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I. Major Accomplishments

√ Completion of a new Five Year OEHS Strategic Plan

The new strategic plan sets priorities, strengthens operations, focuses energy and resources and ensures that OEHS staff and campus stakeholders are working towards common goals.

√ New UNHCEMS Training Module

The newest UNHCEMS feature involves all OEHS management divisions, as well as others in the SVPR office. Included are over 39,000 training records, with more than 7000 individuals trained in 2014. Principal Investigators or teaching faculty can add, delete or modify training requirements for the people in their labs or class. Non-lab personnel training records, such as those in UNH Facilities or contractors under UNH Facilities direction, are also included in UNHCEMS.

√ UNH School of Law Integration into OEHS Management System

OEHS performed consultation and advisement of regulatory requirements and the establishment of an Emergency, Health and Safety Committee for the school.

√ UNH Manchester Pandora Mill Building Move

Preparation for the relocation of science facilities at UNH at Manchester. This includes review of plans for new chemical and biology laboratories, site environmental mitigation sampling, and hazardous materials assessment.
Transition of the Shoals Marine Lab operations into the UNH OEHS Management System.

OEHS worked with Cornell on the transition of the SML EH&S program, including the recertification of the Appledore Island oil Spill Prevention Control and Countermeasure (SPCC) Plan.

Appledore Island

EH&S Mitigation Fund

There were a total of 55 EH&S mitigation projects managed by OEHS staff in 2014. Projects included emergency eyewash and shower installations, crane and hoist inspections, laser safety engineering controls, fume hood exhaust air flow sensors, and custom cylinder rack manufacture and installation.

Radiation Protection, X-Ray and Laser Safety Program Enhancements

OEHS secured renewal of the UNH Broad-Scope Radioactive Material License with the State of New Hampshire. The UNH Radiation Safety Committee approved the new campus X-Ray Protection Program and revised Laser Safety Program.
√ Partnering With Our Stakeholders

OEHS collaborated in the development of safety procedures for the manufacture of carbon and boron nitride nanofibers, and a nanoparticle assessment, with safety support, for a Material Science Professor. We also oversaw exposure sampling, which confirmed safe operations.

At the request of the Dean of CEPS, OEHS is developing an Emergency Operations Plan (EOP) for Kingsbury Hall. The purpose of this plan is to establish clear guidelines regarding UNH employees’ responses to emergencies, including fire, chemical spills or releases, power outages, acts of violence and injury/illness. This EOP is developed to provide for the safety of the UNH community and follows the basic elements contained in the Occupational Safety and Health Administration (OSHA) regulation for emergency action planning contained in 29 CFR 1910.38. The EOP details the actions that UNH employees will be expected to take in response to an emergency and identifies certain individuals that have an emergency response role.

Demonstrating operation of laboratory emergency equipment. “This an important component of safety training, but this level of participation took it to a whole new level,” said Andy Glode, laboratory safety officer with UNH's Environmental Health and Safety office. “Nancy is very supportive of laboratory safety initiatives and doing this to promote the student group was a wonderful, memorable gesture.”

Professor Nancy Kinner demonstrating how a safety shower works
OEHS reexamined current policies and procedures for biological safety to determine if changes were needed to the program. We discovered that changes to certain areas would benefit our current program and a biosafety/biosecurity manual is being drafted to address those needs.

The UNH biological inventory has been updated. A new barcoding inventory system will be piloted in Quarter One 2015 for easier tracking of biological materials. Additionally, a decommissioning process is being solidified to ensure any Investigators that leave the University will disposition their biohazardous materials appropriately and inventory will be updated.

OEHS will reinforce biosafety training of investigators, laboratory staff, and members of the IBC. New training modules, such as Principal Investigator Training, will be rolled out in 2015.

Providing EH&S Services to Meet Regulatory Mandates

Completed successful recruitment of Occupational Health and Safety Specialist to assure compliance with campus confined space, fall protection, hazardous material management and ergonomic assessment programs.

II. Mission Statement

The UNH Office of Environmental Health and Safety (OEHS) 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 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 as well as injury and illness prevention as highlighted in the 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’s mission by providing leadership, resources, and services to assure a safe and healthful working environment for all members of the University and its surrounding community.

The OEHS Mission Statement was re-affirmed in 2014 after review and approval of the new five-year OEHS Strategic Plan. The Statement is distributed through the UNH Research Office web site at http://www.unh.edu/research/support-units/environmental-health-safety.
III. 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.

IV. 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 organizationally accountable for all that we do and commit to providing timely and comprehensive evaluation of our programs and efforts.

★ 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.
V. 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.

Injury and Illness Prevention

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 work place, which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers or among the citizens of the community. OEHS performs worksite assessments to determine potential health hazards throughout many campus locations. OEHS provides technical assistance and advice on chemical hazards that can contribute to exposure risks including laboratory exposures, exposures from chemical release incidents, noise, heat, and hazardous building materials. UNH community members can request assistance from OEHS's staff Certified Safety Professional. To assist with our evaluations of potential exposures, OEHS calibrates and maintains an inventory of nineteen (19) direct reading/sampling instruments. These instruments can be used to evaluate contaminants that can include lead, asbestos, mold, dust, and volatile chemicals. By monitoring and/or collecting air samples in house, the costs of labor associated with retaining one of UNH’s industrial hygiene consultants are reduced. OEHS responded to thirty (30) requests from the campus community for industrial hygiene only technical services. Inquiries were related to hazardous building materials, potential exposures to hazardous chemicals, noise, and heat.

OEHS continues to provide day-to-day technical support during the summer months for the UNH Excessive Heat Advisory program (see OLPM, UNH VD3.3). OEHS utilizes a Quest wet-bulb globe thermometer to measure the outdoor heat during the summer months. When the outdoor temperature exceeds the established consensus threshold for heat, OEHS notifies the campus community via email through the UNH Directed Communication system. The warnings contain a prescription for work and rest for those employees, athletes, visitors, and/or guests who may be working outside, and if necessary, to those working inside. In 2014 OEHS issued a total of six (6) heat advisories. All were issued via directed communication to those impacted operating groups.

OEHS continued to partner with the Animal Resource Office to provide an Occupational Health and Safety component for the mandatory Animal Handler Training conducted prior to the start of each academic semester. OEHS participated in four sessions in 2014.
**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 reviewed by OEHS to evaluate their frequency (number of incidents) and the severity (cost associated with an injury). OEHS, in conjunction with Human Resources and our Workers Compensation Insurance Carrier, Maine Employee Mutual Insurance Company (MEMIC), monitors monthly trends and costs and works to focus efforts on addressing those areas where a higher frequency of accidents and/or severity are occurring. During 2014 UNH experienced 332 incidents that resulted in approximately $307,677 in financial losses. While this number of incidents is slightly up from the 324 incidents in 2013 the actual financial losses were lower. As with previous years, losses continue to remain lower than in previous years.

