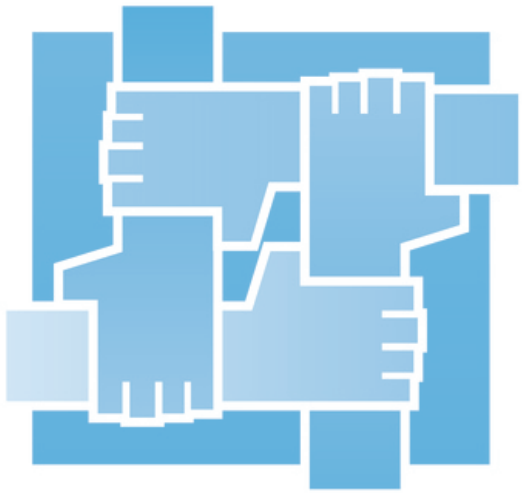


2012

Annual Report

Environment, Health and Safety

Division of Finance and Administration

University of North Carolina at Chapel Hill

Together, making UNC a safe and healthy place to teach, learn and serve.

Department of Environment, Health and Safety

Division of Finance and Administration

University of North Carolina at Chapel Hill

1120 Estes Drive Extension, Chapel Hill, NC 27599

Phone: 919-962-5507 Website: ehs.unc.edu

UNC ENVIRONMENT, HEALTH & SAFETY

Old Well Photo, by Dan Sears

From the Director

Welcome to the Department of Environment, Health and Safety 5th annual report. Our annual report is an effort to communicate the most relevant parts of our EHS organization and how its design fits within the University and crosses organizational boundaries. This report continues to recognize the importance of communications, collaboration, customer service and compliance which drives the safety culture. How do we define safety culture? It is our individual beliefs plus the organizational design. Each individual must accept their individual responsibility and understand their role and their own commitment to safety. The organization has the responsibility to provide the structure of how the people, information and technology are integrated, provide a mechanism of accountability and a process of continuous improvement.

The Department of EHS has implemented an integrated EHS management system to ensure continuous improvement by incorporating the use of the Plan –Do- Check- Act (PDCA) model. Throughout the report you will see specific examples of the elements of this model. The diversity of the operations at the University continues to develop and stretch expertise of the EHS professionals.

When I reflect on 2012, the importance of hazard evaluation occurred during our review of three serious fall incidents. Hazard evaluation is one of the most important elements of safety and the basis for determining personal protective equipment. Also, our continued effort of educating the importance of personal protective equipment while working within laboratories, demonstrated how an individual's beliefs affect the outcome.

I hope you will take the time to review this report and learn something new about our department. It would not be possible without the dedication and commitment to excellence of our EHS staff. Please note that we have honored Nancy Graves and Carolyn Elfland for their services and support of EHS as they are retiring. They will be missed.

As a team, we take great pride in our accomplishments and pride in contributing to the health and safety of one of the world's leading academic and research institutions. We also recognize and commend our fellow Tar Heels. It is their commitment to health and safety, their collaborative spirit, and their pride in being part of a great University, that create the safe environment in which we work.

Mary Beth Koza, Director

The University of North Carolina at Chapel Hill (UNC-CH) Department of Environment, Health & Safety supports the University's core mission of teaching, research, and service by providing comprehensive environmental, health, and safety services to the University community. This includes education through training and consultation, maintaining a safe environment through recognizing and controlling health and safety hazards, ensuring a process of regulatory compliance, and minimizing future potential liabilities.

EHS functions & responsibilities

EHS Organization

Each service section within EHS has unique and specific management duties and responsibilities that are determined by any number of compliance requirements, state and federal regulatory agencies, university policies, industry standards, and a commitment to going beyond compliance, when possible, to ensure a safe and healthy campus, community and state.

Biological Safety

Biological Safety provides guidance, assistance, and surveillance over research activities involving biohazardous agents, recombinant DNA, bloodborne pathogens, and biohazardous waste management. Biological Safety monitors and reviews the performance and maintenance of laboratory containment systems and provides technical support to EHS incident responders.

Chemical Safety

The main function of the Chemical Safety section is to manage the process of improving safety through education, compliance, and the constant task of identifying and evaluating potential safety hazards in order to reach the destination of a safe research laboratory environment. Because the breadth and depth of UNC research is always expanding, the process of safety improvement is ongoing and ever-changing, providing daily challenges to support the research process.

Environmental Affairs

The Environmental Affairs section proactively manages the environmental permitting of the campus and ensures compliance with the increasing number of permits required by state and federal agencies. The section has responsibility for oversight of underground/above ground storage tank management, air quality permits (Title V), water quality (NPDES) permits, surface water quality, storm water management, wetland issues, environmental assessments at inactive waste sites, collection of radioactive and hazardous materials/wastes from campus, and operation of the Hazardous Materials Facility (a fully permitted Treatment-Storage-Disposal facility), and the storage-for-decay program for short-lived radioactive wastes.

Fire Safety & Emergency Response

Fire safety management includes six functions: inspections, enforcement, education, engineering, fire investigation, and response. With 438 buildings on campus and a wide range of potential fire safety risks, EHS personnel are constantly checking fire related equipment, running test alarms, and assessing egress risks. The section provides student and employee fire education, so that safety becomes a collaborative effort and a fire safety culture becomes the norm.

Occupational and Environmental Hygiene

OEH is responsible for ensuring that indoor campus environments are conducive to good health and wellbeing by recognizing evaluating and controlling health and safety hazards, using knowledge and experience in industrial hygiene, asbestos management, air and water quality and safety engineering. The section assesses potential safety hazards, possible instances of exposure and suitability of protective equipment. OEH works with facilities engineering and facilities services personnel to find ways to keep historical buildings functional, while protecting employee health, and works with planning, construction and startup of new and renovated buildings to anticipate and eliminate building related health issues.

Radiation Safety

Radiation Safety integrates education, oversight, compliance, service and consultation to protect students, staff, the general public and the environment, from the effects of both ionizing and non-ionizing radiation. Implicit in all aspects of radiation safety is security. Safety and security are accomplished through training, inspection, licensing, registration and controlled access to certain materials.

UEOHC

The University Employee Occupational Health Clinic provides occupational health care services to all part-time, full-time, and temporary employees of the University of North Carolina at Chapel Hill. The UEOHC directs medical care for all workplace injuries/illnesses. The Clinic provides pre-employment screening, annual immunization reviews, and medical surveillance for healthcare and non-healthcare workers.

Workplace Safety

Workplace Safety provides services in the areas of ergonomics, respiratory protection, safety training, industrial maintenance and construction safety, clinical safety, medical surveillance, Workers' Compensation, and the Safety Management Information System. The diversity of services provided by the Workplace Safety section supports the University's overall mission of teaching and research for both academic and non-academic divisions.

EHS Management System

With the breadth and depth of UNC research always expanding, the process of EHS compliance management is ongoing and ever changing, requiring a robust and adaptive management system. In 2012, the department continued its emphasis on an integrated management system for the University's environment, health, and safety compliance programs. This effort was designed to ensure continuous improvements by incorporating a process of ongoing monitoring, reviews, and revisions of procedures and policies through the use of the Plan - Do - Check - Act (PDCA) model. Just as a circle has no end, the Plan - Do - Check - Act cycle is a four-step process model for carrying out change, cycling through each step for continuous improvement.

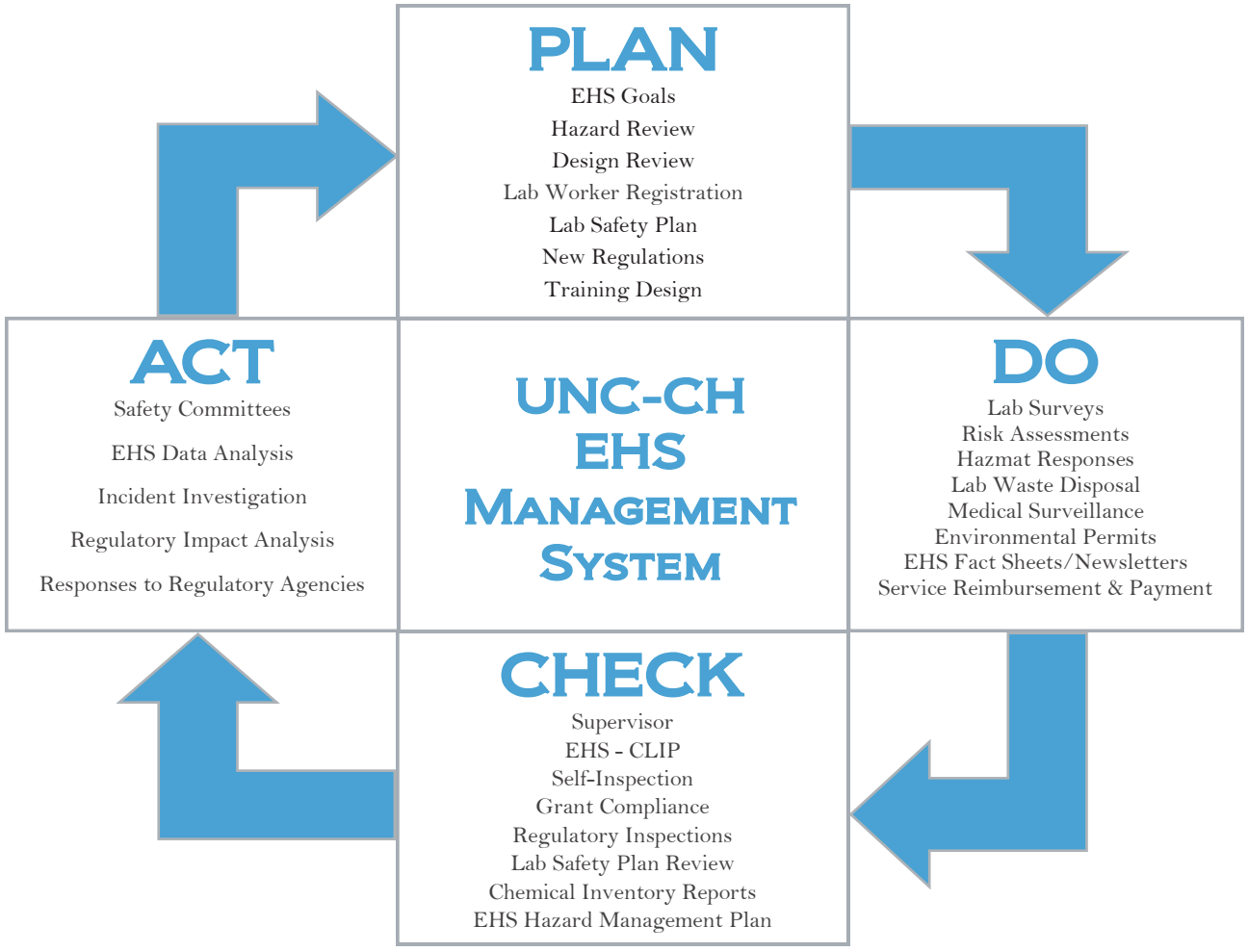
PDCA	Integrated Management System	UNC EHS Management System
Plan	Objectives Targets	Goals Objectives Work plans Program development
Do	Implementation and Operations	Training Communications Consultation Outreach Lab Safety and Hazard Management Plans Emergency response
Check	Checking	CLIP inspections HMP inspections Monthly reports Annual reports Performance reviews
Act	Corrective and Preventive Actions	Policy & procedure adoption Strategic planning process

Communication - Collaboration - Customer Service = The Path to Compliance

EHS Strategic Initiative

The EHS organization will continue to develop and implement tools and processes to proactively assist the campus in the areas of regulatory compliance for biological safety, chemical safety, radiations safety, controlled substances, export shipping controls, occupational safety, environmental permitting, fire/life safety, and emergency response.

Monthly reporting metrics as well as the University's safety committee structure support this process. A critical component of the management system is having the staff perform compliance verification and utilize this data for planning. Understanding and expertise in the science is essential to the development of a management compliance system.



2012 Goals & Performance

Intrapreneurship*

Utilize Collaborative Laboratory Inspection Program results to drive early identification of safety risks and hazard prevention, communications and training across University. Implement customer feedback mechanism.	Complete
Expand and implement limited access lab checklist to assist inspectors in early identification of safety risks and to increase regulatory compliance.	Complete
Continue to develop strategy in collaboration with Facilities Services to expand air-handling unit cleaning to improve energy savings as well as enhanced indoor air quality.	In process
Work with the Office of Waste Reduction & Recycling to increase lab recycling by identifying new items for recycling and disseminating proper procedures to campus researchers.	In process
Expand the Hazards Management Program to include inventory tracking process.	In process
Evaluate and implement upgrades to Hearing Conversation program to reduce costs to affected departments and improve audiometric testing data management resulting in reduced incidents of progressive hearing loss for affected personnel.	Complete
Utilization of Qualitative Risk Assessment tool for evaluation of MSDSs and work activities in Facilities Services. Development of sampling plan that validates this approach with supporting publication.	In process
Develop Division of Laboratory Animal Medicine inspection checklist for use during semi-annual IACUC inspections that meets OSHA and AAALAC requirements.	Complete
Identification and creation of EHS GIS users group to develop EHS tools which support compliance.	Complete
Develop metrics for hazardous waste /materials management system to improve service and customer feedback.	In process

*The word intrapreneurship, a relative new word as cited in the American Heritage Dictionary, is used here instead of the word productivity because it suggests a broader and more positive concept of integrating innovative approaches into the measurable activities of change and improvement

Education

Continue to develop, implement, and upgrade job specific online training programs such as Machine Guarding, Hot Works Permitting, Lockout/Tag-out Requirements and Confined Space Entry.	Complete
Continue to improve and broadly disseminate EHS information via newsletters, special alerts and other communication vehicles raising awareness of laboratory safety and importance of PPE.	Complete
Complete training for Department of Public Safety personnel to use, operate, and respond to Remote Monitoring Systems to meet enhanced security requirements for radionuclides in quantities of concern.	In process
Complete ABT Biomarker Generator User training by vendor including radionuclide production, chemistry, QA/QC, and preclinical research applications.	Complete
Work closely with Public Safety to assure the University is prepared for an emergency such as a hazardous materials release and confined space incident by identifying and implementing training exercises with local emergency response agencies.	Complete
Plan and coordinate six limited access drills with local emergency response agencies.	Complete
Develop and implement online chemical fume hood training to emphasize proper use and safe operating procedures for researchers who utilize chemical fume hoods in their laboratories.	Complete
Implement roll out of EHS compliance portal to provide all supervisors and employees with current knowledge of their training status.	Complete
Expand use of EHS website by improving navigation, search functions and new applications.	Complete

