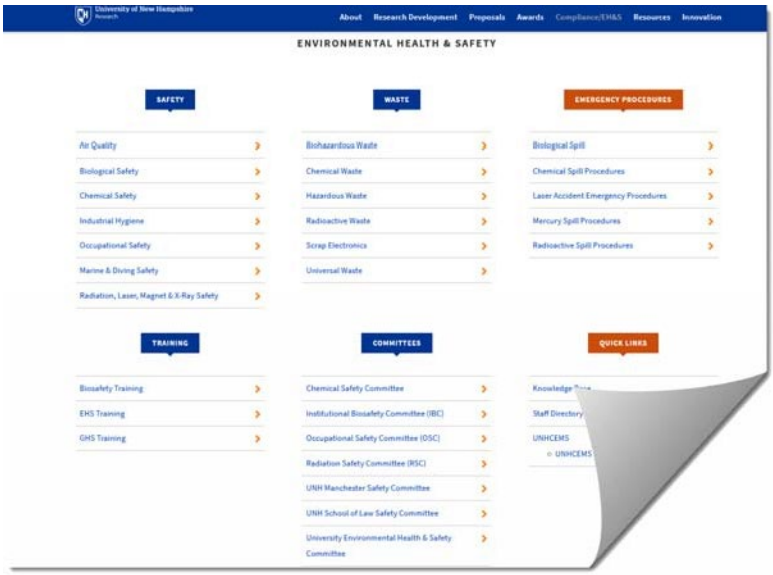


Figure 36: OEHS Home Page

The minutes of the Chemical, Occupational, and Radiation Safety meetings are posted on the website for full public disclosure of our activities. OEHS staff members serve as representatives on these regulatory committee meetings, and attend other meetings of interest to the campus, such as building construction and renovation meetings, the Energy Task Force, the Ecosystems Task Force, the University Emergency Group, as well as ad-hoc meetings when new issues arise.

OEHS produces and distributes many pamphlets and educational materials that cover a wide variety of health and safety topics. As a general practice, the technical experts in OEHS share their programs as much as possible.

18.0 Mechanisms to Measure Compliance

UNH utilizes several mechanisms to assure the campus is meeting the elements and objectives of the campus EH&S programs discussed in this report. These include outside audits, regulatory inspections, technical committee oversight, OEHS program review and USNH EH&S Council review. Examples are highlighted below.

18.1 Industrial Hygiene

Indoor air quality and toxic material exposure assessments are conducted by OEHS, outside consultants, or by the campus Worker's Compensation Insurer depending on the complexity of the issue. Data collected during assessments are compared to current regulatory exposure limits and recommended industry guidelines. The New Hampshire Department of Labor reviews notifications regarding proposed asbestos abatement and is the regulatory agency responsible for governing abatement in New Hampshire.

18.2 General Safety

OEHS utilizes injury and illness trending data compiled by UNH's Workers Compensation insurer to focus safety initiatives. OEHS works with colleges and departments to maintain an electronic environmental health and safety training database for affected faculty, staff, and students. This centralized record keeping process enables OEHS and/or managers to generate queries of individual staff or area departments that are due for safety training. These reports aid in the scheduling of safety training and ensure that all necessary training is completed. Procedures for particularly hazardous work such as hot work, confined space entry, and asbestos and/or lead abatement require a reporting procedure that involves regular communication and oversight from OEHS with additional assistance from the Durham Fire Department and State agencies, as necessary.

18.3 Fire Protection

Both the Durham Fire Department and the State Fire Marshal's Office conduct fire and life safety inspections of campus buildings. Fire suppression and fire alarm systems are tested and certified by outside consultants. Building permits are issued and monitored for compliance by the State Fire Marshal's Office for every construction and renovation project at UNH.

18.4 Occupational Health and Medicine

Medical screening and surveillance programs are implemented by departments utilizing the services of either UNH Health and Wellness or outside occupational health services organizations. Faculty, staff, and student compliance with the animal handler medical surveillance program is reviewed jointly by OEHS and the Office of Research Integrity Services on a monthly basis.

18.5 Disaster Preparedness

UNH has implemented an Emergency Action and Procedures Plan that outlines procedures to be followed by the campus community for responding to and recovering from fires, hazardous materials spills, and major accidents. Specific procedures to follow for fire evacuation are listed in the plan. Nobis Engineering, Inc. was hired to conduct a thorough review of the UNH Integrated Contingency Plan to ensure compliance with federal and state regulations.

OEHS liaises with UNH Police for annual reviews of Emergency Procedures and Action Plans.

18.6 Diving Safety

All aspects of the UNH research diving program are reviewed annually by the UNH Diving Safety Control Board.