In 2012 OEHS coordinated live fire extinguisher training. This training was received by the UNH community in such a positive manner that OEHS coordinated the vendor to return in 2013 and again in 2014. One hundred and forty-seven (147) employees participated in the training in 2014.

OEHS continued its partnership with Human Resources on Accident Prevention and Safety by conducting an OEHS Orientation as part of Getting Started@UNH. In 2014 the orientation was modified to reflect recent changes in various program areas and better serve the campus community. In an effort to further promote a safe and healthful working environment for the UNH community, OEHS participated in the Human Resources Benefits Fair, which included providing information on ergonomics.

**Indoor Environmental Quality**

OEHS investigates indoor environmental quality (IEQ) complaints and concerns by campus community members. These complaints typically involve thermal comfort, non-specific symptoms, reports of microbiological contamination/growth, specific health related symptoms related to indoor air, or odors of an unknown origin. OEHS conducts indoor air quality (IAQ) surveys and due diligence assessments following reports or complaints commonly associated with compromised air quality, following routinely practiced industry standards for the investigation of IAQ complaints. To assist in the evaluation, OEHS maintains two (2) direct reading instruments to monitor basic IAQ parameters, two (2) moisture survey meters to evaluate for damp conditions that can be conducive for microbiological growth, a boroscope that views inaccessible areas such as HVAC ducts and wall cavities, and a new ultrafine particle analyzer that can be used to survey for dusts/particles and determine their source.
In 2014 OEHS responded to thirty seven (37) requests for IEQ services. This is down slightly from thirty-nine (39) in 2013. OEHS requested assistance from IAQ consultants on eleven (11) occasions with six (6) investigations requiring remediation or corrective actions by qualified personnel. Consulting services and remedial efforts were funded primarily by the affected departments. However, OEHS was able to support several sampling efforts and remedial projects through the EH&S Mitigation Fund established in 2009.

**General 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. The UNH Occupational Safety Committee assists with setting forth health and safety policies and programs which are then adopted and implemented within the affected departments. The Occupational Safety Committee is a joint labor-management committee, and serves as a vehicle through which the campus community can discuss safety concerns, disseminate information about programs and services from OEHS, and develops initiatives for future health and safety efforts. The Occupational Safety Committee incorporates representation from Facilities, Research Integrity Services, Facilities Construction Team, Housing, Campus Recreation, Memorial Union Building, Athletics, Information Technology, Hospitality Services, Health Services, Energy and Utilities, Housekeeping, Contracts Management, and University Libraries. OEHS coordinates and schedules the quarterly meetings, develops meeting agendas, and records and generates meeting minutes. OEHS is responsible for submitting the biannual report to the New Hampshire Department of Labor on the state of the occupational safety program at the University. The latest biannual report was submitted in December 2012. In January 2013 the State of New Hampshire Department of Labor law was changed to require employers to file the Safety Summary Form just one time. The 2012 filing meets the one-time filing requirement, and is no longer required to be submitted.

**Safety Training and Education**

The Occupational Health and Safety Coordinator routinely performs and/or coordinates safety training for those affected faculty, staff, and students on a variety of topics that include Hazard Communication, Personal Protective Equipment, Respiratory Protection, Hearing Conservation, Control of Hazardous Energy (Lockout/Tagout), Confined Space Entry, Fall Protection, Asbestos Awareness, Powered Industrial Trucks, 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. In addition to live training, many health and safety program training courses are offered through UNH Blackboard.

During 2014 OEHS continued its efforts to promote training to targeted areas where increased losses were occurring and to ensure compliance with regulatory training requirements. OEHS continued its partnership with Dining Services and Housekeeping to address areas of increased losses. This included redeveloping multiple training programs to address hazards and their controls to minimize exposure risks. OEHS participated in Dining Services Associates Day and presented various topics in an effort to promote safety awareness. These areas covered training on cuts and burns; slips, trips, and falls; ergonomics and back/lifting safety; fire safety and prevention; and hazard communication/right to know. For Housekeeping staff, emphasis was placed on ergonomics and back safety, asbestos awareness, and bloodborne pathogens. OEHS continued to provide training for Facilities Operations and the Facilities Construction Team to target specific areas that impact their operations to promote safety. In addition,
OEHS conducted a 10-hour OSHA Construction Safety Training course for Facilities Construction Management. This course is an overview of the OSHA Construction Safety Standards with each participant receiving an OSHA card documenting their successful completion. Finally, OEHS worked with the College of Engineering and Physical Sciences (CEPS) to provide occupational safety training in Confined Space Entry, Lockout/Tagout, and Powered Industrial Trucks. In total OEHS conducted twenty (20) classroom based programs in 2014. Training was provided to 305 faculty, staff, and students. This number is down from the 1,310 trained in 2013. However in 2013 1,037 employees participated in the on-line Hazard Communication - GHS training that was not required in 2014. In addition to classroom based training, OEHS continued to utilize the Blackboard platform to deliver an e-learning alternative for several occupational safety topics. The e-learning alternative is available to those departments who prefer computer-based training delivery. This allows departments to maintain compliance with existing safety training policies and provides flexibility in scheduling.

**Ergonomics Programs**

OEHS continues to provide guidance to the campus community on ergonomic related risks by promoting its proactive approach to ergonomics to reduce the number of claims involving musculoskeletal disorders associated with poor workstation design. In 2014 OEHS conducted 111 workstation evaluations. Each evaluation consists of visually reviewing the employee’s workstation, discussing with them any symptoms they may be experiencing, making adjustments and modifications to the workstation, and discussing proper body positioning. Each assessment is followed up by a formal report that not only summarizes our observations and modifications, but also includes additional recommendations to further reduce ergonomic risk factors. New employees are informed of the ergonomics program during their orientation and are encouraged to take advantage of the assessment services provided by OEHS. The following table summarize the ergonomic losses dating back to 2007.

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tr>
<td>Claims</td>
<td>15</td>
<td>17</td>
<td>22</td>
<td>15</td>
<td>8</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Incurred Costs(^1)</td>
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<td>$114,109</td>
<td>$114,097</td>
<td>$89,341</td>
<td>$35,817</td>
<td>$27,555</td>
<td>$4,892</td>
<td>$384</td>
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</table>

1. Values provided by Human Resources based on loss runs as provided by MEMIC. Claims and values may vary slightly based on cause description as documented by MEMIC. Costs will fluctuate and down based on continuing/additional treatment, indemnity costs, and/or injuries reported in 2014 that occurred in 2013.
2. Prior to 2009 ergonomic assessments were performed on a reactionary basis following the report of an occupational injury.

OEHS will continue its proactive ergonomic efforts in 2015 to further promote the UNH ergonomics program and reduce injuries.