Compliance

Support construction and compliance activities of wastewater treatment system at Bingham Facility.	In process
Implement the second round of GTRI funded security enhancements to irradiators to meet the requirements of NRC and DHS regulations. Grant for effort totaled approximately $143,000 for UNC and UNCH.	Complete
Develop strategic plan to review/implement new requirements promulgated in NRC regulation 10 CFR Part 37. These are new requirements to increase administrative processes to ensure robust security clearance for personnel and robust operational testing of security systems.	In process
Implement improvements to X-Ray safety program to meet expectations of NC DENR RPS X-ray branch, regulatory requirements.	Complete
Establish a comprehensive radiation safety program for ABT Biomarker Generator facility to establish a core research program within Biomedical Research Imaging Center.	Complete
Review and enhance the OSHA Bloodborne Pathogens program compliance through collaboration with UNCH LMS system and EHS and implementation of EHS compliance portal.	Complete
Implement process improvements to University Employee Occupational Health Clinic Needle stick program.	In process
Assure compliance in areas of hot works permitting, lockout/tagout requirements and confined space requirements. Update Lead Paint policy/program to reflect new EPA regulations for housing and child occupied facilities.	Complete
Work with Facilities Services on development and implementation of campus wide oxygen monitor program for areas that have potential for oxygen deficiency (storage of cryogenics, carbon monoxide, etc.)	In process
Receipt and implementation of Phase II campus-wide stormwater permit for campus.	In process
Implementation of Registered Environmental Consultant (REC) program at Cogeneration facility.	Complete
Develop air permitting strategy which incorporates new requirements pertaining to modeling, the boiler MACT standard and energy generators on campus.	Complete
In partnership with Facilities Services and Energy Services develop mechanical room inspection process to identify/eliminate hazards.	Moved to 2013

Growth

Continue to provide technical expertise for all environmental, biological, and ecological facets and permitting of the Carolina North project.	In process
Support licensing, design, acquisition, and installation of new IRB building and research equipment including cyclotron, new MRI and NMR devices, and irradiator.	In process
Support Biology Department in creating and implementing standard operating procedures for new Physical Science Building greenhouse in compliance with NIH guidelines.	Complete
Support growth of the Kannapolis Site, and continue to provide technical expertise in design, operation, testing and commissioning of limited access lab.	In process

Progress Report - Thirty-five 2012 Goals

- **Completed: 21**
- **In Process: 14**
- **Moved to 2013: 1**

UNC ENVIRONMENT, HEALTH & SAFETY

2013 Goals

Intrapreneurship*

Utilize the customer-feedback mechanism of the Collaborative Laboratory Inspection Program (CLIP) to drive early identification of safety risks, hazards, communications and training needs.
Develop and implement an industry-hygiene sampling plan for all areas of occupational safety.
In collaboration with Facilities Services, continue to develop strategies to expand the cleaning of air-handling units to improve energy savings as well as enhanced indoor air quality.
Work with the Office of Waste Reduction & Recycling (OWRR) to increase lab recycling by identifying new items for recycling and disseminating proper procedures to campus researchers.
Review and update written protocols for the medical surveillance program to support customer service and the mission of the UEOHC.
Continue the implementation of the on-line HMP program with a chemical inventory tracking process and expand its use across campus. Utilize the HMP process to identify at least 12 new Job Safety Analyses.
Evaluate and implement upgrades to the Hearing Conversation program to reduce costs to the affected departments, and improve management of audiometric testing data to reduce incidents of progressive hearing loss for affected personnel. Utilize the EHS HASMIS database to ensure new employees are incorporated into the hearing conservation program.
Modify the Qualitative Risk Assessment (QRA) tool for evaluation of MSDSs and work activities in Facilities Services. Develop a sampling plan that validates this approach and publish results.
Expand the capability of the Fire Safety Section use of GIS mapping to improve emergency egress and emergency response.
Develop graphic metrics and dashboard indicators (e.g. trending graphs and charts) for the hazardous waste /materials management system to improve service and customer feedback.
Input laboratory fume hood and ventilation data into HASMIS and SPOTS to aid in tracking room use (hazards) and allowable air change rates, improving energy savings as part of the Energy Savings Performance Contract (ESPC) project.

*The word intrapreneurship, a relative new word as cited in the American Heritage Dictionary, is used here instead of the word productivity because it suggests a broader and more positive concept of integrating innovative approaches into the measurable activities of change and improvement

Education

Continue to develop, implement, and upgrade job-specific online training programs such as Machine Guarding, Hot Works Permitting, Lockout/Tag-out Requirements and Confined Space Entry.
Develop and implement synthetic nucleic acid guideline training to comply with March 2013 NIH guidelines.
Complete training of Public Safety department personnel to use, operate, and respond to Remote Monitoring Systems, meeting enhanced security requirements for radionuclides in quantities of concern.
Complete integration of Safe View 360 imagery of GIS services for high hazard labs/areas and train campus and local emergency response agencies on technology to understand capabilities and use in an emergency.
Incorporate Laboratory Safety and Radiation Manuals to new web format to improve ease of navigation, use, and reference updating.
Assess process of communication for dissemination of EHS information about laboratory safety and personal protective equipment by use of surveys, and publish/present the results.
Review current training programs (universal waste management, stormwater management, erosion and sedimentation control, and recordkeeping for emergency generators) for content. Upgrade and incorporate into HASMIS system.
Provide quarterly training of local emergency response agencies on locations of campus laboratories and hazardous materials locations.
Expand EHS compliance portal to include all required regulatory courses and provide all supervisors and employees with up-to-date information about their training and medical surveillance status.
Conduct a thorough review of the Building Emergency Coordinator training program to determine areas of improvement, development of an on-line application and verification of required training.

Compliance

Support construction and compliance activities of wastewater treatment system at Bingham Facility.
Acquire and obtain permit for new UNC Healthcare blood irradiator.
Implement new Globally Harmonized System (GHS) as part of OSHA Hazard Communication Standard, which will provide a common and coherent approach to classifying chemicals and communicating hazard information on labels and safety data sheets.
Develop strategic plan to review and implement new NRC regulation 10 CFR Part 37. These new requirements will improve administrative processes to ensure robust security clearance for personnel, and robust operational testing of security systems.
Renew Kannapolis radioactive materials license.
Develop and implement medical surveillance policy for UNC employees who work with influenza virus and bacterial meningitis.
Update UNC Biosafety Manual to include new chapter on working with lentiviral vectors.
Implement process improvements to University Employee Occupational Health Clinic needle stick program.
Work with Facilities Services on development and implementation of campus wide oxygen monitor program for areas that have potential for oxygen deficiency (storage of cryogenics, carbon monoxide, etc.)
Obtain and implement Phase II campus-wide stormwater permit.
Continue to ensure that UNC complies with all regulatory requirements for biological agents and toxins that could pose a severe threat to public health, plant health or to animal or plant products by implementation of the personnel reliability program and development of a robust communication process.
Assess fire drill process of all campus buildings and implement changes to process based on this assessment.
Renew stormwater permit for EHS Hazardous Materials Facility.
Implement air permitting strategy and milestones plans, incorporating expected new requirements for modeling, subpart 112(j) boiler MACT, RICE MACT, and emergency generators.
Work with NCDENR on development/implementation of remedial action work plan for Town of Chapel Hill Old Sanitary Landfill at Carolina North.
Develop mechanical room inspection process to identify/eliminate any hazards in work environment for Facilities Services and Energy Services employees.
Ensure compliance with crystalline silica exposure standard related to masonry

Growth

Continue to provide technical expertise for all environmental, biological, and ecological facets and permitting of Carolina North project.
Support construction of the new IRB building, and licensing, design, acquisition and installation of research equipment, including a cyclotron, new MRI and NMR devices, and an irradiator .
Support growth of Kannapolis Site and continue to provide technical expertise in design, operation, testing and commissioning of limited access lab.
Support project team for design and upgrade of high containment laboratory to be completed by 1/2014, for School of Public Health.
Update and integrate code and University policy and best practice changes to University's "Lab Design Guidelines" to ensure new construction and renovations of laboratories are designed properly in regards to Environment, Health and Safety concerns.
Support opening of UNCH Medical Office Building in Hillsborough, which will require registration and initial facility surveys for eight radiologic machines.

UNC ENVIRONMENT, HEALTH & SAFETY

In 2012, the U.S. Government issued a policy on oversight of dual use research of concern (DURC). The Biosafety section worked with Principal Investigators to ensure that UNC research is protected from being misapplied.

Dual use is the possibility of taking research intended for benevolent purposes and misapplying it to harm others. For instance, information from certain life sciences research can be misapplied to create dangerous pathogens for employment as weapons, bypass or diminish the effectiveness of medical countermeasures, or threaten in other ways the health and safety of humans, animals, plants, and the environment.

As a result of this policy, EHS's Biological Safety section took a proactive approach by informing Principal Investigators (PI) of the new regulations and holding them accountable for their research. Principal Investigators are responsible for assessing their own research and the research of those under their supervision for dual use potential and reporting as appropriate. In addition, PIs are responsible for staying abreast of literature, regulations, and guidance relating to dual use research and dual use research of concern and always being alert to potential misuse of research.

EHS developed an online training module that is required to be taken by all Principal Investigators on campus every three years. This training outlines the dual use dilemma, provides principal investigators with guidance in determining whether their research may be deemed as dual use, and provides case studies for reference. The UNC Institutional Biosafety Committee's (IBC) charter was also revised to give the IBC oversight of dual use research and to include in the composition of the committee at least one dual use expert member. As a result of this latter revision, Dr. Stanley Lemon and Dr. P. Frederick Sparling were added as ad hoc members to the IBC for dual use consultation. In the final phase of identifying potential dual use research, UNC's IBC and the EHS's Biological Safety section review research proposals (Schedule G) and determine whether or not they meet the NSABB definition of DURC.

The Schedule G has been amended to specifically ask the PI if their research raises dual use concern. If a protocol meets the criteria for DURC, a risk assessment is conducted and a mitigation plan is developed. Further safety measures may then be required, or, if necessary, the protocol may be revised or retracted. In a collaborative effort, EHS and the UNC research community are striving to cultivate and sustain a culture of responsibility, accountability, and safety.

Deborah Howard:
Biological Safety Officer and Manager

Constance Birden:
Export Control Specialist

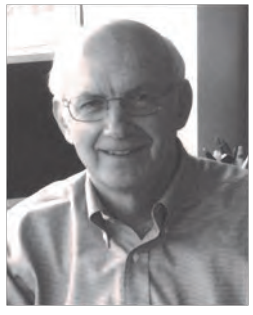
Kara Milton:
Assistant Biological Safety Officer

Penny Padgett:
Associate Biological Safety Officer

Bianca Trollinger:
Biological Safety Specialist

Biological Safety provides guidance, assistance, and surveillance over research activities involving biohazardous agents, recombinant DNA, bloodborne pathogens, and biohazardous waste management. Biological Safety monitors and reviews the performance and maintenance of laboratory containment systems and provides technical support to EHS incident responders.

"My laboratory has always had positive interactions with EHS. The Biosafety Group has been incredibly helpful in getting my lab certified and dealing with the issues we face while working with pathogenic viruses at BSL2. Through collaboration with the team regarding the new IBC, EHS and the BSL 3 tions, development and federal dual use regula- sity policies regarding the implementation of Univer- search has been success- oversight of dual use re- fully accomplished."



Professor Stanley Lemon, M.D.

Division of Infectious Diseases

School of Medicine

Biological Safety highlights

Safety in Numbers

Trained 932 researchers in BSL-2 safety

Trained 110 researchers in rDNA guidlines

Certified 447 biological safety cabinets

Assisted with 173 shipments of materials

Trained 7,858 staff on Bloodborne Pathogens.

Trained 852 researchers on Dual Use

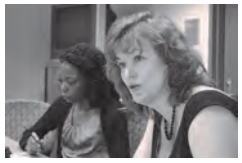
Trained 310 personnel on specialized biosafety

Conducted 245 on-site BSL-2 lab safety audits

Trained 777 personnel on shipping and exporting regulations

Multiagency Emergency Response Drill

Working with the Chapel Hill Fire Department, the UNC Department of Public Safety, and Orange County EMS, the Biosafety staff created and staged a realistic laboratory emergency, simulating a fire and emergency rescue in a containment laboratory on south campus. Orange County Health Department and EHS Fire Safety and Emergency Response also participated. Joint evaluation of the program by all participants led to numerous improvements, including new postings in the labs, better communication between agencies, and improved emergency standard operating procedures for containment laboratories.



New Online Trainings

Online trainings were developed for the Dual Use of Research Concern (DURC) policy and for the recognition and handling of animals with Q fever. All Principal Investigators are required to take the online DURC training every three years. Researchers and DLAM personnel who work with sheep and other ruminants are required to take the Q fever training.

Consultations for the Greenhouse Project

Biosafety staff worked with the Biology Department and Grounds Department to guide the employees on the safe movement of experimental plants, proper disposition of soil used in the temporary greenhouse and regulations for the use of the new greenhouse for recombinant DNA experiments.

Two Successful Site Visits and Inspections by the CDC

The Centers for Disease Control and Prevention in Atlanta conducted two site inspections in 2012. The first occurred in July and was a three-day site visit and inspection of the containment laboratories at UNC-Chapel Hill. Containment laboratories were inspected, documentation was reviewed, and personnel were interviewed during the three-day process. Inspection of an additional containment facility took place during two days in October. The subsequent report for each of the visits from the CDC was positive.

Performance Level Assessment

2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	-	-	Level 4	-	Level 4	Level 4	Level 4	-	-	-	Level 4
-	Level 3	Level 3		Level 3				-	-	Level 3	
Level 2								-	Level 2		
								Level 1			

Education

Trained 15 Rex Healthcare employees on shipping infectious samples.

Presented a lecture to incoming medical residents and postdoctoral fellows on use of recombinant DNA and containment facilities as part of the "Responsible Conduct of Research" course.

Trained 932 researchers in basic principles of conducting research at BSL-2, and trained 158 researchers in enhanced BSL-2 procedures.

Trained 7,858 Housekeeping staff, Facilities Services personnel, researchers, and Child Care Providers on the expaned Bloodborne Pathogens and Exposure Control programs.

Trained 110 researchers in identifying and registering projects, and meeting NIH Guidelines for Research Involving rDNA Molecules.

Trained 310 researchers, maintenance and emergency personnel in specialized biological safety, meeting requirements of CDC and NIH.

Trained 17 Facilities Services personnel on responding to a potentially infectious sewage spill and how to use a Mycometer.

Collaborated with DLAM staff to develop and facilitate DLAM Orientation, DLAM BSL-2, Q Fever and Zoonotic/Lab Animal Allergy trainings for 288 staff members, researchers and personnel providing guidance..

Trained 156 researchers and staff members via online module about proper use of autoclaves.

Presented information on EHS responsibilities and services at a new PI orientation.

Trained 777 researchers and staff on federal and international shipping, importing and exporting regulations, including IATA/DOT, Export Control, DOT Security and SED, CDC and APHIS.

Developed a Dual Use training program and trained 852 researchers on the topic.

Customer Service

Reviewed 224 Schedule G's and 239 Schedule H's for the Institutional Biosafety Committee, required for the generation and use of transgenic animal, plants or cell lines.