18.7 Biological Safety

The UNH IBC reviews and approves all biohazardous material use on campus, including use of recombinant and synthetic nucleic acid molecules, for compliance with the National Institutes of Health Guidelines. OEHS conducts laboratory audits to assure proper biosafety procedures are being followed in the laboratory. Laboratories using human source materials are kept in compliance with the OSHA Bloodborne Pathogens Standard through training, strict use of Universal Precautions, sharps surveys and Hepatitis B vaccine offerings.

18.8 Hazardous Materials Inventory and Reporting

The U.S. Department of Transportation and the Federal Aviation Administration perform unannounced inspections and audits of the shipping program as part of a regional initiative to enforce hazardous materials shipping regulations at colleges and universities.

18.9 Hazardous Waste Management

OEHS provides regular oversight and review of laboratories and shops that generate and store hazardous waste. The NHDES and the U.S. Environmental Protection Agency conduct unannounced inspections of the hazardous waste management program at colleges and universities. OEHS staff conducted a review of the CHWAA Preparedness, Prevention and Contingency Plan, the Hazardous Waste Transporter Contingency Plan, and the Central Accumulation Area Security Plan.

18.10 Radiation Safety

Radiation safety oversees both ionizing and non-ionizing radiations and inspects all laboratories that contain radioactive material quarterly, performs contamination surveys, radiation surveys and compliance audits, and ensuring all laboratories continue to meet all license conditions, as well as all state and federal regulations. The Radiation Safety Program is audited annually by an outside consultant. Results of the audit are shared with the Radiation Safety Committee and the Committee approves any changes to the Radiation Protection Program recommended by the audit consultant.

18.11 Laboratory Safety

OEHS receives chemicals ordered by laboratory chemical users at the university. Upon arrival, these chemicals are barcoded, entered into CEMS, and delivered to the chemical user for use. OEHS additionally performs laboratory chemical fume hood evaluations on an annual basis as well as after disruptive events, which could include unplanned power outages, repair completions, preventive maintenance, and user requests. In 2022, during both chemical deliveries and fume hood evaluations, observations of laboratory safety issues were addressed in coordination with the laboratory users in lieu of formal inspections due to staffing challenges.

[i] Biosafety in Microbiological and Biomedical Laboratories, 6th Edition, U.S. Department of Health and Human Services Public Health Service Centers for Disease Control and Prevention, National Institutes of Health, Revised June 2020, p 28

[ii] Biosafety in Microbiological and Biomedical Laboratories, 6th Edition, U.S. Department of Health and Human Services Public Health Service Centers for Disease Control and Prevention, National Institutes of Health, Revised June 2020, p 28

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Program Elements	2022	2023
3.3.3.1.1 Injury and Illness Prevention		
3.3.3.1.2.1 Industrial Hygiene		
* Asbestos Abatement	●	●
* Lead Abatement	●	●
* Hearing Conservation	●	●
* Indoor Air Quality	●	●
* Personnel Exposure Monitoring for Toxic Materials	●	●
* Respiratory Protection	●	●
* Hazard Communication (GHS)	●	●
* Heat Stress	●	●
* Illumination	●	●
3.3.3.1.2.2 General Safety		
* Confined Space	●	●
* Fall Protection	●	●
* Ergonomic Evaluation	●	●
* Lock-Out/Tag -Out	●	●
* Accident Investigation	●	●
* Powered Industrial Trucks	●	●
* Cranes & Hoists	●	●
* Mobile Elevating Work Platform	●	●
* Dig Safe Program	●	●
* Bloodborne Pathogens	●	●
* Workplace Safety Inspections	●	●
3.3.3.1.2.3 Radiation Safety & Laser Safety		
* Radioactive Material License	●	●
* Radiation Safety Committee	●	●
* Radioactive Material Inventory	●	●
* Radiation Safety Manual	●	●
* User/Awareness Training	●	●
* Radiation Safety Laboratory Inspections	●	●
* Dosimetry	●	●
* Magnet Safety	●	●
* X-Ray Safety	●	●
* Radioactive Waste Management	●	●
* Laser Safety	●	●

LEGEND	
Program in place	●
Program undergoing review, improvement, or under development	●
Program not in place	●
Not Applicable	●