UNH continues to utilize the New Hampshire Department of Labor Job Modification Program to assist in the purchase of equipment and/or software to allow workers with ergonomic issues to return to work. In 2014 UNH submitted and was approved for one job modification request resulting in a reimbursement to UNH of $415.00.
OEHS continued its partnership with the Department of Occupational Therapy, the Office of Human Resources, and several campus departments with ongoing student projects as part of the Ergonomics course. OEHS participated in the course by presenting material on ergonomics as it relates to the UNH campus. During 2014 students conducted evaluations for selected employees on campus. OEHS participated in the classroom presentations on their assessments to ensure they were conducted in line with the current assessment process. In addition the students created a new ergonomics website for OEHS to better promote the ergonomics program. Emphasis was not only placed on computer workstations, but on back and lifting safety, and slips, trips, and falls. It is anticipated that the new website will be operational in early 2015.

**Safety Technical Services**

OEHS provides assistance to our campus stakeholders on issues of safety program development, implementation, compliance, regulatory interpretation, and technical assistance. In 2014, OEHS responded to fourteen (14) requests for technical assistance on a broad range of safety topics including walking and working surfaces, respiratory protection, personal protective equipment, rigging, contractor safety, fire safety and prevention, emergency action planning, scaffolding, confined space entry, fall protection, the control of hazardous energy (lockout/tagout), welding and cutting, fuel handling, electrical safety, powered industrial trucks, and lift safety.

OEHS and UNH partners with the Durham and Manchester Fire Departments to provide for confined space entry rescue services. OEHS receives and maintains all permits for activities involving entry into UNH confined spaces. During 2014 OEHS received one hundred eight (108) confined space entry permits. These permits are reviewed, and if necessary, followed up on campus to ensure employees entering confined spaces are following current UNH program requirements. In addition, permits are reviewed with the applicable campus operating group as part of the annual Permit Required Confined Space Entry program assessment.

OEHS continues its advisory and administrative role for the current Hot Work Permit Program. This program requires those personnel who perform welding, torch cutting, or any other heat and spark producing activities outside a designated hot work area to complete a Hot Work Permit. The program offers two options for hot work. Those conducting hot work can opt to complete a single shift permit, which authorizes hot work for the single date specified on the permit. These permits are completed by the UNH Facilities Project Manager and/or the Competent Hot Work Supervisor and forwarded to OEHS prior to the commencement of activities. The second option available is to request a blanket permit. A blanket permit can be submitted to OEHS and will be reviewed on campus with the appropriate UNH and/or contractor personnel. Once reviewed, the blanket permit will be signed and approved. The blanket permit can be used for a time period not to exceed 14 calendar days. During 2014 OEHS received one hundred fifty six (156) single shift hot work permits and eighty (80) blanket permit requests that were subsequently approved.

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 2014 staff from all disciplines in OEHS participated in projects associated with McConnell Hall, Hewitt Annex, Conant Hall, Spaulding Hall, Horton Hall, Memorial Union Building, Huddleston Hall, Hamilton Smith Hall, Field House, Hammel Recreation Center, Stillings Hall, Dimond Library, Kendall Hall, Parsons Hall, Paul Creative Arts Center, Greenhouses, Morse Hall, UNH Manchester, and exterior locations to include at the Conant Courtyard and Cowell Stadium.
**Occupational Health Medicine**

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

There are currently 581 faculty, staff, students and visitors participating in medical surveillance programs at UNH.

![Number Enrolled In Medical Surveillance Programs](image)

**Emergency Procedures and Fire Protection**

The University partners with the Durham Fire Department for building life safety inspections and code compliance evaluations. Inspection reports are sent to OEHS for review and then forwarded to the appropriate department for action if any deficiencies are noted in the report. Corrections are implemented within thirty days. OEHS also triages numerous individual issues noted by the Durham Fire Department during site visits for other purposes.

Evacuation drills in residential buildings are coordinated between the Office of Residential Life and the Durham Fire Department and occur annually. OEHS assists the Durham Fire Department in coordinating evacuation drills in non-residential University buildings. Emergency drills are not required every year in academic and administrative buildings.

**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 which 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.

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 SCUBA diving.

UNH has implemented both of these elements and is in compliance with this exemption.

<table>
<thead>
<tr>
<th>Total Number of Divers logging dives during 2014: 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Dives logged during 2014: 857</td>
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<tr>
<td>Diving Incidents This Training Cycle: 0</td>
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<table>
<thead>
<tr>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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<tbody>
<tr>
<td>Dives by Purpose</td>
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<td></td>
</tr>
<tr>
<td>Scientific</td>
<td>20591</td>
<td>535</td>
</tr>
<tr>
<td>Scientific Training &amp; Proficiency</td>
<td>10428</td>
<td>322</td>
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<tr>
<th>Dives by Diving Mode</th>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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<tbody>
<tr>
<td>Open Circuit SCUBA</td>
<td>28990</td>
<td>833</td>
<td>33</td>
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<tr>
<td>Hookah</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Surface Supplied</td>
<td>958</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Rebreather</td>
<td>1069</td>
<td>15</td>
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<tr>
<th>Dives by Breathing Gas</th>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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<tbody>
<tr>
<td>Air</td>
<td>29926</td>
<td>840</td>
<td>33</td>
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<tr>
<td>Nitrox</td>
<td>1017</td>
<td>16</td>
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<tr>
<td>Mixed Gas</td>
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<thead>
<tr>
<th>Dives by Decompression Profiling Method</th>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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</thead>
<tbody>
<tr>
<td>Dive Tables</td>
<td>6388</td>
<td>208</td>
<td>16</td>
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<tr>
<td>Dive Computer</td>
<td>24631</td>
<td>649</td>
<td>27</td>
</tr>
<tr>
<td>PC-based Deco Software</td>
<td>0</td>
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<table>
<thead>
<tr>
<th>Dives by Specialized Diving Environment</th>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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<tr>
<td>Required Decompression</td>
<td>489</td>
<td>8</td>
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<tr>
<td>Overhead Environment</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Blue Water</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Ice/Polar</td>
<td>0</td>
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<tr>
<td>Saturation Diving</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Aquarium Diving</td>
<td>90</td>
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<thead>
<tr>
<th>Scientific or Training/Proficiency Dives by AAUS Depth Range</th>
<th>Dive Time in Minutes</th>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
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<tbody>
<tr>
<td>0 - 30 feet</td>
<td>18873</td>
<td>455</td>
<td>31</td>
</tr>
<tr>
<td>31 - 60 feet</td>
<td>9451</td>
<td>289</td>
<td>26</td>
</tr>
<tr>
<td>61-100 feet</td>
<td>2297</td>
<td>106</td>
<td>17</td>
</tr>
<tr>
<td>101 - 130 feet</td>
<td>143</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>131 - 150 feet</td>
<td>179</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>151 - 190 feet</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>190+ feet</td>
<td>76</td>
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<td>1</td>
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</table>

Additional dives completed by UNH Basic students enrolled in NAUI certification courses for 2014:

<table>
<thead>
<tr>
<th>Dives Logged</th>
<th>Number of Divers Logging Dives</th>
</tr>
</thead>
<tbody>
<tr>
<td>8448</td>
<td>280</td>
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</tbody>
</table>
**Art Safety**

OEHS has worked with the Art Department to review incidents and accidents in an effort to prevent re-occurrence and maintain a safe and healthful environment for staff and students. Efforts include review of machine guarding for the wood shop, assessment of the metal fabrication/welding shop, and review of practices, procedures, and training used by students. As a result of our work with the Art Department, increased efforts on oversight and student safety have occurred, as well as the purchase of a new band saw, which better meets current OSHA standards for machine guarding.