Reviewed 384 research protocols and 248 Use of Biohazardous Materials in Laboratory Animals for the Institutional Animal Care and Use Committee.

Conducted 13 Institutional Animal Care and Use inspections in accordance with their guidelines and regulations.

Investigated eight incidents of laboratory spills, accidents (including needlesticks and animal bites) and procedural problems involving potentially infectious materials.

SOPs for the BSL 2+ laboratories were all revised to reflect changes in HIV prophylaxis and discontinuation of a serum draw and storage.

SOPs for all of the containment laboratories were updated, reviewed by the IBC and signed.

Worked with the Duke University Export Control office to determine if there were any restrictions on UNC physicists visiting with Japanese Atomic Energy Agency scientists.

Certified more than 447 biological safety cabinets, ensuring safety of product, personnel, and environmental protection.

Conducted 245 on-site BSL-2 lab safety audits to verify implementation of new CDC/NIH Biosafety regulations and procedures.

Assisted with 173 shipments of equipment, samples, and research materials from campus.

Reviewed 104 I-129 visa applications.

Internal Processes

Conducted two in house calibrations of hot wire anemometers.

Made revisions and updates to the registration documents from the CDC in response to personnel changes in the containment laboratories and changes requested by the CDC.

Reviewed all documents, including access records, training records and standard operating procedures relating to use and storage of agents requiring specialized handling and containment facilities.

Designed and implemented a multiagency drill to test the alarms, security and emergency response for the containment laboratories.

Various members of Biosafety presented in-service talks to the EHS staff on topics such as proper containment and disposal of biohazardous waste, Apps in the workplace and the use of dry ice in non-circulating lab environments.

Revised, laminated and distributed carry cards for all of the workers in the containment laboratories. The cards describe the symptoms of the diseases caused by the infectious agents and provide contact information for those who might be treating them.

Created a process to review terms of licensing agreement with Office of technology Development.

Developed a deemed export review process for all visiting scholars (not just employees).

Updated the Schedule G for rDNA in lab safety plan to include dual use research/policy and questionnaire.

Created document checklist for select agent shipment files.

Added email notification function to the Biosafety section for Schedule F in the lab safety plan when lab is registering to obtain higher level pathogens.

Updated the high containment lab checklist to include animal inspections to aid IACUC in inspection process.

Level Four
Level Three
Level Two
Level One

EHS is taking safety processes to another dimension. It is one of the first—if not the first— EHS department to institute a program we call Safe View 360 — an innovation that will dramatically improve the safety of emergency first responders.

Safe View 360 is the process of photographing the interiors of laboratories from floors to ceilings with a camera and software EHS purchased from an outside vendor. This process provides a 360-degree view of lab interiors so that fire and other responders can view the interior of a room before they enter. They can see where a flammable cabinet, toxic gas cylinder or other equipment is located. They can see what is behind doors and around corners, so they can know how to navigate through smoke, if necessary. They can see where certain chemical and biological hazards are located, so they can take preventative measures. Additionally, it gives emergency responders some psychological support, because entering a room full of fire and smoke is unnerving, even for the best-trained responders.

The EHS department has always provided tours of laboratories so emergency responders can become familiar with these locations, but often times this method can be impractical due to the restricted access and researchers working at all hours in these labs. Moreover, with hundreds of labs in dozens of buildings, it is difficult for anyone to recall all the layouts and hazards. Emergency responders already have floor plan information for these labs, but Safe View 360 is a method of providing navigable interior views as though first responders are actually there —before they are. Realtors have used this 360-degree imaging for years, giving potential buyers the ability to "walk" through hundreds of houses, and school districts are utilizing this viewing system for emergency response applications such as school shootings. UNC recognized the potential life saving value of this method and innovatively applied it to laboratory safety. It gives responders a chance to grasp a situation and see potential hazards before arriving on scene.

This imagery is available in the EHS Emergency Operations Center (EOC) to aid in emergency management and planning, with the ability to easily pan completely around a room. In conjunction with geo-referenced floor plans as well as oblique and orthogonal exterior imagery, first responders and planners now have visual information about University buildings from a variety of perspectives.

While continuing to collect images for laboratory spaces, EHS is also interested in other applications of this technology. Possible examples include collaborating with public safety officials for security concerns such as the presence of an active shooter and taking images from mechanical rooms and rooftops for more thorough maintenance and facility services planning.

Catherine Brennan:
Chemical Hygiene Officer & Manager

Michael Long:
Associate Chemical Hygiene Officer

Aaron Schmidt:
Chemical Safety Specialist

With more than 500 laboratories on campus, UNC is one of the world's leading research institutions. The Chemical Safety section manages the process of improving lab safety through education, compliance, and the constant task of identifying and evaluating potential safety hazards in order to reach the destination of a safe research laboratory environment. On average, EHS conducts more than 1,000 lab inspections every year and checks 150 separate safety issues.

What They Say

"The Chemistry Undergraduate Laboratory Program is very grateful for support and assistance from EHS in recent months. Being new in my position, I have asked questions regarding revision of our lab safety plan, safety equipment in our facilities, laboratory waste disposal, and recycling options. EHS personnel have responded promptly to all inquiries. We continue to improve our program with the assistance of EHS."

Nita A. Eskew, PhD
Director of Undergraduate Laboratories
Department of Chemistry
Morehead Laboratories

Chemical Safety Highlights

Safety in Numbers

Reviewed 466 laboratory safety plans.

Performed more than 90 CLIP Inspections

Trained 1580 new lab employees

Reviewed more than 300 IACUC applications

Trained 560 employees on formaldehyde use

Trained 64 employees on nanotechnology safety

Distributed Avert Newsletter to 500 PIs

Trained hospital security on chemical WMDs

Reviewed 55 Institutional Review Board research protocols.

Chemical Fume Hood Training

With more than 500 fume hoods on campus protecting laboratory workers from hazardous reagents, chemical fume hoods are important to safety. The section introduced a new online training module on proper chemical fume hood safety and operational measures. The training encompasses different types of fume hoods, parts, safety and proper operational procedures for optimal use. During the first year of implementation, more than 250 researchers completed the training.

Dangerous Gas Policy

A new Dangerous Gas Policy was generated and approved by the University, establishing minimum standards for lab researchers that utilize dangerous gases. These standards will reduce the likelihood of a dangerous gas release and ensure the safety of laboratory researchers, building occupants and emergency responders. So that first responders will be aware of locations and hazards of these dangerous gas labs, Chemical Safety staff led tours of these labs for the Chapel Hill Fire Department.

PPE and Hazardous Waste Poster

As part of a multi-year plan to increase safety communications to lab researchers, a photo of two "researchers" wearing proper PPE was printed on the backside of the Avert newsletter and mailed to all PIs. PIs were asked to display the poster in lab entrances reminding researchers "If you are not wearing these [PPE], you should not be working in a lab." In addition, a large Hazardous Waste poster was created using a photo of various containers with proper labeling and a proper containment vessel. The poster was also mailed to PIs asking them to display it near the waste pickup area. The poster emphasized the 4L's: Lids, Leaks, Labels and Location.

CASH Tour at EHS

The Chemistry Department graduate student safety group, Chemical Advocates for Safety and Health (CASH), visited the EHS department to learn what happens to the hazardous chemical waste they produce daily in their labs. The group listened to a presentation about the history of hazardous waste regulations, and toured the EHS Hazardous Waste Facility. Most of the students were surprised to learn that someone consolidates their waste containers into a larger drum.

Performance Level Assessment

2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	Level 4	-	Level 4	-	-	-	-	-	-	-	-
Level 3		Level 3		-	Level 3	Level 3	Level 3	-	Level 3	Level 3	-
				Level 2				Level 2			Level 2

Education

Trained 1,742 new laboratory workers via the Laboratory Environment online self-study training module complying with OSHA regulatory training requirements.

Formaldehyde online training course was completed by 791 employees complying with OSHA regulatory training requirements.

Nanotechnology Safety training was completed by 77 employees.

New Chemical Fume Hood online training launched in 2012, with 253 employees completing.

Trained 14 UNC Post baccalaureate Research Education Program and 25 Howard Hughes Medical Institute students who were starting summer program on General Laboratory Safety.

Performed Safety Training in August for 80 incoming Teaching Assistants in the Department of Chemistry.

Utilized the Principal Investigator listserv to rapidly release laboratory safety news, updates, alerts and LCSC meeting minutes, Avert newsletter with PPE poster and separate full-size Hazardous Waste poster mailed to labs.

Updated Compressed Gas Safety and Controlled Substances information on EHS webpages.

Hosted Chemistry Department C.A.S.H. meeting at EHS and toured Hazardous Material Facility.

Participated in Graduate Student Orientation Fair and UNC Wellness day as part of EHS effort to inform laboratory researchers about EHS services and policies.

Customer Service

Reviewed 726 new and/or updated Laboratory Safety Plans; reviewed deficiencies with PI's and Safety Supervisors, ensuring compliance with the University's Chemical Hygiene Plan.

Uploaded >35 chemical inventories into online system as part of Chemical Hygiene Plan compliance.

Supported animal care and use-in-research regulations by participating in satellite facility and semi-annual inspections.

Assessed potential chemical exposures by monitoring air concentrations in 14 employee and five student breathing zones and two laboratory work areas, and made suggestions for controls to eliminate/minimize chemical health hazards.

Participated in clean up of 13 chemical spills in campus laboratories.

Investigated 15 research laboratory accidents/incidents, evaluated root causes and provided recommendations for modifications of work operations to prevent future incidents.

Met with chemistry department undergraduate lab director to change waste management process.

Generated and delivered signs for >350 laboratory rooms.

Attended meetings about the upcoming lab move to the new Koury Oral Health Sciences Building and met with dental personnel regarding lab entrance signage requirements.

Met with RESPC student member and provided data on VAV fume hoods for "Shut the Sash" campaign.

Met with NC School of Science and Math faculty in Durham to give guidance on lab safety.

Performed training and tours for CHFD of Toxic Gas lab in Caudill and Chapman Clean Room.

Internal Processes

Reviewed all IACUC applications including reviewing and approving Chemical Hazard forms, ensuring research compliance for animal care and use.

Performed >125 CLIP/Radiation/HazWaste inspections, assessing campus laboratory safety and compliance.

Verified 15 lab closeouts to ensure lab spaces had been left clean, decontaminated and free of waste.

Inspected 989 chemical fume hoods and submitted 92 Facilities repair requests.

Appointment of new Associate Chemical Hygiene Officer and Chemical Safety Specialist in Chemical Safety section to improve health and safety efforts.

Calibrated EHS Departmental Thermo-Anemometers for use in chemical fume hood face velocity checks during inspections.

Coordinated with hospital EHS department on AirGas Cryogenic Gas Safety training for EHS Emergency Response Team.

Offered support to Biosafety section during required high containment lab drill.

Purchased and implemented Pictometry 360 software and camera for use in high hazard labs.

Participated in EOC University functional exercise and training and Orange County Web EOC exercise.

Due in part to the strong growth of its scientific and medical research activities over the past decade, UNC has evolved into one of the larger Resource Conservation and Recovery Act-regulated academic institutions.

UNC-CH is considered to be a large quantity generator (LQG) of hazardous waste by the United States Environmental Protection Agency (USEPA) and the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management. Among academic LQGs, its program is also quite complex due to the presence of a fully permitted treatment, storage, and disposal facility (TSDF) known as the Hazardous Materials Facility (HMF). Above and beyond its size and complexity, a distinguishing hallmark of the UNC hazardous waste management program is the focus on customer service. As evidenced by the impressions provided on the facing page by Dr. Eric Brustad of the Department of Chemistry, the Environmental Affairs hazardous waste management team is passionate about customer service. The past few years have witnessed the development and refinement of on-line forms for the characterization and approval of waste streams awaiting disposal. These tools, integrated into the University's Environmental Management Systemknown as HASMIS, have contributed to more expedient waste collection timeframes and enhanced metrics reporting capabilities. Another manifestation of the focus on customer service is the development of additional training programs to enhance client awareness and contribute to improved compliance. A prime example of this was the development in 2012 of a set of posters tailored to the specific waste-generating operations at the Facilities Services Shops. Individual posters were created addressing the proper management and disposal of used oil, rags, spent light tubes and bulbs, batteries, paint, scrap metal, and aerosols. But central to the customer service efforts of the Environmental Affairs hazardous waste management team is the one-on-one contact with our many and varied clients. On a weekly basis, hazardous waste management specialists visit large generating areas to identify and resolve potential compliance problems, enhance awareness, and reinforce proper procedures.

Who We Are

Ray Bond:
Senior Hazardous Materials Specialist

Janet Clarke:
Environmental Specialist

Roger Connor:
Radioactive Materials Specialist

Larry Daw:
Environmental Compliance Officer

Sharon Myers:
Environmental & Stormwater Compliance Officer

Mike Novitzky:
Hazardous Materials Specialist

Frank Stillo:
Environmental Specialist

Steve Parker:
Hazardous Materials Manager

Daryle White:
Senior Radioactive Materials Specialist

What We Do

The Environmental Affairs section proactively manages the environmental permitting of the campus and to ensure compliance with the increasing number of permits required by state and federal agencies. The section has responsibility for oversight of underground/above ground storage tanks, air and water quality permits, surface water quality, storm water management, wetland issues, environmental assessments at inactive waste sites, collection of radioactive and hazardous materials/wastes and operation of the Hazardous Materials Facility and the storage-for-decay program for short-lived radioactive wastes.

What They Say

"As part of developing a brand new collaborative multi-lab space in the Department of Chemistry, it was very important to us that we get our lab up and running as quickly as possible. However, we were uniquely aware of the challenges to create a safe, responsible and comfortable research area for my research group as well as my colleagues. EHS was key to our education and certification, providing advice, material for waste disposal and excellent training. I am grateful to them all for helping my transition to UNC a seamless one."

Eric M. Brustad, Ph.D.

Assistant Professor, Department of Chemistry

Carolina Center for Genome Sciences

Environmental Affairs Highlights

Safety in Numbers

Recycled 1,377,000 gallons of water

Conducted 121 stormwater outfall inspections

Processed 19 shipments of haz/mixed waste

Conducted 4,947 haz and nonhaz waste pickups

Conducted 1,212 pickups of radioactive waste

Collected 90,042 kg. of RCRA haz & nonhaz waste

Recycled 12,565 kg. of spent fluorescent tubes

Recycled 13,881 kg. of lead and other metals

Processed 24 shipments to TSDFs of 29,429 kg. haz waste

Restaurant Stormwater Training

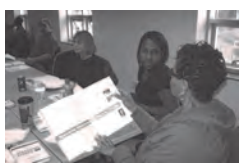
More than 200 food service contractors from eight campus restaurants, 84 UNC Hospital employees, and approximately 50 food concession volunteers received "Restaurant Stormwater Pollution Awareness" training. Used cooking oil, loading docks, and waste disposal areas create potential pollution risks for stormwater, because substances spilled from these areas can enter the storm drain system and travel—untreated— until joining the creeks surrounding UNC's campus. The training ensured that restaurant personnel learn best management practices to minimize the chance of harming valuable waters.