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UNH Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.2.4 Occupational Health and Medicine		
* Respirator Medical Questionnaire	●	●
* Hepatitis B Vaccination	●	●
* Animal Handlers Occupational Health	●	●
3.3.3.1.2.5 Integrated Contingency Planning		
* Aboveground Storage Tank Program	●	●
* Underground Storage Tank Program	●	●
* Integrated Contingency/Spill Prevention Control and Countermeasures Plan	●	●
3.3.3.1.2.6 Biological Safety		
* Institutional Biosafety Committee	●	●
* Biosafety Manual	●	●
* Recombinant DNA Registration	●	●
* Biosafety Laboratory Surveys	●	●
* Inventory of Infectious Material	●	●
* FDA Food Biosecurity Application	●	●
3.3.3.1.2.7 Diving Safety		
* Diving Safety Control Board	●	●
* Diving Safety Officer	●	●
* Diving Safety Manual	●	●
3.3.3.2 Hazardous Materials & Environmental Management		
3.3.3.2.2.1 Hazardous Waste Management		
* Hazardous Waste Management Program	●	●
* EPA Identification Number	●	●
* Faculty/Staff/Student Training	●	●
* Contingency Plans for Central Accumulation Area	●	●
* Satellite Accumulation Area Inspections	●	●
* Universal Waste Management	●	●
* Biohazardous Waste Management	●	●
3.3.3.2.2.2 Hazardous Materials Inventory and Reporting		
* Chemical Environmental Mgmt System/Inventory System	●	●
* DEA Controlled Substances Inventory	●	●
* DHS Chemicals of Interest Inventory	●	●
* Community Right To Know/SARA Title III	●	●
* Safety Data Sheets	●	●
* Chemical Safety/Hygiene Plan	●	●
* Chemical Laboratory Inspections	●	●
* Chemical Safety Committee	●	●
* Title 5 Air Permit	●	●
* Stormwater Management Plan	●	●
* Refrigerant Management Plan	●	●
* Water Quality Permits	●	●
* Hazardous Materials Shipping	●	●

University System of New Hampshire

USNH Environmental Health and Safety Annual Report – 2023
University System of New Hampshire Central Offices

1. MISSION STATEMENT

The University System of New Hampshire's Central Office is committed to providing and maintaining a safe environment for its employees and visitors. USNH focuses on fire and life safety, hazardous material management, accident prevention, industrial hygiene, and safety and health training. The University System of New Hampshire Central Office complies with all required federal, state and local statutes and with USNH Policy.

2. AUTHORITY

USNH Board of Trustee Policy (BOT VI.F.1.3) The Presidents, in collaboration with the Chancellor (currently Chief Administrative Officer), shall establish procedures to ensure the prudent management of environmental health and safety in compliance with applicable state and federal laws. Those procedures shall include coordination with a USNH Council on Environmental Health and Safety, with representation from each component institution. These procedures shall also include, where appropriate, a mechanism for measuring compliance through appropriate means including periodic environmental audits. The Chief Administrative Officer shall coordinate presentation to the Audit Committee of an annual report describing the state of the University System's environmental health and safety efforts at each institution, including the findings of any environmental audit conducted during the reporting period.

3. CAMPUS PROGRAM ELEMENTS

The USNH Director of Capital Planning coordinates support for the System Office at 5 Chenell Drive, Concord, NH. Issues of concern are addressed through regular meetings of the system office staff as necessary.

4. INJURY AND ILLNESS PREVENTION

A. Industrial Hygiene

This program is not applicable at the University System Central Offices

B. General Safety

Injury control is the primary issue for the University System Central Offices. Accident investigation is performed when an illness/injury report is filed with the office of Human Resources. Recommendations are made, if necessary, to prevent recurrence. Workplace Safety Management Consultants from MEMIC are available to assist with accident investigations and risk management oversight for employees. Radiation Safety

This program is not applicable at the University System Central Offices.

C. Fire Protection

Annual site and safety inspections of the Central Offices at 5 Chenell Drive are performed. Part of the inspection addresses fire and evacuation routes and planning procedures. Evacuation drills are held annually. The fire alarms are tested annually by FiveKph, LLC (property owner), Thomas H. Balon Jr. 15 Merrill Street, Manchester NH 03103.

D. Occupational Health and Medicine

This program is not applicable at the University System Central Offices.

E. Disaster Preparedness

USNH has emergency evacuation procedures which address evacuation in case of disasters. USNH Central Offices participate in the UNH Alert system administered by the UNH Police Department. This system allows USNH to contact staff during an emergency by sending text messages to staff emails, cell phones, pagers and blackberries/smart phones.

F. Biological Safety

This program is not applicable at the University System Central Offices.

G. Diving Safety

Safe Driving program is available through United Educators. The Vehicle Safety Policy provides guidance to all USNH employees.

5. HAZARDOUS MATERIALS & ENVIRONMENTAL MANAGEMENT

A. Hazardous Waste Management

The USNH Central Offices deals with a small amount of hazardous waste. Identifiable waste streams include fluorescent light bulbs, copier machine and laser printer toner and outdated computer equipment. Procedures are in place for the responsible disposal of all of the above mentioned items. Electronic equipment is disposed of via the UNH IT Safe Electronic Equipment Disposal (SEED) program.