**VI. Disaster and Emergency Preparedness**

**Integrated Contingency Plan**

OEHS completed necessary revisions to the campus Integrated Contingency Plan (ICP) in 2014. These revisions included updating the UNH Whittemore Center Emergency Response Plan, the UNH Central Hazardous Waste Accumulation Area (CHWAA) Preparedness, Prevention and Contingency Plan, the UNH CHWAA Security Plan and the UNH Radiation Protection Program.

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 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 shoreline.


• Section I - Introduction 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;
• Satellite Accumulation Areas (SAAs) in laboratories and research facilities throughout campus;
• UNH Facilities including the Heating Plant and shops;
• Transportation Garage;
• All other perimeter farms in Durham associated with the UNH Durham campus;
• Jackson Estuarine Laboratory in Durham;
• Ft. Constitution Coastal Marine Laboratory Facility in New Castle;
• Ft. Constitution Pier Support Facility in New Castle;
• Burley DeMeritt facility in Lee;
• Kingman Farm / Main Lab in Madbury;
• UNH at Manchester;
• 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 University of New Hampshire, and situated within the general Durham campus area; and
• Other miscellaneous properties owned by the University of New Hampshire.

Spill Prevention Control and Countermeasure (SPCC) Planning

The top priority of the United States Environmental Protection Agency’s (USEPA) Emergency Management Program is to prevent, prepare for, and respond to oil spills that occur in and around inland waters of the United States. 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 requires specific facilities to prepare, amend, and implement SPCC Plans.

UNH maintains certified SPCC Plans for the Durham campus, the Combined Heat and Power Plant, the Shoals Marine Laboratory and the UNH Landfill Gas Processing Facility in Rochester. All four Plans were revised and updated in 2014. UNH Facilities conducts regular inspections of the 55 aboveground storage tanks (ASTs) on campus. For 2014, staff conducted 365 tank inspections. In addition, structural upgrades were completed on several aboveground oil storage tank systems to ensure compliance with revised New Hampshire Department of Environmental Services (NHDES) regulations. OEHS trained 40 staff and contractor oil handling personnel in 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 SPCC Plans.
Emergency Planning and Community Right-to-Know

The Emergency Planning and Community Right-to-Know Act (EPCRA), also known as the Superfund Amendments and Reauthorization Act (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 of New Hampshire and local government (the Town of Durham). EPCRA requires the establishment of State Emergency Response Commissions (SERCs) responsible for coordinating certain emergency response activities and for appointing Local Emergency Planning Committees (LPECs).

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. For reporting year 2013, OEHS notified the SERC and the LEPC that UNH stores 18 chemicals that fall above the threshold planning quantity and must be reported to local and state government.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>RY 2012 (lbs)</th>
<th>RY 2013 (lbs)</th>
<th>RY 2014 (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>1,000</td>
<td>1,000</td>
<td>1,197</td>
</tr>
<tr>
<td>Chloroform</td>
<td>Not Reported</td>
<td>1,064</td>
<td>1,106</td>
</tr>
<tr>
<td>Diesel</td>
<td>32,170</td>
<td>32,170</td>
<td>32,170</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>534</td>
<td>545</td>
<td>559</td>
</tr>
<tr>
<td>FR3 (transformer fluid)</td>
<td>43,098</td>
<td>43,098</td>
<td>43,098</td>
</tr>
<tr>
<td>Fuel Oil #2</td>
<td>592,339</td>
<td>592,339</td>
<td>592,339</td>
</tr>
<tr>
<td>Fuel Oil #6</td>
<td>554,610</td>
<td>554,610</td>
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</tr>
<tr>
<td>Hydraulic Oil (elevators)</td>
<td>77,782</td>
<td>77,782</td>
<td>77,782</td>
</tr>
<tr>
<td>Hydrofluoric Acid</td>
<td>---</td>
<td>---</td>
<td>111</td>
</tr>
<tr>
<td>Mineral Oil (transformers)</td>
<td>145,406</td>
<td>145,406</td>
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</tr>
<tr>
<td>PCH-180  (Inorganic Aluminum Salt)</td>
<td>Not Reported</td>
<td>60,048</td>
<td>60,048</td>
</tr>
<tr>
<td>Propane</td>
<td>185,363</td>
<td>185,363</td>
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<tr>
<td>R-TEMP  (transformer fluid)</td>
<td>13,636</td>
<td>13,636</td>
<td>13,636</td>
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<tr>
<td>Sand</td>
<td>Not Reported</td>
<td>150,000</td>
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<td>Salt</td>
<td>1,000,000</td>
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<tr>
<td>Sodium Hydroxide</td>
<td>64,779</td>
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<td>140,854</td>
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<tr>
<td>Sodium Hypochlorite</td>
<td>33,642</td>
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</tr>
<tr>
<td>Sulfuric Acid</td>
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<td>2,476</td>
<td>2,769</td>
</tr>
<tr>
<td>Sulfuric Acid (batteries)</td>
<td>261</td>
<td>17860 total battery weight</td>
<td>17860 total battery weight</td>
</tr>
<tr>
<td>Lead (batteries)</td>
<td>Not Reported</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VII. Laboratory Safety and Environmental Management

Air Quality

The New Hampshire Department of Environmental Services (NHDES) issued UNH a Title V Air Permit (TV-OP-010) for the campus Central Heating Plant and Co-generation Facility on April 11, 2007. A significant permit modification was issued by NHDES in November 2009 removing the permit condition requiring a fuel flow meter on the black start emergency generator (BSEG) at UNH’s Co-generation facility. In addition, UNH was issued a Temporary Permit and Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NSR) permit (TP-B-0531) in July 2007 for the construction and operation of combustion devices associated with a Landfill Gas to Energy facility at Rochester and on the Durham campus.

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 a renewal application for its Title V permit that was determined to be timely and complete by NHDES in December 2011. UNH’s Title V renewal application included all devices currently covered by the existing Title V and Temporary Permits. It is anticipated that a draft Title V permit will be issued by NHDES in mid-2015.