Groundwater Treatment Continues

Environmental Affairs, in conjunction with an environmental consulting firm, continues to implement an innovative remediation strategy, using sodium persulfate to treat impacted groundwater at the former Airport Road disposal area. In 2004, the University entered into a voluntary program with the North Carolina Department of Environment and Natural Resources to clean up the site. Sample tests following the 2012 third phase of treatment shows acceleration in the destruction of contaminants in groundwater in areas down-gradient of the injection location.

Preparations for Carolina North

In preparation for future development activities at Carolina North, EA personnel met with representatives of the North Carolina Department of Environment and Natural Resources and coordinated additional landfill investigation activities at the Town of Chapel Hill landfill at Carolina North. The additional investigation activities included excavation of test pits to further characterize the landfill waste, the installation of soil borings to determine the boundaries of the old landfill, installation of landfill gas probes to detect methane and the installation of pumping and monitoring wells to determine ground water quality and site hydrogeology.



Performance Level Assessment

2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	-	-	Level 4	-	-	Level 4	Level 4	-	-	-	Level 4
Level 3	Level 3	-		Level 3	Level 3			-	-	Level 3	
		Level 2						Level 2	Level 2		

Education

Provided Restaurant Stormwater Pollution Awareness training to 208 Food Service Contractors 84 UNC Hospital employees, and about 50 football game food concession volunteers.

Showcased permeable pavement BMP sites with members of the EHS Sustainability Office, NC Division of Water Quality (DWQ) and NC State University. DWQ will use information to develop new guidelines for design of permeable pavement.

Created display table for University's Water Day and Campus Sustainability Day celebrations, reaching more than 200 students and staff and hosted a stormwater education table at UNC's Sustainability Day event.

Developed new educational posters for Facilities Services shops about how to manage waste materials: aerosol cans, batteries, rags, oil, scrap metal, and spent fluorescent tubes.

Conducted chemistry graduate students (CASH) on our of Hazardous Materials Facility and presented program on proper hazardous waste management practices to them, fostering ties and enhancing their understanding of environmental waste management.

Developed a stormwater handout for vendors at UNC football games, enhancing stormwater awareness while protecting stormwater grates and outfalls near the Stadium.

Created and distributed handout for proper management of paint and paint waste for Cube Painting events at the Student Union and Campus Y.

Customer Service

Conducted 5,698 pick-ups of hazardous and non-hazardous wastes.

Conducted 1,278 pick-ups of low-level radioactive and mixed wastes.

Collected and managed disposal of 70,859 kg of RCRA hazardous and non-hazardous waste and 42,808 kg of RCRA hazardous waste.

Processed 25 shipments of hazardous waste from HMF to off-site commercial TSDFs, totaling 61,913 kg of RCRA regulated materials.

Processed 23 shipments of hazardous waste from campus sources directly to off-site TSDFs totaling 34,251 kg of RCRA regulated materials.

Recycled 11 shipments of spent fluorescent light tubes totaling 20,398 kg.

Recycled three shipments of lead, non-PCB ballasts, and other metals totaling 4,036 kg.

Reclaimed 4,647,900 gallons of water at Kenan Stadium in seven months in collaboration with Energy Services and Athletics, and used reclaimed water for irrigation at the softball facility.

Performed 77 construction site inspections for 12 University construction projects and implemented 98 corrective actions resulting in improved compliance.

Performed 95 stormwater outfall inspections at five major campus outfalls and 46 minor outfalls to identify potential illicit discharges, including physical inspection of the outfall and development of documentation.

Managed chemical reagents and waste materials during the relocation of the UNC Dental School from RTP to the new Koury Oral Health building.

Facilitated a modification of the University's Title V air permit with the NC Division of Air Quality to add new emergency generators for Wilson Library and the Craige Parking Deck.

Internal Processes

Coordinated contractor selection process for investigation of soils impacted by historic coal ash management practices at the Cogen Facility.

Worked with an outside consultant on completing third injection of sodium persulfate for treatment of groundwater at former Airport Rd. disposal site.

Worked to receive authorization to construct Genomic Science Building non-potable water system for toilet flushing and irrigation.

Obtained air permit for the waste-to-energy landfill gas generator at Carolina North which combusts landfill gas and generates electricity.

Converted sedimentation basins into bio-retention areas at ACC Food Services, Energy Services, and the Finley Golf Course for better management of stormwater.

Conducted fieldwork in support of a significant revision of the University's Spill Protection Countermeasures & Cleanup Plan, focusing on oil storage areas throughout campus.

Received Section 404 permit from the US Army Corps of Engineers for the Landfill Gas Project. Received a revised USACE Nationwide 12 Permit for the Cogen Sewer Line Upgrade project.

Prepared Environmental Assessments for the Rizzo Center Phase III and for the Bingham facility wastewater treatment system project, and submitted to the State Clearinghouse.

Managed the partial excavation, cleaning, and closure-in-place of an orphan underground storage tank near the Carolina Inn.

Coordinated excavation of test pits and installation of soil borings, gas probes, and temporary monitoring wells at Old Sanitary Landfill at Carolina North to characterize waste, assess landfill gas quantities, and determine depth to groundwater.
.
Investigated and resolved 11 illicit discharges and used GIS mapping tools to help responders correct the problems.

Level Four
Level Three
Level Two
Level One

Competing for the attention of nearly 30,000 busy students amid all the modern noise of smart phones, tablets and mp3 players, is a momentous challenge, but Fire Safety finds a simple way to get the safety message out.

In the 1970s, people were exposed to about 500 messages a day, so getting them to pay attention to your message had about a 1 in 500 chance of success. Difficult, but not impossible, because in those ancient times, those messages came largely from only four mediums: television, radio, newspapers and snail mail, (formerly known as mail). However, today, some message experts suggest that people are exposed to more than 3,000 messages a day, because of the internet, smart phones, and in-your-face social networks. Add to that the ubiquitous digital boards and now we have 57 channels and nothing on —ad (vertising) infinitum for sure!

However, the fire safety staff was determined to find a new and better way to pierce through the noise. They were already using emails, digital boards, brochures, in-person presentations, podcasts and videos, but they were determined to break through the modern clutter with their message. Moreover, they had already done the groundwork for more safety, particularly for residence halls.

They had installed 675 microwave safety sensors, 80 range extinguishers, distributed 1,365 microwave magnetic posters to residence halls, and reduced CHFD fire calls to residence halls by 65 from 2011. But they wanted a better way to reinforce those already excellent safety efforts.

That better way is a simple, two double-sided telescoping display screen that can be moved to different locations. Thirty-two inches wide and opening to nearly eight feet high, it can sit independently in halls, lobbies and open areas, and outside in the Pit, greenways and next to building entrances. On one side are photographs and safety tips for kitchen safety and on the other side are evacuation and exit safety tips. There is also a "How-to Use a Fire Extinguisher," and the message "See Something-Say Something."

Another message on the screens tells readers about the fire safety services: Hazardous Material Response Team; evacuation mapping, UNC Emergency Coordinators; 6000 extinguishers, on-going safety training, continuous alarm and sprinkler protection.

One screen continuously rotates between the 36 Residence Halls and 81 buildings and the second screen rotates through other areas and buildings where students congregate.

Note: Safety devices and signage costs were funded by a FEMA grant.

Who We Are

Billy Mitchell:
Fire Safety &
Emergency Response Manager

T.J. DeLuca:
Fire Safety Professional

Kitty Lynn:
Fire Safety Professional

Adam Swift:
Fire Safety Technician

What We Do

Fire safety management includes six functions: inspections, enforcement, education, engineering, fire investigation, and response. With 438 buildings on campus and a wide range of potential fire safety risks, EHS personnel are constantly checking fire related equipment, running test alarms, and assessing egress risks. The section provides as much student and employee fire education as possible, so that fire safety becomes a collaborative effort and a fire safety culture becomes the norm.

What They Say

"The fire safety management staff assists the Property Office in off-campus lease acquisitions throughout the State. They accompany the Leasing Manager on site visits to ensure the space meets the requirements for the health and safety of the tenants. They also provide smoke detection and fire extinguisher checks for rental house lease dispositions. Currently the UNC Property Office has more than 100 leases that we are responsible for.

We appreciate the relationship that we have with the EHS fire safety management staff and the work they do to ensure the safety of the leased space environment and the tenants."

Linda Oakley
Leasing Manager
UNC Property Office

Fire Safety & emergency Response Highlights

Safety in Numbers

Trained 2,030 persons on fire extinguisher use

Installed 675 microwave sensors in residence halls

Provided fire watch at 28 athletic events.

Conducted 102 fire drills in campus buildings

Installed 80 range extinguishers.

Distributed 1,365 magnetic fire safety posters

Conducted 20 life safety meetings

Inspected 6,500 fire extinguishers

Replaced 50 outdated CO2 fire extinguishers

Safe-T-Sensors Installation Completed

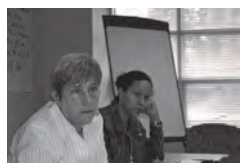
Three hundred sixty Safe-T-sensor microwave units were installed at Odum Village apartments and a refrigerator type magnet with fire safety tips and a kitchen fire safety poster were distributed with the sensors. Since the installation of the sensors, the Odum Village community has not had any fire alarm activations because of microwave cooking. Using the HASMIS database, Fire Safety tracks these units to determine functionality and success . We also provide monthly reports to the Department of Housing and Residential Education, which help us to chart the effectiveness of the program. It is estimated that Chapel Hill Fire department will save more than $65,000 over the next five years from reduced fire alarm calls.

Fire Watch for Major Events

Fire Safety supports all of the major events on campus with a fire watch that prevents an unnecessary evacuation that could compromise the safety of 60,000 Kenan football fans, 23,000 Smith Center men's basketball fans, 9,500 Carmichael women's basketball fans and 1,400 Memorial Hall patrons. During the events, Fire Safety provides access to fire alarm panel monitoring to ensure reliable attention to possible events with a quick response.

Mapping for Safety Success

To provide the most reliable response to Dean Smith Center events, Fire Safety collaborated with Facilities Engineering Information Services using GIS (Geographic Information Systems) to design and produce unique Quick Response Maps. These maps pinpoint activated fire alarm devices in specific interior locations for immediate resolution during major events. Another feature of the maps is their use by Athletics and Life Safety staff for quarterly preventive maintenance procedures. Making the fire alarm system functionally accurate with fewer equipment failures was another one of the goals of this innovative effort. Fire Safety also worked with Facilities Engineering Information Services using GIS (Geographic Information Systems) to upgrade existing campus facility maps for fire lanes, fire department connections, and fire hydrants.



Educational Outreach Program Continues Annually

For the second year in a row, Fire Safety produced an innovative six-minute film using UNC student actors and Chapel Hill firefighters to teach students about fire safety and mandatory evacuation. The film was posted on YouTube and the link made available from the EHS webpage.

Performance Level Assessment

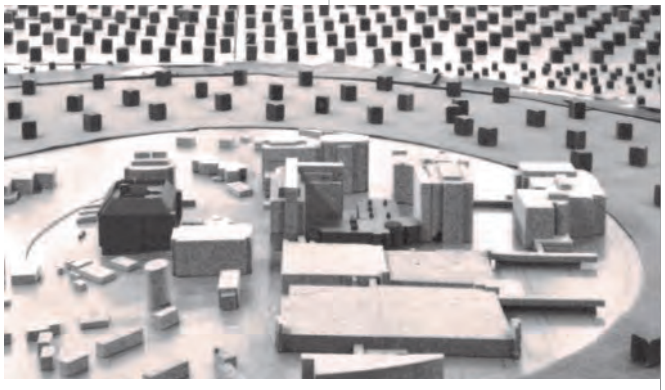
2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	-	Level 4	-	-	Level 4	Level 4	-	-	-	-	-
Level 3	Level 3		Level 3	Level 3			Level 3	-	-	Level 3	-
								Level 2	Level 2		Level 2

Education	Customer Service	Internal Processes
Trained 2,030 student, faculty and staff in fire extinguisher use, with live fire, PowerPoint and student developed videos. Developed a progressive six-minute kitchen safety video using student actors, and trained 300 Resident Advisors. Held the annual fire safety fair in collaboration with UNC Public Safety, Chapel Hill Fire Department and Orange Rescue Squad to develop ongoing fire safety relationships with students. Provided fire fighting presentation slide for Department of Housing and Residential Education television screens in all residence halls. Conducted more than 15 life safety meetings with multiple UNC departments focusing on eliminating fire hazards, improving egress, and meeting evacuation protocols. Implemented Granville Tower Safetober fair in collaboration with Carmichael Resident Hall, Orange County EMS, UNC DPS, Chapel Hill Fire Department, NC Forestry and other departments to reach students with fire safety message. Participated in development and implementation of second confined space drill in collaboration with Energy Services, South Orange EMS, Chapel Hill Fire Department, UNC DPS.	Conducted six safety tours of Caudill Hall laboratory for Chapel Hill Fire Department laboratory to demonstrate computerized gas monitoring system. Inspected Parker and Spencer Haunted Houses for fire and evacuation safety. Inspected annual Carolina Inn Playmakers Ball for fire and evacuation safety. Inspected twelve UNC leased properties for life safety and code compliance. Provided 28 Fire Watch events at Kenan Football Stadium, Dean Smith Center and Carmichael Auditorium. Provided fire safety protection at Carmichael Auditorium and Graham Memorial Hall for the visits of President and First Lady Michelle Obama. Partnered with Town of Chapel Hill and Community partners and the Office of Student Fraternities and Sororities to ensure town and student success through knowledge of available programs. Provided Building Emergency Coordinators with bi-annual training newsletters.	Managed monthly EHS Emergency Response Team training sessions, improving knowledge and maintaining required certifications. Provided work-study students the opportunity to assist in fire extinguisher inspections, supporting staff availability needs while upgrading student safety skills. Replaced 50 outdated CO_2 extinguishers. Improved emergency response time at Smith Center Athletic Events with GIS Mapping tools. Improved Incident Command operational skills during Hurricane tabletop drill with EHS, DPS, and Orange County Emergency Management. Assisted UNC Planning Department with Emergency Response map development to improve fire lane, fire hydrant, and fire department connection on maps.

Level Four
Level Three
Level Two
Level One

The tightly packed science and research buildings located on south campus create quite a challenge for odor control due to a phenomenon called exhaust re-entrainment. EHS, the School of Medicine, and Facilities Services have worked together to identify solutions.

Exhaust re-entrainment is the action of building exhaust circulating back into the fresh air intakes of the same building or neighboring buildings. There are many types of exhaust systems on campus, including general building ventilation exhausts, chemical fume hood exhausts and emergency generator exhausts. Exhaust odors entering a building will degrade indoor air quality and could — if concentrations are high enough— impact the health of the building occupants.