B. Hazardous Materials Inventory and Reporting

There are janitorial cleaning supplies located on site. Safety Data Sheet information is posted on site and janitorial employees are trained on the proper use of cleaning supplies.

6. MECHANISMS FOR COMPLIANCE

The USNH Director of Capital Planning ensures the compliance with safety policies by performing site evaluations and contracting with environmental specialists to assist with internal audits when necessary. Annual items reviewed include: facility safety issues and procedures, evacuation drills, (including the conducting of drills), the posting of emergency exit signs and diagrams, fire extinguishers inspections, and the removal of hazardous materials as outlined in 5A. e Regular updates on the results of the evaluations and audits and on efforts to mitigate any items of concern are reported to the Chief Administrative Officer and Executive Team.

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USNH Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.1 Injury and Illness Prevention		
3.3.3.1.2.1 Industrial Hygiene		
* Asbestos Abatement	●	●
* Lead Abatement	●	●
* Hearing Conservation	●	●
* Indoor Air Quality	●	●
* Personnel Exposure Monitoring for Toxic Materials	●	●
* Respiratory Protection	●	●
* Hazard Communication (GHS)	●	●
* Heat Stress	●	●
* Illumination	●	●
3.3.3.1.2.2 General Safety		
* Confined Space	●	●
* Fall Protection	●	●
* Ergonomic Evaluation	●	●
* Lock-Out/Tag -Out	●	●
* Accident Investigation	●	●
* Powered Industrial Trucks	●	●
* Cranes & Hoists	●	●
* Mobile Elevating Work Platform	●	●
* Dig Safe Program	●	●
* Bloodborne Pathogens	●	●
* Workplace Safety Inspections	●	●
3.3.3.1.2.3 Radiation Safety & Laser Safety		
* Radioactive Material License	●	●
* Radiation Safety Committee	●	●
* Radioactive Material Inventory	●	●
* Radiation Safety Manual	●	●
* User/Awareness Training	●	●
* Radiation Safety Laboratory Inspections	●	●
* Dosimetry	●	●
* Magnet Safety	●	●
* X-Ray Safety	●	●
* Radioactive Waste Management	●	●
* Laser Safety	●	●

LEGEND	
Program in place	●
Program undergoing review, improvement, or under development	●
Program not in place	●
Not Applicable	●

USNH Council on Environmental Health and Safety
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USNH Compliance Status December 2022 and December 2023

Program Elements	2022	2023
3.3.3.1.2.4 Occupational Health and Medicine		
* Respirator Medical Questionnaire	●	●
* Hepatitis B Vaccination	●	●
* Animal Handlers Occupational Health	●	●
3.3.3.1.2.5 Integrated Contingency Planning		
* Aboveground Storage Tank Program	●	●
* Underground Storage Tank Program	●	●
* Integrated Contingency/Spill Prevention Control and Countermeasures Plan	●	●
3.3.3.1.2.6 Biological Safety		
* Institutional Biosafety Committee	●	●
* Biosafety Manual	●	●
* Recombinant DNA Registration	●	●
* Biosafety Laboratory Surveys	●	●
* Inventory of Infectious Material	●	●
* FDA Food Biosecurity Application	●	●
3.3.3.1.2.7 Diving Safety		
* Diving Safety Control Board	●	●
* Diving Safety Officer	●	●
* Diving Safety Manual	●	●
3.3.3.2 Hazardous Materials & Environmental Management		
3.3.3.2.2.1 Hazardous Waste Management		
* Hazardous Waste Management Program	●	●
* EPA Identification Number	●	●
* Faculty/Staff/Student Training	●	●
* Contingency Plans for Central Accumulation Area	●	●
* Satellite Accumulation Area Inspections	●	●
* Universal Waste Management	●	●
* Biohazardous Waste Management	●	●
3.3.3.2.2.2 Hazardous Materials Inventory and Reporting		
* Chemical Environmental Mgmt System/Inventory System	●	●
* DEA Controlled Substances Inventory	●	●
* DHS Chemicals of Interest Inventory	●	●
* Community Right To Know/SARA Title III	●	●
* Safety Data Sheets	●	●
* Chemical Safety/Hygiene Plan	●	●
* Chemical Laboratory Inspections	●	●
* Chemical Safety Committee	●	●
* Title 5 Air Permit	●	●
* Stormwater Management Plan	●	●
* Refrigerant Management Plan	●	●
* Water Quality Permits	●	●
* Hazardous Materials Shipping	●	●