In 2014, OEHS initiated an update of 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 and April 2013. As part of this updated compliance demonstration, UNH has combined the compliance demonstrations that were previously prepared for the Durham Campus and the Landfill Gas to Energy Facility located in Rochester. To assess the adequacy of UNH’s most recent compliance demonstrations (October 2010 – Durham Campus, March 2011 – Landfill Gas to Energy Facility) as they compare to current campus activities, UNH conducted the following activities:

- Reviewed current version of Env-A 1400 (revised in February 2011 and June 2012) for any rule changes (i.e. changes to ambient air limits, methodologies, etc.) since the most recent compliance demonstration for potential impacts to UNH’s compliance demonstration;

- Updated an inventory of cooling towers at the Durham, Manchester and Concord campuses;

- Collected information on types and amounts of water treatment chemicals added to the cooling towers as algaecides, fungicides, biocides, and anti-foaming agents. Documented compliance demonstration for cooling tower regulated toxic air pollutant (RTAP) emissions;

- Updated UNH Printing Services’ products and actual usage rates for calendar year 2013, to identify any new RTAPs not covered by the most recent update, and to assess changes in usage rates;

- Reviewed existing activities identified in UNH’s most recent compliance demonstration to identify any significant changes to methods and/or equipment; and

- Reviewed and updated previous Env-A compliance demonstration of the LGTE facility.
**Biological Safety**

The year was challenging for biological safety in the United States. With Ebola cases and federal lab mishaps putting biological safety in the spotlight, biosafety program administrators all over the country were faced with evaluating policies and procedures and making improvements in a short period of time. OEHS met that challenge in 2014 and began assessments and enhancements of the current biosafety program.

UNH took part in the National Biosafety Stewardship Month at the recommendation of National Institutes of Health for all NIH grantees. This activity was used to identify biosafety program areas that could be updated or improved. Below are three points described within the Biosafety Stewardship initiative listed in the federal announcement and the actions UNH has taken to fulfill them.

1. **Reexamine current policies and procedures for biosafety practices and oversight to determine if changes are needed.**
   - OEHS began drafting a new, stand-alone biosafety / biosecurity manual to be reviewed by the Institutional Biosafety Committee and implemented in 2015.

2. **Conduct inventories of infectious agents and toxins in all laboratories to ensure that the institution has a record of which infectious agents and toxins are being utilized.**
   - OEHS in conjunction with Principal Investigators updated the UNH biological inventory. A new barcoding inventory system was created and will be piloted in Q1 2015 for easier tracking of biological materials. Materials no longer needed or in-use were disposed. Additionally, a laboratory decommissioning process was drafted to ensure Investigators that leave the University will disposition their biohazardous materials appropriately and inventory will be updated.

3. **Reinforce biosafety training of investigators, laboratory staff, and members of IBCs.**
   - OEHS drafted new training modules, such as “Principal Investigator Training for Compliance with the NIH Guidelines”, which will be rolled out in 2015.

**The Institutional Biosafety Committee**

OEHS continues to administer and support the UNH Institutional Biosafety Committee (IBC). The Committee meets quarterly to review and approve all research, teaching and commercial protocols that make use of recombinant or synthetic nucleic acids technology as described in the National Institutes of Health (NIH) Guidelines; as well as work with infectious agents that are categorized as Risk Group 2 being used in Biosafety Containment Level 2 laboratories (BSL-2). The Biological Safety Officer (BSO) is the technical advisor to the committee and to Principal Investigators for all regulatory issues. The BSO manages IBC meetings; which includes, setting the agenda, organizing and attending meetings, compiling minutes, drafting appointment letters, and reporting to the NIH. The BSO also drives discussion about policy and procedure as it relates to best safety practices.

There are 56 active IBC protocols. In 2014 there were 18 new or renewal protocols reviewed and approved by the committee. There are 52 BSL-2 labs, 30 BSL-1 labs and 13 ABSL-1 labs on campus. Forty three labs were inspected by the BSO as a part of protocol reviews in 2014. Additionally, the BSO completed 18 risk assessments associated with protocol submissions.
The annual report was submitted to the NIH in June and accepted. The report includes a roster of active IBC members indicating their specialty areas and biographical sketches of each member. The IBC had a number of changes in membership in 2014: the Committee welcomed a new member, Kyle MacLea, as a representative from UNH Manchester; Dana Buckley returned as Biological Safety Officer; Robert Gibson was elected Vice Chair of the committee; and previous Vice Chair, Barry Corriveau, retired from UNH and resigned from the committee.

**Institutional Animal Care and Use Committee**

Two OEHS personnel are non-voting members of the Institutional Animal Care and Use Committee (IACUC). Both representatives review IACUC protocols for occupational and laboratory safety issues. All monthly IACUC meetings are attended and input is provided when needed.

**Bloodborne Pathogens Program**

OEHS oversees the campus-wide Bloodborne Pathogens program for compliance to OSHA’s standard (29 CFR 1910.1030). As required by the standard, the UNH Exposure Control Plan is reviewed and updated annually (every December) and training is provided to each participant in the program annually. Training is offered either via live training sessions through OEHS or other qualified trainers, or by electronic training content accessible through the UNH CEMS platform. In 2014, 425 staff and students were trained and 9 new staff members completed Hepatitis B vaccine declination forms. New UNH CEMS modules were developed to track safer engineered sharps surveys, as well as needle stick information. OEHS worked with housekeeping staff to complete a risk assessment for cleaning up potential Bloodborne Pathogen materials in campus buildings such as dormitories or academic classrooms. Additional Personal Protective Equipment and a written spill protocol were provided by OEHS based on the risk assessment.
Permits

OEHS continues to review Material Transfer Agreements (MTAs) and provide technical advice on import permits for biological materials from USDA, CDC and US FWS.

UNHCEMS

Multiple UNH CEMS modules were created and improved to support the biological safety program. The UNH CEMS system as a whole allows Principal Investigators to use CEMS to track overall lab compliance; therefore all biosafety regulatory information is now tracked in CEMS. Modules include: equipment certification for biological safety cabinets, IBC protocol submittals, biological inventory, biosafety training, Bloodborne Pathogens training, Hepatitis B declination sheets, safer-engineered sharps surveys, needle stick logs and autoclave spore testing results.

Other Initiatives:

OEHS partnered with COLSA in 2014 to make continuous improvements to research and academic biological laboratory spaces. With funding from the OEHS Mitigation Fund, carpeting was removed from a biological materials storage space on Rudman Hall Floor 2 and replaced with cleanable tile. This was necessary for compliance to biohazardous materials storage guidelines. In addition, OEHS continues to identify areas that have cloth chairs in laboratories and purchase cleanable lab chairs for BSL-2 areas.