Numerous modeling tools can predict or evaluate entrainment as well as the level of odor. Numerical modeling uses statistical methods incorporating decades of wind-pattern data to predict dilution rates to nearby intakes and other receptors. Wind tunnel modeling uses physical models to study wind patterns and how they affect the exhaust on various receptors. For the Genetic Medicine building (GMB) and the new Imaging Research building (IRB) the team employed both techniques to identity potential concerns. In collaboration with Facilities Services, the School of Medicine (SOM) and an architectural firm, EHS implemented some short-term solutions for GMB but the odor complaints continued and the team determined that physical modeling was needed.

A consulting firm created physical models of GMB and the surrounding structures and performed a wind tunnel analysis. They determined that the exhaust was indeed being re-entrained into the GMB building as well as the future IRB air intakes. The SOM then contracted with an engineering firm to develop a redundant exhaust fan system to enable the exhaust to be ejected higher in the air. This system has been installed and is currently being commissioned.

Who We Are

John Murphy, CIH:
Occupational and Environmental Hygiene Manager

Kim Haley, CIH:
Industrial Hygienist

Janet Phillips:
Industrial Hygienist

David Catalano:
Occupational and Environmental Field Hygienist

What We Do

OEH is responsible for ensuring that indoor campus environments are conducive to good health and wellbeing using knowledge and experience in industrial hygiene, asbestos management, air and water quality and safety engineering. The section assesses potential safety hazards, possible instances of exposure and suitability of protective equipment. OEH works with facilities engineering and facilities services personnel to find ways to keep historical buildings functional, while protecting employee health, and works with planning, construction and startup of new and renovated buildings to anticipate and eliminate building-related hazards.

What They Say

"Just as medical school classes were about to begin in August 2012, the HVAC systems in our auditorium failed, creating conditions that rendered the room unusable. Leaders and staff from Occupational and Environmental Health worked tirelessly and imaginatively to resolve the problems quickly. We are very grateful for their competence, professionalism, and dedication to our mission."

Karen Stone, MBA
Assistant Dean for Medical Education Operations
School of Medicine

Occupational & Environmental Hygiene Highlights

Safety in Numbers

Trained 51 DLAM employees on Lockout/Tagout

Installed 339 confined space entry signs

Trained 209 employees on hearing safety

Trained 68 employees on confined space

Trained 537 employees on asbestos awareness

Provided tests for 22 lab renovation projects

Responded to 78 water, air and mold events

Conducted 228 lead and asbestos inspections

Trained 41 employees on confined space air monitoring

New HASMIS Module for Hearing Loss Prevention

In 2011, the UNC Speech and Hearing Clinic purchased the Examination Management Network database for data management of audiometric testing results. However, the database does not automatically track personnel changes or training compliance of the campus Hearing Conservation Program (HCP). EHS developed a HASMIS module to supplement the database, providing an up-to-date hearing test and training compliance information on one report. EHS sends the compliance reports to managers of HCP participants assisting them with tracking compliance of their employees.

Water Intrusion and Flooding Events

EHS continues to work closely with Facilities Building Services to resolve campus flooding events, by providing guidance in drying techniques and assisting in the testing of building materials to determine the extent of moisture damage. In 2012, EHS responded to 48 moisture/intrusion or flood events. The timely response allows the materials to be dried quickly or removed to maintain air quality.

NICU Noise Level Audiology Research Project

EHS assisted a UNC Audiology graduate student with a research project associated with the Leadership Education in Neurodevelopmental and Related Disabilities (LEND) program at the Carolina Institute for Developmental Disabilities. The project measured ambient noise levels in Newborn Intensive Care Units (NICU), then comparing the results to recommended levels of the Committee to Establish Recommended Standards for NICU Design. The student conducted monitoring at Wake Med Hospitals. EHS provided the noise monitoring equipment, served as an advisor, and co-authored the poster presented at the UNC Speech and Hearing Sciences Student Research Day.

AIHA Proficiency Analytical Testing for Airborne Asbestos

EHS enrolled in the American Industrial Hygiene Association's (AIHA) Proficiency Analytical Testing Program (PAT) for asbestos analysis via phase contrast microscopy. The mission of PAT Programs is to assist participants in pursuing excellence in laboratory services through external quality control program assessment and to promote the practice of proficiency testing. These programs allow a participant to demonstrate an ability to correctly analyze samples in the workplace and the environment, and will enhance EHS ability to provide air-monitoring support during campus asbestos remediation projects.

Performance Level Assessment

2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	-	-	Level 4	-	Level 4	Level 4	Level 4	-	-	-	-
-	Level 3	-		Level 3				-	Level 3	Level 3	-
Level 2		Level 2						Level 2			Level 2

Education

Trained 537 Maintenance, Housekeeping, and Design and Construction Services employees in asbestos awareness.

Presented asbestos program to 28 maintenance supervisors.

Trained 65 Maintenance and Design/Construction Services employees on OSHA Lead-in Construction Standard.

Trained 209 Grounds, Public Safety, Chilled Water, Cogeneration, DLAM and Facilities Services' employees on hearing conservation.

Trained 68 Facilities Services, HMP Team, and Energy Services' employees on confined space.

Trained 41 Facilities Services, Energy Services and EHS employees on confined space air monitoring protocols.

Trained DLAM 51 employees on lockout/tagout requirements.

Presented a program on HazMat – SPOTS to the local Environmental Information Association conference in Myrtle Beach, South Carolina.

Presented a program on HazMat – SPOTS for Cornell University personnel interested in the SPOTS application.

Attended Scaffold Competent Person Training, provided by Facilities Services.

Customer Service

Responded to water intrusion events, odor complaints and mold concerns to prevent/ameliorate indoor air quality issues in 78 campus buildings.

Conducted 228 lead and asbestos inspections, including building material testing, supporting in-house maintenance and construction activity.

Provided mercury assessments, perchlorates testing, and mercury cleanup guidance for 22 laboratory renovation projects and spill responses.

Conducted eight noise-monitoring assessments for Cogeneration, Life Safety, Microbiology and Immunology, Facilities Services Service Station and DLAM.

Managed 22 in-house asbestos abatement projects, including ambient air and personnel monitoring and provided nine asbestos abatement design specifications for Facilities Services.

Conducted a qualitative risk assessment of Sign Shop work activities, providing a comprehensive review and risk ranking of chemicals used in the shop.

Collected water samples from potable water fixtures, checking for lead contamination in five buildings.

Conducted carbon monoxide monitoring of gasoline-powered 4-wheel vehicles for department of Grounds and Chilled Water.

Coordinated mobile-van audiometric testing of Public Safety department employees.

Installed 339 confined space entry signs on HVAC air handling units.

Internal Processes

Participated in the Facilities Services Safety Committee review of occupational safety and health issues affecting Facilities Services' employees.

Participated in a North Carolina Department of Labor Subcommittee evaluating the proposed Short Term Exposure Limit for carbon monoxide.

Served on a Steam Humidification Committee evaluating and proposing a sampling strategy to determine source of odor associated with the steam on campus.

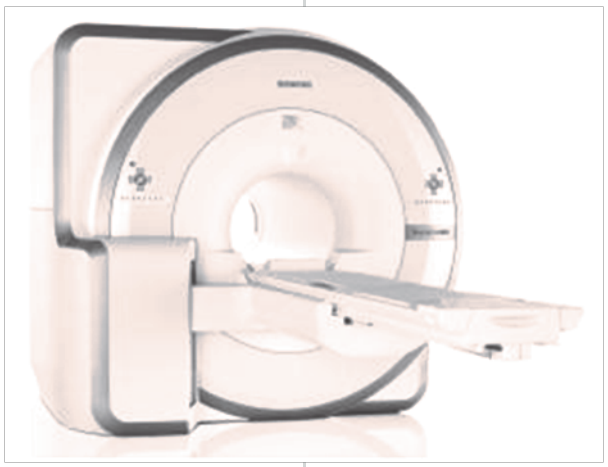
Implemented bump testing of gas monitoring instruments for confined space in Energy Services supported areas.

Participated in meetings with EHS and Energy Services developing a protocol to address concerns about campus drinking water.

Level Four
Level Three
Level Two
Level One

In 2012, UNC became the fourth Institution in the U.S. (behind Massachusetts General, National Institutes of Health, and Washington University) to implement a new and superior medical imaging modality called PET/MR.

The Biomedical Research Imaging Center (BRIC) began use of the new Siemens Biograph mMR in the Medical Research D Building conducting research that couples molecular PET (Positron Emission Tomography) imaging with superior soft tissue contrast anatomical imaging with 3T magnetic resonance.



This technology boasts several major advantages including lower patient radiation dose than PET/CT imaging, which could have profound implications for pediatric subjects, more comfort for the patient due to a single imaging session for patients who need both PET and MRI, which are being done at two separate imaging sessions, and higher spatial and temporal precision since shorter imaging time reduces patient and organ motion.

The Radiation Safety section team supported the design of the facility and implementation of the machine. They conducted plan reviews and evaluations of facility shielding to ensure that exposures to personnel would be below limits and ALARA. UNC's radioactive materials license was amended, allowing for use of radioactive materials in a previously unlicensed facility. New procedures and policies were developed which presented both administrative as well as technical challenges.

In a traditional MRI research facility, the staff is not experienced or trained to work with radioactive materials so a Physician Authorized User had to be involved because of radioactive materials use in humans. Technical challenges included dealing with a radiological facility where traditional survey equipment and procedures could not be used because of the effect of the high static magnetic fields on radiation survey equipment.

The Radiation Safety team worked with the BRIC staff to overcome these challenges and establish a radiation safety program that was eventually inspected by the licensing agency (NC Radiation Protection Section) in December of 2012 and found to be fully compliant.

Roger Sit:
Radiation Safety Officer & Manager

Mark Brueckner, LSO:
Health Physicist

Montego Fearrington:
Health Physics Technician

Aaron Gunsalus:
Health Physics Technician

Jonathan Moore:
Associate Radiation Safety Officer

Bradford Taylor:
Associate Radiation Safety Officer

John Grachus:
Health Physics Technologist

Chris Smith:
Health Physics Technologist

Who We Are

Radiation Safety integrates education, oversight, compliance, service and consultation to protect the students, staff, faculty, members of the general public and the environment from the effects of both ionizing and non-ionizing radiation. Implicit in all aspects of radiation safety is security. Safety and security are accomplished through training, inspection, licensing, registration and controlled access to certain materials.

What We Do

What They Say

"As the operations manager of the Biomedical Research Imaging Center, I feel very fortunate to have had the Radiation Safety Office involved in the planning and installation of our PET/MR system. This multi -modality imaging device represents a major technological breakthrough in the imaging field; however it also presents some unique radiation safety challenges. The RSO helped us develop policies and procedures, provided training, and managed our regulatory compliance. They continue to help us ensure a safe environment for both our research subjects and our imaging team, which is critical to our mission to provide MR/PET imaging services to investigators."

Kathleen Wilber
Research Operations Manager
Biomedical Research Imaging Center

Radiation Safety Highlights

Safety in Numbers

Trained 2290 persons in radiation safety.

Provided 118 radiation related procedures.

Calibrated 362 instruments.

Monitored 1,596 persons for radiation exposure.

Conducted 756 radiation safety lab inspections.

Inspected and tested 265 X-ray tubes.

Processed 30 applications for license modifications.

Reviewed 55 Institutional Review Board research protocols.

Processed 1,122 containers of radioactive materials.

UNC Radioactive Materials Licenses Inspected

The Radiation Safety section administers eight radioactive materials licenses and about 18 x-ray registrations. These licenses and registrations are audited by the NC Radiation Protection Section on a regular basis on differing schedules. In 2012, multi-person teams inspected the two largest licenses, the academic broad-scope and medical broad-scope licenses for multiple days. The results of the inspections were that the radiation safety program is in good shape and there were no citations or violations.

UNC Hospital New Construction Support

The Radiation Safety Office supported UNC Hospitals in the engineering of radiological facilities at the new UNCH Medical Office Building (MOB) in Hillsborough, as well as the new hospital at the Hillsborough campus. Plan reviews and shielding designs were conducted for eight facilities at the MOB and 14 facilities at the Hillsborough campus. These facilities include radiographic machines, fluoroscopic machines, CT scanners, mammography, DEXA, and nuclear medicine.

Reinstatement of Use of Cardiogen-82

The Radiation Safety section supported UNC Hospitals in reinstating the use of Cardiogen-82, a medical device that generates Rb-82, a PET radionuclide for myocardial perfusion imaging. Cardiogen-82 was recalled by the FDA in 2011, based on the potential for excess patient dose. There were no incidents at UNCH Hospitals. All facilities had to undergo extensive investigations and all users had to undergo additional training, implement new procedures, and expand comprehensive QA processes.

Dental Labs Relocation

When the new Koury Oral Health Science Building was completed, several Dental School radiation use labs that had temporarily moved to RTP about 4 years ago were relocated back to the new dental school building. In order to release the temporary use locations in the RTP from UNC's radioactive materials license, comprehensive surveys and risk analyses were completed by the Radiation Safety section and submitted to the state regulatory agencies for review, approval, and license amendment. The labs were released for public use and are no longer under UNC's radioactive materials license.

Performance Level Assessment

2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
-	-	-	Level 4	-	Level 4	Level 4	Level 4	-	-	-	-
-	-	Level 3		Level 3				Level 3	Level 3	Level 3	Level 3
-	Level 2										
Level 1											

Education

Administered radiation safety training courses to 2290 persons; administered non-ionizing radiation safety training to 399 persons.

Staff member was co-faculty for a semester class (NE504) in the department of Nuclear Engineering in NCSU's School of Engineering.

Staff member was co-faculty for a semester class (RADI585) in the department of Allied Health Sciences in UNC's School of Medicine.

Staff member taught a three-week module on Radiation and Environmental Radioactivity in the ENVR-401 class in the UNC department of Environmental Science and Engineering.

Provided lectures for the Chemistry Department's (CHEM073) Nuclear Chemistry Class.

Provided lecture for the Epidemiology Class (EPID -785) on Radiation Dose Assessment.

Hosted 10 Nuclear Medicine Technology students for two-week rotations through radiation safety as part of the NMT didactic program.

Approved use by the University of California at San Francisco of the EHS laser safety training program.

Staff member gave a presentation at the NC Health Physics Society Fall meeting.

Customer Service

Provided services to UNCH hospital and patients for 81 radiation related procedures.

Calibrated 362 radiation instruments.

Inspected and tested 265 X-ray tubes.

Monitored 1535 employees for external radiation exposure.

Conducted 67 bioassays for potential internal radiation exposure

Conducted 568 collaborative laboratory inspections.

Conducted 756 radiation safety laboratory inspections.

Acquired approximately $5k worth of lead bricks to be given to new labs for shielding of radioactive materials.

Provided radiation calibration services to sister UNC campuses (Appalachian State, UNC Greensboro, and North Carolina Central) and to local law enforcement agencies.