COLSA replaced two autoclaves in 2014 and worked with OEHS to satisfy requirements for the UNH Biohazardous Waste Program. The BSO worked with key COLSA personnel to ensure that any autoclaves used for biohazardous waste sterilization were validated and spore tested according to the written program to ensure compliance with Department of Environmental Services regulation ENV-SW 904 for infectious waste. All autoclaves used for biohazardous waste are spore tested regularly and data is collated by OEHS in UNH CEMS.

Chemical and Laboratory Safety

Laboratory Safety Inspections

The Laboratory Safety Inspection Initiative (LSII) continued in 2014 under the direction of the Laboratory Safety Officer. The LSII includes the inspection of rooms with hazardous chemicals and infectious substances. In 2014, OEHS performed safety inspections in rooms possessing or using hazardous materials in the following buildings:

- Dairy Nutrition Research Center
- Demeritt Hall
- Gregg Hall
- James Hall
- Kendall Hall
- Kingsbury Hall
• Morse Hall
• Parsons Hall
• Rudman Hall
• Spaulding Hall
• UNH-Manchester Chemistry/Microbiology labs

OEHS evaluates laboratory engineering controls during safety inspections and identifies issues requiring repair. OEHS collaborates with Facilities Services and the Energy Office on repair and maintenance projects as a technical advisor. OEHS submitted 107 maintenance requests to the Facilities Control Center for research safety issues.

OEHS continues to administer and support the UNH Chemical Safety Committee. Representatives from OEHS organize and attend quarterly meetings, compile minutes, draft appointment letters, and fulfill other administrative requirements for the committee.

**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). This regulation requires facilities which 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 uses UNHCEMS to search the campus inventory for Chemicals of Interest, and works with owners to ensure the inventories are accurate.

OEHS administration of the UNHCEMS Parsons Hall Flammable Liquid Report in 2014 resulted in successful maintenance of compliance obligations. UNHCEMS automatically sends an alert to OEHS, Principal Investigators, and the Durham Fire Department when volumes of flammable liquids in laboratories in Parsons Hall exceed fire code storage limits. Also, UNHCEMS sends a warning to OEHS and 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.

**Chemical Fume Hood and Laboratory Ventilation Assessments**

OEHS continued to perform detailed evaluations of laboratory chemical fume hood operation and performance in 2014. These checks are performed for each of UNH's 435 fume hoods on an annual basis and whenever hoods are reported to have operational deficiencies. 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 properly evaluate fume hoods for safe operation.

In addition to evaluation of chemical fume hoods, OEHS also assesses operation of other laboratory ventilation components that may impact 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.
Laboratory Design and Renovation

OEHS provides technical input and support for laboratory design and renovation projects including during planning phase, construction, and commissioning. OEHS tested fume hood performance as well as other laboratory exhausts, evaluated face velocity monitor function, reviewed eyewash and deluge showers, flammable cabinets, safety equipment availability, egress, lab HVAC function, and chemical storage. This year, OEHS provided input and support for the following projects:

- Parsons N150 renovation;
- James Hall G72 and 181 emergency eyewash and shower installation;
- NH Veterinary Diagnostic Laboratory new building;
- Parsons N148 air flow sensor installation;
- Fume hood monitor upgrades are in progress at Kendall, Research Greenhouses, and Spaulding;
- Morse 104 major renovation;
- UNH-Manchester new teaching laboratories at Pandora Mill building;
- Spaulding Hall renovation plans for rooms 140, 150, 160;
- Parsons S139A, air flow sensor alarm installation;
- MacFarlane Greenhouse, emergency eyewash and shower installation;
- Kingsbury S174, emergency shower installation; and
- PCAC A115, emergency eyewash and shower installation.

Laboratory Safety Technical Services

OEHS staff provides technical safety services to teaching and research laboratories at UNH and UNH-Manchester. These services include providing chemical safety information, incident investigation, laboratory exhaust evaluation, chemical storage and segregation, assessment of personal protective equipment, reproductive health assessments, and regulatory compliance services. Selected projects this year include:

- Designed two custom compressed gas cylinder storage racks for a research lab in Morse Hall. Hired a metal fabrication shop to make the racks and coordinated installation of the racks in the lab.

- Provided guidance to a researcher performing remote field work with chloroform. Provide guidance related to safe use procedures, respiratory protection, exposure assessment, and safe transport.

- Provided support for a research project proposing to use fluorine gas. Significant regulatory compliance hurdles required ongoing negotiation with the supporting engineering firm and State Fire Marshal. Ultimately identified a viable option for research to proceed; continuing to work with the stakeholders to perform minor lab renovations.

- Purchased an event datalogger to evaluate repeated fume hood alarm issues in Parsons Hall teaching laboratory fume hoods. The issue was resolved by working with the hood controller manufacturer to adjust airflow setpoints and programming.
• Tested a clean lab laminar flow workstation and identified a problem with delivery of supply air. Cooperated with the Energy Office to help identify the root cause of the problem which had widespread implications to research operations in Morse Hall.

• Worked with researchers and construction and design team on major renovation to Morse 104. Engaged with the project team on issues related to location of eyewash shower location, presence of floor drains, control of laboratory supply and exhaust air, lab commissioning tests, ASHRAE 110 test. Responded to concerns about secondary egress from the room from the State Fire Marshal. Agreed to institute a robust management plan for chemical inventory to the room to comply with Fire Marshal concerns.

• Provided guidance for compliance with hazmat shipping regulations as well as Toxic Substances Control Act for commercial partnership with a CEPS researcher.

• Coordinated receipt and transfer of chemicals in support of commercial partnership with a CEPS researcher. Also assisted with coordination of safety training for on-site visitors.

• Managed isocyanate exposure assessment for a civil engineering project, including identifying contract hazmat workers and an industrial hygiene contractor.

• Performed in-depth assessment of poorly performing fume hood in Rudman Hall. Identified the root cause of the problem and made formal request for project management support in correction of the deficiencies. Enacted short-term fix to enable researchers to resume work and engaged asset management to assist with correction of the root cause.

• Assisted with Standard Operating Procedure development for several researchers working with hazardous chemicals.

• Reviewed of operation of nanomaterials research lab and coordinated third-party risk assessment, exposure monitoring, and SOP development.

**Laboratory Safety Training**

OEHS provides laboratory safety training for the campus community including cryogenic liquid safety training, Laboratory Safety Awareness for Contractors, and Laboratory and Chemical Safety training. In 2014, 743 people took Laboratory and Chemical Safety training and 38 people took Cryogenic Liquid Safety training.

**VIII. Hazardous Materials**

**UNHCEMS Inventory**

Data collection and compliance reporting for OEHS relies heavily on the UNH Chemical Environmental Management System (UNHCEMS®). Indeed, the entire university community uses UNHCEMS®. There are currently 822 active users (171 active faculty, 167 active staff, 213 active students, and several other classifications) using the system. In 2014, users logged in 5,412 times.
Additional UNHCEMS® statistics for the calendar year include:

- 35,243 chemicals containers on campus
- 13,044 containers purchased before 1999
- 14,878 unique chemicals in the inventory
- 3,946 containers added
- 2,671 containers marked empty
- 11 chemicals marked as surplus
- 31,731 MSDS/SDS stored
- 1,362 hazardous waste records were added (of which, 1,161 were for regulated waste)
- 586 active door signs
- 52 Biosafety Level 2 door signs posted
- 701 active biological agents
- 48 radioactive isotopes on the UNH permit
- 158 sealed sources are tracked
- 365 AST inspection reports
- 95 transformer inspection reports
- 2 SAA inspection reports
- 54 SQG inspection reports
- 436 fume hood inspection reports
- 45 biological safety cabinet inspection reports
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 for 26 UNH research projects in 2014. This included providing guidance for domestic and international research material shipments including those to Canada, Puerto Rico, and Austria.

OEHS continued a partnership with the Thompson School Veterinary Technician Program to offer shipping certification training to students. As students enter their profession, they will very likely have responsibilities to ship infectious and potentially infectious samples. Providing the necessary training to perform these tasks will help students market themselves to prospective employers. 18 students in the Vet Tech program attended this training which was offered as part of their coursework.

OEHS assisted a graduate researcher with development of protocols for shipment of chloroform as part of a new field research protocol. This type of shipment presented unique challenges that required good cooperation and detailed evaluation. The result was a robust packaging and transport protocol that combines best management practices with regulatory compliance to support emerging research.

Resources created by UNH OEHS for hazardous material shipping are used extensively nationwide. Several UNH hazardous material shipping documents are widely recognized as standard reference material and are used by many other institutions. OEHS continued to create and update hazardous material shipping reference documents for the UNH research community in 2014, including updating guidance for shipment of small quantities of ethanol and methanol, and shipment of laboratory-synthesized research chemicals.

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, UNH Transportation Garage and USNH Facilities. We manage EPA and State of New Hampshire regulated hazardous waste materials generated throughout the year as a byproduct of many research, teaching and operation and maintenance activities. In addition the staff have been involved in a number of projects and initiatives to limit the university’s environmental liability by ensuring proper disposal and by reducing the quantity and toxicity of the hazardous waste streams.

These projects include:

• Performed hazardous material inventory reductions throughout the university to increase safety and reduce liability.
OEHS continued to support Housekeeping Services initiative to replace commercial cleaning products with sustainable, less hazardous alternatives. The initiative, begun in 2013, resulted in more than four hundred containers being shipped off campus for disposal in 2014.

- Disposal of legacy and surplus chemical reagents from Rudman, Kendall, Spaulding, Morse and Kingsbury Halls.
- Identification and disposal of highly reactive and shock sensitive chemical reagents from Parsons Hall, Rudman and Spaulding Halls.
- Disposal of unwanted commercial chemical products from the Facilities Material Warehouse and Grounds and Events departments.

Supported Facilities Project Management staff to ensure the proper disposal of regulated hazardous building materials at the Field House, One Leavitt Lane, Dimond Library and Parsons, Kendall, Stillings, Horton and McConnell Halls.

Worked with COLSA and CEPS faculty and staff to decommission research laboratory spaces in Kendall, Rudman Hall and Morse Halls prior to assignment to new faculty.

Supported Printing and Mail Services ongoing efforts to replace chemical products with greener substitutes.

Collaborated with National Oceanographic Atmospheric Administration staff and the officers of the NOAA Ship Ferdinand R. Hassler at the Judd Gregg Marine Science Complex in Newcastle, NH. For efficiency, NOAA regulated waste management activities are combined and housed with the UNH Coastal Marine Laboratory whenever environmental regulations and space limitations allow.

Worked with the School of Marine Science and Engineering and Cornell University staff to support the development of a Memorandum of Understanding concerning the operation and maintenance of the Shoals Marine Laboratory.

Served on the Facilities Campus Planning Integrated Bioscience Laboratory Design Working Group.

OEHS and RCC staff collaborated on a CEMS training platform that would allow faculty, staff and students to receive pertinent training in their affected areas. After completing our annual Hazardous Waste Handler audit, handlers were directed to the new training platform where they reviewed the training and completed the exam. 95 hazardous waste handlers have since completed the training through CEMS. OEHS looks forward to an early 2015 campus-wide release of this new training program that will replace all of our Blackboard based trainings.

Hazardous waste disposal statistics for calendar year 2014 are as follows:

- Chemical Waste: 50,257 pounds
- Biohazardous Waste: 788 cubic feet
- Batteries: 4,059 pounds
- Lamps: 24,000 units
There were also two Lab Packs and Bulk Shipments that were not included in UNHCEMS® waste database:

<table>
<thead>
<tr>
<th>Date</th>
<th>Building</th>
<th>Department</th>
<th>Generators</th>
<th>lbs / kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 15, 2014</td>
<td>UNHM</td>
<td>Biology</td>
<td>K. Legro</td>
<td>170 lbs / 77 kg</td>
</tr>
<tr>
<td>July 28, 2014</td>
<td>Field House</td>
<td>Facilities</td>
<td>P. Henry</td>
<td>6,506 lbs / 2,951 kg</td>
</tr>
</tbody>
</table>

### Kilograms of Hazardous Chemical Waste by Building

<table>
<thead>
<tr>
<th>Building</th>
<th>Kilograms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parsons</td>
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</tr>
<tr>
<td>James</td>
<td>2103</td>
</tr>
<tr>
<td>Spaulding</td>
<td>1390</td>
</tr>
<tr>
<td>Kingsbury</td>
<td>800</td>
</tr>
<tr>
<td>Morse</td>
<td>777</td>
</tr>
<tr>
<td>Co-Gen Plant</td>
<td>754</td>
</tr>
<tr>
<td>Kendall</td>
<td>615</td>
</tr>
<tr>
<td>Rudman</td>
<td>476</td>
</tr>
<tr>
<td>Printing/Mail</td>
<td>416</td>
</tr>
<tr>
<td>Gregg</td>
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### Kilograms of Hazardous Waste by Department

<table>
<thead>
<tr>
<th>Department</th>
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<tbody>
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<td>Civil Engineering</td>
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U-Tubes Removed

HID Lamps Removed
Radiation and Laser Safety

UNH possesses a Type A Broad Scope License from the State of New Hampshire Department of Health and Human Services, Radiological Health Section, to use radioactive material. OEHS manages the Radiation Protection Program and ensures compliance with license conditions, applicable governmental and state rules and regulations. OEHS reviews and updates the Radiation Protection Program and the Radiation Safety Users Guide. OEHS distributes and reviews new and renewal applications for the use of radioactive material and issues permits granted by the UNH Radiation Safety Committee (RSC) to Authorized Users on campus.