Provided free materials to PI's including 20 lead bricks, one Geiger counter, and 10 pieces of Plexiglas shielding.

Obtained a regulatory waiver for the Dental School to use portable x-ray devices (Nomad) for non-human research.

Internal Processes

Received, processed, and delivered 1,222 containers of radioactive materials for PI's research.

Processed eight applications for new source licenses for new faculty members.

Processed 31 applications for license modifications for faculty members.

Reviewed 56 IRB research protocols utilizing radioactive materials for human use.

Attended eight quarterly hospital and campus radiation safety committee meetings to review and approve research and clinical use of radioactive materials and employee radiation dose information.

Amended UNC and UNCH radioactive material licenses four times to accommodate research and clinical use of radiation and radioactive materials.

Participated in planning and design activities for new cyclotron facilities at UNC.

Level Four

Level Three

Level Two

Level One

UEOHC now has a new and improved clinical space, a new online appointment scheduling system, automated clinical and appointment reminders, upgraded equipment and a web-based portal.

In the mid to late 70's additional regulations were established for employee health services. OSHA regulated the requirements for occupational medical surveillance programs such as respiratory protection. The NC Workers' Compensation Act specified medical and indemnity benefits that were to be provided to employees. To comply with these regulations, UNC utilized a multitude of medical service providers' including non-UNC physician's practices as well as the UNC School of Medicine Family Practice.

This decentralized approach afforded the University the opportunity to identify and learn industry best practices for an employee occupational health program. With informational data in hand, the University established a University Employee Occupational Health Clinic in 1996.

The objective of the clinic was to improve efficiencies in both financial resources and continuity of care by having one designated location to focus exclusively on the growing occupational health needs of University faculty and staff. With the expansion of the University, not only in building square footage but also in new programs, in 2009, the UEOHC moved from the Ambulatory Care Center to the NC AHEC Building. In fall of 2012, renovations to the clinical and administrative space were completed. The UEOHC is now equipped with two acute care clinic exam rooms and a minor procedure room, as well as new office space to accommodate a new additional occupational health nurse position.

The UEOHC now has improved clinical space with a new online appointment scheduling system, automated clinical and appointment reminders, upgraded equipment and a web-based portal that allows employees to review their medical surveillance compliance, their occupational and safety training requirements and print their immunization records. The UEOHC is demonstrating the commitment to employee-focused, efficient occupational health services to support UNC faculty, staff and students.

With all the exciting physical changes, the staff of the University Employee Occupational Health Clinic is now designated as a subgroup of EHS.

James Hill MD, MPH:
Medical Director

Mary Crabtree:
Workplace Safety Manager

Luigi Troiani:
Physician Assistant-C

Lauren Skelly:
Occupational Health Nurse

Sherice Love:
Administrative Support Associate

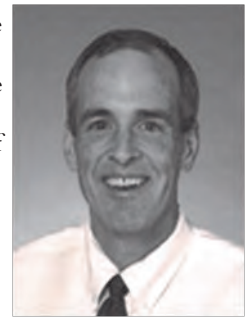
Vanessa Wise:
Administrative Support Associate

Who We Are

The University Employee Occupational Health Clinic provides occupational health care services to all part-time, full-time, and temporary employees of the University of North Carolina The Clinic directs medical care for all workplace injuries and illnesses. It also provides pre-employment screening, annual immunization reviews, and medical surveillance for healthcare and non-healthcare workers. Employees working in healthcare facilities are required to have annual immunization reviews. Other groups of employees are required to have medical surveillance screening if they work with asbestos, animals, or use respiratory protection.

What They Say

"Dr. Hill and the UEOHC's diligent work facilitated the School of Medicine clinical staff's compliance with the new UNC Health Care mandatory employee influenza vaccine program, helping ensure the safety of our patients."



Dr. Tony Lindsey
Chief Medical Officer
UNC Hospitals

UEOHC Highlights

Safety in Numbers

Served 4,154 patients

Administered 900 influenza vaccines

Reviewed 1,306 animal research registrations

Vaccinated 5,101 students, employees/family members.

Performed approximately 120 Fitness-for-Duty evaluations

Conducted 120 DLAM Physicals

Conducted 59 Cl&L (TEACCH) medical clearances

Provided 44 International Travel evaluations

Managed 1976 immunization visits

On-site first care and injury clinic

UNC maintains its own on-site first care and injury clinic, which is unique among the 17 institutions of the University of North Carolina System. The UEOHC allows the University to provide efficient, effective care for its employees while bypassing the delays seen in most urgent care and emergency settings. UEOHC providers are familiar with the various work units on campus, which facilitates both the return-to-work process and incident investigation by EHS.

Major Flu Vaccination Program

The UNC School of Medicine and UNC Healthcare universal flu vaccination program for the 2012-2013 flu seasons was the first universal flu vaccination program in the United States in a public health care system and resulted in more than 15,000 vaccinations being administered to health care providers and staff. This unprecedented vaccination effort was well received by the faculty and staff, demonstrating their commitment to patient safety and optimal clinical care.

Annual and Episodic Fitness for Duty Evaluations

Annual and episodic fitness for duty evaluations are part of the University's comprehensive program that provides oversight for employees in security-sensitive positions. Police officers, transportation workers, child care workers and employees in the UNC BioSurety program all participate in a fitness for duty program to help ensure that employees are able to perform their essential job functions not only to protect the individual worker, but their co-workers and the larger community and clients that they serve.

Performance Level Assessment

2011	2011	2011
-	-	-
-	Level 3	-
-		Level 2
Level 1		

Education

Revised blood borne pathogen exposure protocol for employees of the University, UNC Healthcare, and UNC students to reflect recent changes in recommended post-exposure prophylaxis.

Supported UNC School of Medicine and UNC Healthcare universal flu vaccination initiative.

Customer Service

Provided first care and medical management for the workers' compensation program, ensuring that University employees have immediate access to high quality, effective health care.

Served 4,154 patients in the medical surveillance and workers' compensation program.

Provided medical clearance for the University's Respiratory Protection, Hazwopper, Hearing Conservation, DLAM, TEACCH, and Asbestos programs meeting federal and state requirements for medical surveillance programs

Designed and implemented "Flu Shot Certification" requirements for new web application along with additional changes to the EHS Compliance Portal to facilitate UNC School of Medicine compliance.

Reviewed 1,306 animal research registrations to monitor for potential health effects from working with animals and improving work practices for animal research.

Over 900 influenza vaccines administered during the 2012-2013 flu season at UEOHC.

Vaccinated 5,101 UNC students, employees and family members.

Performed approximately 120 Fitness-for-Duty evaluations in support of UNC Department of Public Safety and the UNC BioSurety program.

Internal Processes

Renovations to the University Employee Occupational Health Clinic administrative and clinic space to improve patient flow and customer service.

Designed and implemented pre-populated UEOHC medical forms for daily incoming patient appointments.

Hired and trained new occupational health providers with increased emphasis and training on respiratory fit testing.

True to form, the students at UNC—who always want to make a difference in the community— also wanted to create a safety awareness culture for the UNC Dance Marathon. . . . and EHS was there to help.

UNC Dance Marathon (DM) is the largest student-run nonprofit organization at UNC. Their mission is "to unite the University, community, and state in fostering emotional and financial support that improves the quality of life for the patients, families and staff of N.C. Children's Hospital." True to form, the students at UNC—who always want to make a difference in the community— also wanted to create a safety awareness culture. In January 2012, Senior Michael Hieronymus, DM Operations Chair, contacted EHS and asked for assistance with safety training for students. By February, EHS had trained 12 Dance Marathon students on the use of manual propelled lifts and personal protective equipment, and trained dozens of other students about ladder safety. With the seed of safety planted, it began to flourish, resulting in additional training for other student groups from the Student Union and Fetzer Gym.

Looking ahead to 2013, Operations Chair, Sophomore Liz Goslin, contacted EHS to prepare for that year's event.

By November, EHS had trained an additional 50 DM students. Liz stated, "It makes me very happy to know we are always doing more to improve our standards for safety." Before the UNC Dance Marathon celebration, where 2,000 UNC students show their support to others through dance, the operations committee safely transforms Fetzer Gyms into two magical fundraising atmospheres. EHS is on site to provide support for a wonderful effort to improve the lives of others, those patients and staff at N.C. Children's Hospital, and the Dance Marathon Operations team.

In 2012, through the support of EHS and the unselfish commitment of hundreds of enthusiastic UNC students, UNC Dance Marathon raised more than $483,000, for the N.C. Children's Hospital.

Who We Are

Mary Crabtree:
Workplace Safety Manager

Debra Bergman:
Workers' Compensation/Clinical Hygienist

Neah Tucker:
Occupational Field Hygienist

Rebecca Watkins:
Web Applications Technician

What We Do

Workplace Safety provides services in the areas of respiratory protection, safety training, industrial maintenance and construction safety, clinical safety, medical surveillance, Workers' Compensation, and the Safety Management Information System.

The diversity of services provided by the Workplace Safety section supports the University's overall mission of teaching and research for both academic and non-academic divisions. In any given year, more than 11,000 employees will take a training course supplied by Workplace Safety.

What They Say

"Working with EHS was an incredible experience this year. It was so nice to know that everyone involved in the set-up for the 2013 UNC Dance Marathon was familiar with proper procedures and protocols for operating manual propelled lifts and ladders. Basic techniques came in very handy and knowing the proper methods for operation proved to be very useful and improved our set-up efficiency! And, as a side note, we all loved the lift training goggles! We are so excited to continue to build our partnership with EHS for years to come!"

Liz Goslin,

Chair UNC Dance Marathon

Sophomore, Bachelor of Arts

Anthropology, Social & Economic Justice

Workplace Safety Highlights

Safety in Numbers

Trained 17,061 employees

Fit-tested and consulted with 383 employees

Conducted 189 on-site inspections of HMP Plans

Vaccinated 5,101 students, employees/family members.

Performed 120 Fitness-for-Duty evaluations

Developed 17 Job Safety Analyses

Provided scissor-lift training for 12 students

Processed/managed 464 workers' comp claims

Conducted 5 hands-on respirator training events

EHS Compliance Portal

EHS launched its new Compliance Portal, providing real-time information about an employee's training and medical surveillance requirements, as determined by OSHA, EPA, the Joint Commission, and others. Besides enhancing communications, the Compliance Portal improves EHS efficiencies, provides cost savings to the University and enables departments to identify compliance gaps within their respective areas. The Portal also serves as a mechanism to reduce liability cost, both directly and indirectly, by ensuring that departments provide appropriate training for employees before the work is performed.

Presentation and Peer Review in United Kingdom

Representatives from UNC, Princeton, and the University of Louisville were invited to speak and conduct peer review discussions as part of an international partnership of best practices with the Universities Safety and Health Association (USHA), United Kingdom's equivalent to the Campus Safety Health and Environmental Management Association. The Workplace Safety manager made a presentation on "Laboratory Compliance as a Leading Indicator" at the University of Brighton and the Universities Safety and Health Association (USHA) 40th annual conference. The US representatives also conducted a site peer review of the University of Cambridge and discussed emerging safety issues facing the United Kingdom.

Web Redesign of EHS Manuals

A new layout was implemented for the safety manual section of the EHS website. These webpages now follow the composition created when the University completed a major site redesign in 2010. The task was to make it easier to find relevant material and to distribute it in a format that keeps up with all the latest technology. Three EHS manuals have been converted to the new design.

University Wins Another Gold Safety Award

The University received the North Carolina Department of Labor's Gold Safety Award for the second time, having also won the award in 2011. The criterion for this award is based on achieving a rate of days away from work along with job transfer or restriction that is at, or below, the industry standard.

Performance Level Assessment

2011	2011	2011
-	Level 4	-
Level 3		Level 3

Education

Trained/Number of Employees: Respiratory Protection/1208; EHS Office, Clinic, IMAC, SS, Student Affairs/4679; Joint Commission/3190; Clinical Tuberculosis Infection Control/5635; Clinical Bloodborne Pathogens/2311; Ergonomic Self-Evaluations:38.

Trained 26 Housekeeping Zone Managers about timely reporting, investigation, and corrective action of workplace injury/illnesses.

Trained 100 Dance Marathon staff, Exercise & Sports Science, Student Dance Marathon Committee, and Student Union personnel on the use of manually propelled lifts platforms.

Presented at the University of Brighton. Peer review with several Universities from UK, New Zealand, Holland, and US. Presented at the International Section of the Universities Safety and Health Association, UKs equivalent to CSHEMA. Participated in a peer review of University of Cambridge.

Conducted 5 sessions of hands-on respirator training for EHS Emergency Response Team.

Fall/Slip/Trip poster, hand drawn submission received from University employee, was computer generated for the Hazards Management Committee upcoming campaign.

Heat Stress Program reminders were designed and posted on the EHS website.

Presented at annual CSHEMA conference on "What Value is there in using Laboratory Compliance as a Leading Indicator."

Provided hands-on scissor-lift training for 12 UNC's Athletics Football Program student videographers.

Provided ergonomic assistance to the campus community as requested.

Customer Service

Processed and managed 464 workers' compensation claims with medical treatment, return to work, hearings/mediations, and monthly expenditures.

Fit-tested and provided consultative services for 383 individuals under the University's Respiratory Protection program.

Conducted on-site inspection of 189 Hazards Management Plans for numerous campus programs.

Provided on-site consultation services for UNC Dance Marathon committees during set-up for the event.

Designed and implemented a new layout for EHS manuals on the EHS website.

Designed and implemented EHS Compliance Portal, providing real-time information on an employee's training and medical surveillance compliance.

Consulted with Energy Service Co-generation Plant regarding findings of the Confined Space program review.

Investigated serious incidents involving falls in Campus Recreation, Facilities Services, and Dramatic Art. Identified and implemented corrective actions. Developed 17 Job Safety Analyses.

Consulted for Athletics Dept. about how to prevent students from climbing to the roof of the football stadium.

Continued education of Healthcare Departments regarding clinical compliance and new EHS compliance portal.

Provided consultation services to the Student Union and Student Stores regarding various safety questions, safety program needs and reviewed their internal Emergency Plan procedures.

Evaluated the Bell Tower for safety concerns regarding staircase and walkways, hatch accesses, fall protection, and access to change beacon light; made recommendation per request of Construction Management.

Internal Processes

Utilized Federal Work Study Students to assist EHS in archiving regulatory records. Per Hazards Committee's recommendation, prepared and proposed new safety performance criteria for the University's HR PMCA due to trending analyses of injury data.

Completed three surveys for the North Carolina Department of Labor and posted annual OSHA summary.

Completed EHS Business Impact Analysis report for the University.

Developed work plan and timeline for the revisions to the Hazard Communication Program in accordance with the new Global Harmonization regulations.

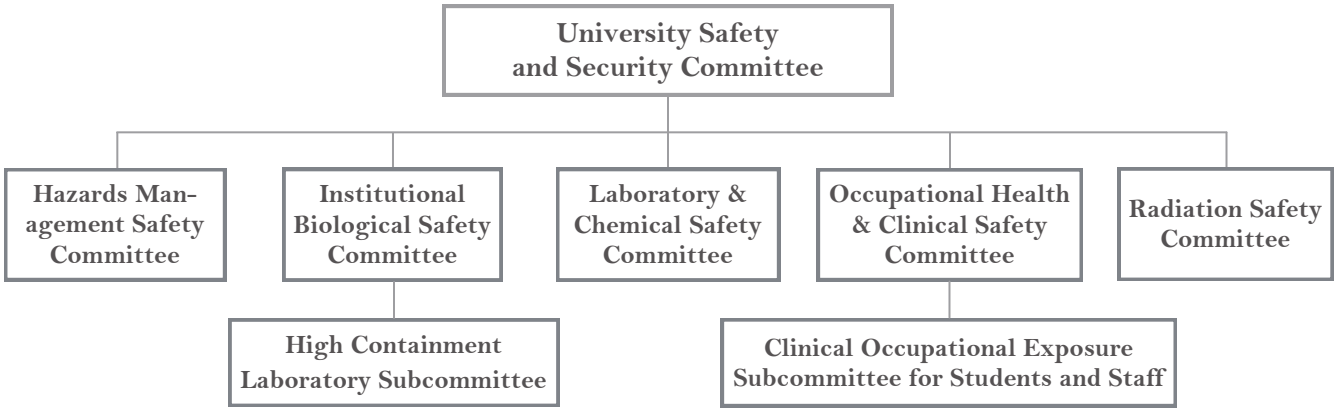
Developed and implemented a form to collect information regarding minors on campus for residential and non-residential programs occurring on campus.

Implemented conversion and back-up system of Portal Count Fit-Test data.

Outlined and initiated programming requirements for an on-line application for the Hazards Management Plan.

University Health & Safety Committees

State regulations require each state agency (including universities) to create health and safety committees to perform workplace inspections, review injury and illness records, make advisory recommendations to the administration, and perform other functions determined by the State Personnel Commission to be necessary for the effective implementation of the State Workplace Requirement Program.



University Safety & Security Committee (USSC)

The University Safety and Security Committee (USSC) is responsible for reviewing and approving each of the workplace safety committee's recommended safety policy and procedures. Once the USSC has approved, the recommendations are then forwarded to the Chancellor for approval before implementation.

University Safety & Security Committee Members			
Karol Kain Gray	Vice Chancellor, Finance and Administration, Chair, University Safety & Security Committee	Dr. Mitchell Picker	Professor: Psychology, Chair, Institutional Animal Care & Use Committee
Dr. Robert Adams	Clinical Assistant Professor, Director, Radiation Oncology School	Jeff McCracken	Director, Public Safety
Dr. Lorraine Alexander	Clinical Associate Professor, Epidemiology, Chair, Laboratory/Chemical Committee	Dr. Tal Kafri	Research Associate: Professor, Chair, Institutional Biosafety Committee
Carolyn Elfland	Associate Vice Chancellor, Campus Services	Dr. Christopher Payne	Associate Vice Chancellor, Student Affairs
Dr. David Kaufman, MD	Professor & Vice Chair for Research Development, Chair, Radiation Safety Committee	Michael Rolleri	Associate Professor of Dramatic Art, Chair, Hazard Management Committee
Steve Kenny	Director, Risk Management Services, Chair, Enterprise Risk Management and Business Continuity Committee	Bruce Runberg	Associate Vice Chancellor, Facilities Planning & Construction
Mary Beth Koza, MBA	Director, Environment, Health & Safety	Judy Culhane Faubert	Associate University Counsel
Brenda Malone, Esq./ Matthew Brody	Vice Chancellor/Associate Vice Chancellor, Human Resources	Barbara Entwisle/ Bob Lowman	Vice Chancellor/Associate Vice Chancellor, Research and Economic Development

Laboratory and Chemical Safety Committee

This committee focuses on the receipt, usage, storage, and disposal of chemicals along with the emerging issues of health and safety in the laboratory environment. The laboratory work environment consists of those work units that are subject to the OSHA Laboratory Standard and laboratory EHS issues not pertaining to biological safety or radiation safety. The Lab Safety Committee is responsible for reviewing safety and health policies and procedures, reviewing incidents involving work-related fatalities, injuries, illnesses or near misses related to laboratory and chemical safety, reviewing employee complaints regarding safety and health hazards, analyzing work injury and illness statistical records related to laboratory and chemical safety, conducting inspections of laboratories and worksites utilizing chemicals at least annually and in response to complaints regarding safety or health hazards, reviewing training records related to laboratory and chemical safety, conducting meetings at least once every three months, and maintaining written minutes of such meetings.

2012 Committee Accomplishments:

- Committee members participated in CLIP inspections.
- New Dangerous Gas Policy and Formaldehyde Exposure Control Plan approved.
- Committee minutes sent out each month to PIs and Safety Supervisors with safety information.
- Participation in EHS PPE Campaign.

2013 Committee Goals:

- Draft and approve new CLIP Non-Compliance Policy clearly outlining process for non-compliant labs and involving LCSC.
- Continue communication to lab researchers to increase lab safety culture applying current means of communication as well as new and innovative channels.
- Investigate safety issues in open lab design buildings and develop guidelines as part of 2014 goals.
- Examine historical injury data to target injury reduction and involve outside partners (vendors or student groups) in the effort.

Laboratory and Chemical Safety Committee Members			
Dr. Lorraine Alexander	Clinical Associate Professor, Epidemiology	Karen Hogan	Research Specialist, Gene Therapy Center
Dr. Bruna Brylawski	Research Associate, Pathology & Laboratory Medicine	Dr. Erik Alexanian	Assistant Professor, Chemistry
Kimberlie Burns	Research Specialist, UNC Cystic Fibrosis Pulmonary Research and Treatment Center	Dr. Rihe Liu	Associate Professor, Medicinal Chemistry & Natural Products, Pharmacy
Jacob Forstater	Graduate Student, Physics and Astronomy	Mike Long	Associate Hygiene Officer, Environment, Health and Safety
Dr. Rita Fuchs-Lokensgard	Assistant Professor, Psychology	Dr. Kirby Zeman	Research Associate, Center for Environmental Medicine, Asthma and Lung Biology
Pat Boone, MSPH,CIH	Assistant Director, UNC Healthcare Environmental, Health and Safety	Dr. Anthony Hackney	Professor, Physiology and Nutrition, Exercise and Sport Science
Cathy Brennan	Chemical Hygiene Officer, Environment, Health and Safety	Dr. Nita Eskew	Director of Undergraduate Labs, Department of Chemistry

University Health & Safety Committees continued

Institutional Biological Safety Committee (IBC)

The IBC is responsible for the oversight, administration, and review of UNC-CH Lab policies and projects involving research with rDNA and hazardous biological materials that may pose safety, health, or environmental risks. To this end, the IBC assists and advises Principal Investigators and other researchers in meeting their responsibilities to ensure that the biological aspects of the research are conducted in a safe manner using established biosafety standards, principles and work authorization. Safe research includes worker safety, public health, agricultural and environmental protection, ethics, and compliance with applicable biosafety standards and UNC-CH policies.

2012 Committee Accomplishments:

- Reviewed 224 Recombinant rDNA Protocols (Schedule G).
- Reviewed 239 Transgenic Animals or Plants (Schedule H).
- Reviewed 3 Severe Adverse events and 2 human gene therapy protocols.

2013 Committee Goals:

- Review recombinant DNA protocols in a timely manner.
- Add the synthetic nucleic acid guidelines to the current rDNA online training to be in compliance with NIH Guidelines.
- Streamline approval process through the online submission page.

Institutional Biological Safety Committee Members			
Dr. Tal Kafri	Associate Professor, Microbiology/Immunology; Chair, Institutional Biosafety Committee	Dr. Ann Matthysse	Professor, Department of Biology
Dr. Dwight Bellinger, DVM	Professor, Laboratory Animal Medicine	J.M. Lawrence	Deputy Chief of Community, Chapel Hill Fire Department
Sandra F. Bradshaw	Laboratory Manager, Orange Water & Sewer Authority	Dr. Paul E. Monahan, MD	Associate Professor, Pediatrics, Hematology/Oncology; Gene Therapy
Deborah Howard, CBSP	Biological Safety Officer, Environment Health and Safety	Dr. Penelope J. Padgett, MPH	Associate Biological Safety Officer, Environment, Health and Safety
Dr. Craig Fletcher, DVM, DACLAM	Director, Division of Laboratory Animal Medicine	Dr. Amy C. Sims	Research Assistant Professor, Epidemiology
Dr. Matthew Wolfgang	School of Medicine, Cystic Fibrosis Center	Dr. P. Frederick Sparling, MD	Professor, Medicine, Microbiology and Immunology
Kara Milton, MS	Assistant Biological Safety Officer, Environment, Health and Safety	Dr. Stanley M. Lemon, M.D.	Professor, Medicine, Microbiology and Immunology
Mary Beth Koza, MBA: Director, Environment, Health and Safety			

High Containment Laboratory Subcommittee

The High Containment Laboratory Subcommittee is a cross functional team to support UNC research activities. The subcommittee serve as a source of information and planning for the users and identifies opportunities for knowledge sharing and continuous improvement at the University, The Subcommittee makes recommendations to UNC leadership on the management of the laboratories, as needed, and support compliance, promotes safe, secure and efficient operation of laboratories, and otherwise facilitates research requiring high containment. This committee reports to the Institutional Biological Safety Committee.

High Containment Laboratory Subcommittee Members			
Dr. Stanley M. Lemon, M.D.	Professor, Medicine, Microbiology and Immunology; Chair, High Containment Laboratory Subcommittee	Dr. Tom Kawula	Professor, Microbiology & Immunology
Anna Wu	Assistant Vice Chancellor, Facilities Operations, Planning & Construction	Dr. Mark Heise	Associate Professor, School of Medicine, Genetics
Dr. Ralph Baric	Professor, Epidemiology	Dr. P. Frederick Sparling, MD	Professor, Medicine, Microbiology and Immunology
Rob Kark	Business Officer, School of Public Health	Gene Bober	Assistant Dean for Resource Planning, School of Medicine
Dr. Victor Garcia-Martinez	Professor, School of Medicine, Division of Infectious Diseases	Rod Rabold	Commissioning Coordinator, Energy Management
Katie O'Brien	Strategic Communications Manager, School of Medicine	Chris Barker	Research Associate Professor, Genetics
Deborah Howard, CBSP	Biological Safety Officer, Environment Health and Safety	Mark Bristol	Life Safety and Access Superintendent, Building Services
Mary Beth Koza, MBA	Director, Environment, Health and Safety	Jeff McCracken	Director, Public Safety

University Health & Safety Committees continued

Occupational Health and Clinical Safety Committee (OHSC)

This committee focuses on Occupational Health services for University personnel and the emerging issues of health and safety for employees working in the clinic environment. The clinic work environment is primarily characterized by activities involving patient contact and exposure to blood or other potentially infectious materials. The clinical work environment frequently has additional health and safety requirements imposed by accreditation organizations, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

2012 Committee Accomplishments:

- Restructured committee, expanding it to include additional campus units, thereby improving representation and diversity.
- Ensured that health affairs students met the UNC Hospital policy for universal influenza vaccination and reporting.

2013 Committee Goals:

- Update the University policy on employment of HBV, HCV, and HIV infected health care workers.
- Continue to review the effectiveness of the afterhours Needle Stick program per required changes.

Occupational Health and Clinical Safety Committee Members			
Jennifer Rees	Nurse Supervisor, TraCS Institute. Chair, Occupational Health and Clinical Safety Committee	Dr. Mary Covington	Assistant Vice Chancellor, Campus Health Services
Dr. Douglas Solow	Clinical Associate Professor, Diagnostic Science/General Dentistry	Foretta Davis	Nurse Clinician, Clinical Affairs
Rickey Robinson	Plumbing Shop Supervisor, Building Services	Janet Perry	Workers' Compensation Administrator, UNC Healthcare
Dr. James Hill	Clinical Assistant Professor, Physical Medicine/Rehabilitation, Medical Director-UEOHC	Angela Atwater	Accounts, Department of Psychiatry
Amber Kimball	Human Resources Manager, UNC School of Nursing	Deb Bergman	Worker's Compensation/Clinical Hygienist, Environment, Health and Safety
Pam Fogelman	Human Resources Facilitator, Pediatrics	Dr. Mary Baker	Clinical Assistant Professor, Surgery
Janet Winters	Environment of Care Manager, Campus Health Services	James Hawkins	HR Date/Reporting Manager, Medicine Administration
Charlene Womble	Administrative Specialist, School of Nursing	Cheryl Culpepper	Division Manager/Administrator, Maternal-Fetal. Obstetrics and Gynecology
Cheryl Henderson	Nurse Manager, Family Medicine	Mary Crabtree	Workplace Safety Manager, Environment, Health and Safety

Clinical Occupational Exposure Subcommittee for Students and Staff

The mission of the Clinical Exposure Subcommittee is to identify and address clinical occupational hazards that undergraduate and professional students are exposed to as part of their clinical training. This subcommittee reports to the Occupational Health and Clinical Safety Committee.

Clinical Occupational Exposure Subcommittee for Students and Staff			
Lisa Johnston	Clinical Associate Professor, Allied Health Sciences - Physical Therapy	Alan Brown	AHEC, Associate Director for Regional Education
Laine Stewart	Clinical Instructor, Allied Health Sciences	Andrew Clapper	Student Services Representative, School of Pharmacy
Michelle Camarena	Nurse Clinician, Campus Health Services	Andrew Woodward	Clinical Assistant Professor, Allied Health Sciences
Mary Covington	Assistant Vice Chancellor, Campus Health Services	Bernice Mayo	Health & Safety Coordinator, School of Medicine, Medical Education
Melody Gibson	Health Information Manager, Campus Health Services	Christine Goodman	Pharmacist, Campus Health Services
Pattie Currie	Administrative Officer, School of Medicine Medical Education	Carol Kozel	Director of Nursing Service, Campus Health Services
Sandra Void	Business Manager, School of Medicine, Medical Education	Douglas Solow	Clinical Associate Professor, Diagnostic Science/General Dentistry
Susan Beck	Professor, Allied Health Sciences	Georgette Dent	Associate Dean, Pathology & Lab Medicine
Thevy Chai	Clinical Medicine Physician, Campus Health Services	Janet Guthmiller	Associate Dean of Academic Affairs, Periodontology
James Hill	Clinical Assistant Professor, Physical Medicine/ Rehabilitation, Medical Director-UEOHC	Janice James	Administrative Assistant, School of Pharmacy
Ann Chelminski	Clinical Medicine Physician, Campus Health Services	Jennifer Hayden	Clinical Instructor, Allied Health Sciences
Brad Wingo	Director of Student Affairs, School of Pharmacy	Joy Renner	Associate Professor, Allied Health Sciences
Foretta Davis	Nurse Clinician, Clinical Affairs, School of Dentistry	Kathy Moore	Clinical Assistant Professor, School of Nursing
Martha Mundy	Clinical Associate Professor, Allied Health Sciences, Audiology	Kim Leadon	Clinical Assistant Professor, School of Pharmacy
Jessica Ward	Assistant Director for Student Compliance, School of Nursing	Karen Allen	Clinic Manager, General Medicine, Campus Health Services

Hazards Management Safety Committee

This committee focuses on the emerging issues of health and safety for employees working in the office, support services, and industrial, maintenance/construction work environments. The support services work environment consists of activities that are conducted outside of the office environment, usually involve public contact and may involve hazardous materials. These environments can include the Department of Public Safety, Department of Environment, Health and Safety, Material Support, and Housekeeping. The industrial, maintenance and construction work environment consists of those work units whose primary activities are performed at various locations around campus and at fixed locations, using industrial-type machines and equipment These units include Facilities Services, Electrical, Plumbing, HVAC Shops, Grounds, Athletics, Finley Golf Course operations, and Electronics Office Service Center and some academic shops.