There were no new permit applications, and 15 permit renewal applications for 2014. The RSC formulates policies governing the safe use of ionizing radiation and issues authorizations for each use. The RSC reviews and evaluates the performance of the Radiation Protection Program quarterly via quarterly audits performed and reported on by the Radiation Safety Officer (RSO).

There were 15 Authorized Users of radioactive material on campus and 40 laboratories that were permitted to use radioactive material, which were inspected by OEHS quarterly, totaling 160 laboratory inspections in CY-14. These laboratory inspections included an audit of all laboratory-required paperwork, Radiation Worker interviews, and contamination and radiation dose rate surveys. There were 97 Radiation Workers that were permitted to use radioactive material and 6 orders of radioactive material to campus, including isotopes such as S-35, C-14 and Co-57, with each order requiring OEHS to conduct swipe tests and radiation surveys.

OEHS conducted initial Radiation Worker training for 20 faculty, staff, and students in 2014. One Hundred percent compliance was achieved by 97 Radiation Workers taking refresher training. Radiation Awareness training was completed on-line by 60 staff and students. Additionally, there was face-to-face training for personnel that needed access to laboratories that contain radioactive material, but do not handle radioactive material. There were 13 housekeeping personnel, 69 contractors and 20 students that were given face-to-face radiation awareness training.

There are 141 sealed sources of radioactive material, which OEHS inventories several times a year. OEHS completed 61 leak test evaluations in CY-14.

OEHS exchanged 97 dosimeters via a bimonthly exchange. Dosimeters are used to measure the doses of external radiation to personnel. OEHS will issue 105 annual occupational dose history exposure reports, which state dose histories for the previous twelve months. OEHS also sent 15 termination dose history reports for those who had ceased using radioactive materials at UNH.

OEHS collected 7.92 gallons of liquid scintillation vial waste and 130.1 gallons of dry active waste, as well as maintained 75.5 gallons of decay-in-storage waste, which is held in a secure location until decayed to background levels and disposed as ordinary trash. This greatly reduces the amount of radioactive waste the University has to ship to a low-level radioactive waste facility.

An annual compliance audit for 2014 was completed by Clym Environmental Services, LLC in October. Overall, the report noted that the UNH Radiation Safety Program continues to be well managed.
X-Ray Safety

Nine x-ray diffraction laboratories are surveyed twice per year. No items of non-compliance have been reported. Forty people completed x-ray training online in 2014.

Laser Safety

OEHS also has an inventory 29 class 3B and class 4 lasers, of which 7 are actively in use. OEHS offered Laser Safety training on-line and evaluation for operators and ancillary personnel. Training includes hazard identification, proper signage, use of protective eyewear, and laser registration. Seventy-five staff and students passed Laser Operator training. Thirty-two people passed Laser Awareness training on-line. Sixty-five contractors completed Awareness training face-to-face in 2014.
IX. UNH at Manchester Emergency, Health, and Safety Committee

The charge of the Emergency, Health and Safety Committee (EHSC) is to assure a safe work environment for faculty, staff and students and visitors through the creation and maintenance of effective health and safety programs. It is the responsibility of the Committee to establish appropriate health and safety policies, programs and procedures in accordance with federal regulations and guidelines that cover workplace safety and emergency preparedness. The UNH Manchester Emergency Health and Safety Committee met on a regular basis in 2014 to address pertinent health, safety, and emergency matters for the UNH Manchester campus. A few of the accomplishments of the group are listed below:

- Plans are underway to make First Aid, CPR and AED training available to faculty and staff.
- Evacuation plans for the new space are being created.
- A rewrite of emergency procedures for the new space is ongoing.
- Manchester Police and Fire Departments will be invited for a tour of the new facility.
- A fire drill is expected to be conducted at the new facility shortly after occupancy.

The committee maintained its Blackboard presence and continues to seek additional tabletop training and involvement in emergency preparedness.
Data from UNHCEMS regarding the chemical inventory at UNH at Manchester:

<table>
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<th>Year</th>
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<th>Added Containers</th>
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<tr>
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![UNH at Manchester Chemical Inventory 2000 - 2014](image-url)
X. Emerging Issues

Research Safety

Interest in promoting safety in academic research laboratories has grown in recent years, following high-profile incidents in which researchers were injured or killed. Many colleges and universities want to go beyond complying with regulations to fostering a safety culture: affirming a constant institution-wide commitment to safety and integrating safety as an essential element in the daily work of researchers.

A report from the National Research Council, Safe Science: Promoting a Culture of Safety in Academic Chemical Research, identifies steps that everyone involved in research and other activities using chemicals - from bench researchers to principal investigators to university leadership - should take to create and promote this approach to safety.

OEHS personnel have a strong interest and an important role in helping to build safety culture at UNH. We will continue to strive to build stronger partnerships with researchers in order to develop and sustain a strong safety culture.

XI. Communication and Outreach

The Office of Environmental Health and Safety 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 newsletter, face-to-face and group meetings, electronic communications, telephone consultations, on-site investigations, group trainings, and other effective communication methods.

The minutes of the Chemical, Occupational, Radiation, and University Environmental Health and Safety Committee 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.

XII. Mechanisms to Measure Compliance

UNH utilizes a number of 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.

**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. The New Hampshire Department of Labor reviews the asbestos abatement program and the overall safety and health management program on a periodic basis.
**General Safety**

OEHS and the campus Worker's Compensation Insurer conduct independent safety audits of our food service facilities, crafts work areas, grounds and roads, and custodial areas. 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 the Fire Department, State agencies, or OEHS.

**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.

**Occupational Health and Medicine**

Medical screening and surveillance programs are implemented by departments utilizing the services of either UNH Health Services 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.

**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.

**Diving Safety**

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

**Biological Safety**

The UNH Institutional Biosafety Committee reviews and approves all biohazardous material protocols, including use of recombinant DNA molecules, for compliance with the National Institutes of Health Guidelines. OEHS conducts laboratory audits to assure proper biosafety procedures are being followed in the lab. Labs using human source materials are kept in compliance with the OSHA Bloodborne Pathogens Standard through training and strict use of Universal Precautions.

**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.

**Hazardous Waste Management**

OEHS provides regular oversight and review of laboratories and shops that generate and store hazardous waste. The New Hampshire Department of Environmental Services 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 Central Hazardous Waste Accumulation Area Preparedness, Prevention and Contingency Plan, the Hazardous Waste Transporter Contingency Plan, and the Central Accumulation Area Security Plan.

**Radiation Safety**

OEHS inspects all laboratories that contain radioactive material quarterly, performing contamination surveys, radiation surveys and compliance audits, ensuring all laboratories continue to meet all license conditions. 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.