2012 Committee Accomplishments:

- Slips, Trips and Falls poster designed and submitted by Matt McConnell DLAM, approved by the USSC-to be distributed in 2013.

2013 Committee Goals:

- Implementation of Globally Harmonized System, revised OSHA Hazard Communication Standard, to the campus community.
- Implementation of new on-line Hazards Management Plan for all shops and academic areas.

Hazards Management Committee Members			
Michael Rolleri	Associate Professor of Dramatic Art; Chair, Hazards Management Committee		
Connie Bullock	Support Services Captain, Public Safety	George Devinney	HVAC Supervisor, Energy Services
Steve Kenny	Director, Risk Management Services	Lisa Daley	Human Resources Manager, Energy Services
Larry Henry	CRO, Energy Services	Susan Smith	Chemistry Accounting Services
Ernestine Torain	Team Leader, Laboratory Animal Medicine	Christine Bhirdo	Assistant Operations Director, Laboratory Animal Medicine
Mary Crabtree	Workplace Safety Manager, Environment, Health and Safety	Brian Bogie	Engineering Specialist, Energy Services

Radiation Safety Committee

The Radiation Safety Committee is responsible for establishing policies governing the procurement, use, storage and disposal of radioactive materials and radiation-producing devices. The Committee includes individuals experienced in the use or application of radioactive materials and radiation devices and provides a peer review of these uses among researchers at the University. The Committee meets at least quarterly to review reports on the receipt and disposal of radioactive materials/radiation-producing devices, and to act on applications for authorization to use these sources. The Committee, along with its Chairman, is appointed by the Chancellor. It makes an annual report of activities to the Vice Chancellor for Finance and Administration.

2012 Committee Accomplishments:

- Three radioactive materials license inspections occurred this year with no citations.
- Successfully established operating radiation safety programs for the new ABT mini-cyclotron facility and the new PET/MR research facility.
- Continued monitoring the construction of the new IRB building, to begin installing new equipment in 2013.

2013 Committee Goals:

- Begin license application for the new cyclotron facility at the IRB building. The cyclotron is expected near the end of the year.
- Monitor the promulgation of new enhanced security rules in 10 CFR Part 37 to be issued this year.
- Acquire and license one new and one replacement irradiator requiring NRC licensing, state licensing, and security protocols.

Radiation Safety Committee Members			
Dr. David G. Kaufman, MD	Professor & Vice Chair for Research Development, Chair, Radiation Safety Committee	Dr. Jian Liu	Associate Professor, Medicinal Chemistry/ Natural Products
Dr. Louise M. Ball	Professor, Environmental Science & Engineering	Dr. Adrian Marchetti	Assistant Professor, Marine Sciences
Carolyn Elfland	Associate Vice Chancellor for Campus Services	Dr. Jeff Sekelsky	Associate Professor, Biology
Dr. Beverly J. Errede	Professor, Biochemistry & Biophysics	Dr. Roger Sit	University Radiation Safety Officer Environment, Health and Safety
Dr. Marija Ivanovic	Clinical Associate Professor, Radiology	Dr. Mahesh A Varia, MD	Professor, Vice Chair Department of Radiation Oncology
Dr. Hong Yuan	Director, BRIC Small Animal Imaging Facility	Mary Beth Koza, MBA	Director, Environment, Health and Safety

Compliance Report

The University of North Carolina at Chapel Hill (UNC-CH) Department of Environment, Health & Safety supports the University's core mission of teaching, research, and service by providing comprehensive environmental, health, and safety services to the University community. This includes education through training and consultation, maintaining a safe environment through recognizing and controlling health and safety hazards, ensuring a process of regulatory compliance, and minimizing future potential liabilities.

Biological Safety

The Biological Safety section at the University of North Carolina at Chapel Hill supports laboratory research to better our community and world. We are committed to serving principal investigators and other researchers in meeting their responsibilities to ensure that the biological aspects of their research are conducted in a safe manner using established biosafety standards and principles. Safe research requires adherence to applicable worker safety, public health, agricultural, environmental, ethical and biosafety standards, and University policies.

Inspection Date	Agency	Number of Citations	Nature of Citations	Comments
7/24-26/2012	CDC/APHIS	9 Observations 5 Recommendations	42 CFR part 73 9 CFR part 171 7 CFR part 331	Renewal of registration for containment labs.
10/11-12/ 2012	CDC/APHIS	13 Observations 4 Recommendations	42 CFR part 73 9 CFR part 171 7 CFR part 331	Addition of new lab to the existing registration

Radiation Safety

The Radiation Safety section provides comprehensive services to support compliance and safety in radioactive material and irradiators, personnel monitoring, x-ray safety, and waste management. The Radiation Safety section's philosophy is "As Low As Reasonably Achievable," a standard set by the Nuclear Regulatory Commission.

Inspection date	Agency	Number of citation	Nature of Citations
1/19/2012	DHHS-RPS Licenses	0	-
4/12/2012	DHHS-RPS and FDA	0	-
8/13-15/2012	DHHS-RPS Licenses	0	-
9/12-13/2012	DHHS-RPS and FDA	0	-
12/10-12/2012	DHHS-RPS Licenses	0	-

Fire Safety and Emergency Response

Fire safety management includes six functions: inspections, enforcement, education, engineering, fire investigation, and response. With 438 buildings on campus and a wide range of potential fire safety risks, EHS personnel are constantly checking fire related equipment, running test alarms, and assessing egress risks. The section provides as much student and employee fire education, so that safety becomes a collaborative effort and a fire safety culture becomes the norm.

Inspection Date	Agency	Number of Observations	Nature Observations	Comments
7/2012 – 11/2012	NC Department of Insurance (DOI)	130 electrical items	NEC 408.7	Knock outs missing from panels, covers missing, etc.)
		15 emergency lights	15 NFPA 101	Lights not working need repair
		19 exit lights	NFPA 101	Exit signs need repair
		27 mechanical rooms	NCFC 315.2	Rooms need to be cleared/cleaned
2/7/2012	NC Department of Agriculture	2	NFPA58 14.4	Maintenance procedures incomplete / Bingham Facility

Environmental Affairs

The Environmental Affairs section is committed to a safe and healthy environment. Our protective philosophy impacts all that we do, including oversight of environmental permitting and compliance activities, such as underground / above ground storage tank management, air quality permits (Title V), and water quality (NPDES) permits; assessing surface water quality, storm water management; managing wetland issues; and performing environmental assessments at inactive waste sites.

Inspection Date	Agency	Number of Citations	Nature of Citations	Comments
2/9/12	NCDENR - DWQ	0	-	
4/10/12	NCDENR - DWM	2	40 CFR 261.5(g)(1) and 40 CFR 261.5(g)(3)	Kannapolis Waste Management Inspection
9/6-7/12	NCDENR - DWM and USEPA Region IV	1	40 CFR 262.20(b) / 15A NCAC 13A.0107	Annual hazardous waste management inspection jointly conducted by DWM and EPA.
9/27/12	NCDENR - DWQ	0	-	-
9/27/12	NCDENR - DAQ	0	-	Bingham Air Sources
9/28/12	NCDENR - DAQ	0	-	Title V Annual Inspection
12/18/12	NCDENR - DWQ	0	-	-

Employee of the Year

Janet Clarke - Stormwater Specialist

Janet Clarke was selected 2012 EHS Employee of the Year because of an ability to combine her dedication to environmental compliance and protection of campus water resources with a passion for training, outstanding incident investigation and resolution skills. The ability to combine these important attributes has been a hallmark of her role as Stormwater Specialist. When a significant spill of cooking grease occurred due to poor grease storage and handling practices at a campus restaurant, Janet implemented a program for training employees of campus restaurant facilities and worked with restaurants to improve the way they manage their used cooking oil. She provided creative ideas, storage infrastructure and firm yet friendly compliance inspections. In doing so, the resolution of compliance problems became "teachable moments" that enhanced the environmental awareness of restaurant personnel in a non-punitive way.

Janet's exceptional communication skills and empathy has helped foster excellent working relationships with construction site managers and has improved UNC's compliance with erosion and sedimentation control regulations. Her contributions have directly led to significantly improved sediment management practices at campus construction sites, which have resulted in reduced sediment run-off and impacts to campus water resources. Janet's ongoing training program for stormwater awareness continues to result in stormwater hotline calls and early notification and clean up of spills. Janet is also becoming the resident EHS expert about employing the powerful Geographic Information Systems (GIS) database and mapping tools to better track and convey environmental compliance efforts. She uses GIS to manage spill data and recently completed a project that identifies buffered streams that will be suitable for stream restoration activities.

Janet Clark represents the very best of the EHS mission to make UNC, and the world, a safe and healthy place.

History of the Award

The Employee of the Year of Award was started in 2000 in recognition of an employee who met the mission of the organization and whose performance went above the norm. Former Director, Peter Reinhardt, initiated the award. Beginning that first year, a traveling trophy was created and represents the past and future as the base of the trophy is the base of a lamp in the office of the first director of the department, Don Willhoit. The recipient is chosen by the Director and emulates the values of organization.

Core Values of the Department

- be a safe haven of trust, respect and open communication.
- foster constructive debate when appropriate.
- be a resource for new ideas and innovation.
- establish state of the art EHS protocols & procedures.

The organization will:

- utilize time and resources efficiently.
- value and encourage individual growth and development.
- collaborate and support each other through the twists and turns.

Safe View 360

Safe View 360 is the process of photographing the interiors of laboratories from floors to ceilings with a camera and software. This provides a 360-degree view of lab interiors so that fire and other responders can view the interior of a room before they enter. They can see where a flammable cabinet, toxic gas cylinder or other equipment is located. They can see what is behind doors and around corners, so they can know how to navigate through smoke, if necessary. They can see where certain chemical and biological hazards are located, so they can take preventative measures. Additionally, it gives emergency responders some psychological support, because entering a room full of fire and smoke is unnerving, even for the best-trained responders. This unique innovation will dramatically improve the safety of emergency first responders in the event of a lab accident or fire.

2012 Innovation Award Nominees

Mike Long

Upgrades to Fume Hood Data Management

Bradford Taylor - Jonathan Moore - Nelda Hamlett

Transition to Electronic Record Distribution and Retention Process

Steve Parker

Advancements to the e-510 and e-102 Forms for Chemical and Radiation Waste Collection

Reasons for creating the Award

In order to emphasize the department's core values and to support the Chancellor's "Innovate @ Carolina" program, "to make Carolina a world leader in launching university-born ideas for the good of society," the EHS department instituted a new Innovation award for 2010.

EHS core values related to innovation:

The organization will:

- utilize time and resources efficiently.
- be a resource for new ideas and innovation.
- establish state of the art EHS protocols & procedures.

Qualifications for the Award

To be considered for the award, the innovation must:

- contribute to the improvement of the environment, health, or safety at UNC.
- be in the form of process, education, customer service, communication, policy, structure, or method.
- be applied. (See definition above.)
- be in some stage of the process of activation, but does not necessarily have to be completed.
- have been identified and approved by EHS management before implementation can begin.

Innovation Committee: In 2010, the department created a new Innovation Committee to create programming that would inspire the staff to develop more innovative ideas for campus health and safety. Committee members are: Janet Clarke, John Covely, Kitty Lynn, Penny Padgett, Steve Parker, Bradford Taylor and Rebecca Watkins.

In 2010, the department instituted a Collaboraton Award in order to emphasize the department's core values and to support the attribute of collaboration among EHS employees and between EHS employees and other University employees (or other groups or organizations).

EHS Core Values & collaboration:

The organization will:

- value and encourage individual growth and development.
- collaborate and support each other through the twists and turns.
- be a safe haven of trust, respect, and open communication.
- foster constructive debate when appropriate.

Award Qualifications

The recipient must exhibit outstanding contribution to collaboration by fulfilling one or more of the following attributes:

- Agreement about objectives
- Respect for specialist expertise of another person
- Joint working, shared effort, shared responsibilities
- Blurring of professional boundaries (no use of rank in process)
- Open and transparent lines of communication within groups and between people
- Behavior that instills confidence and respect for others
- Open and full discussions of all issues (no shortchanging of another person's idea)
- Empathy for others

Facilities Waste Handling & Disposal Posters

- **Frank Stillo, John Covely, Larry Daw, Sharon Myers and Steve Parker**

CSHEMA Award Application Project

- **Mary Crabtree, Cathy Brennan, John Covely**

Limited Lab Access Decon and Move

- **Kara Milton, Penny Padgett, Constance Birden, Deb Howard and 10 UNC employee partners, who will receive an award certificate.**

Bringing the Kannapolis Lab Online

- **Deb Howard, Mary Beth Koza and 11 UNC employee partners, who will receive an award certificate.**

Hazardous Waste Poster

- **Cathy Brennan, Steve Parker, Frank Stillo, Ray Bond, Jonathan Moore and John Covely**

University Campus Wide Flu Clinics

- **John Covely, Rebecca Watkins, Dr. James Hill, Amy Butler, Nelda Hamlett, Vanessa Wise, Janet Clarke, 34 UNC employee partners, 5 Maxim Healthcare employees and 21 Maxim Healthcare nurses, who will receive an award certificate.**

UNCH Wellness Center and UNC-CH Family Flu Clinic

- **John Covely, Roger Sit, Debra Bergman, John Murphy, Frank Stillo, Cathy Brennan, Mary Beth Koza, UNCH and UNCH Wellness Center employees and nine Maxim healthcare nurses.**

Tributes to nancy Graves and Carolyn Elfland

Administrative Officer Nancy Graves

Since her arrival at UNC in 1988, Nancy has been an invaluable resource to the University. She has always taken time out of her busy schedule to help a co-worker. If she could not answer the question, she would guide you to the right resource. She had great pride in a job well done and always handled a most demanding work environment with utmost professionalism. Many fellow employees called her their "First Friend at the University." Her friendly and cheerful manner brought many smiles to our faces over the years, as did her great support of our work. In Nancy's role as Administrative Officer for the Associate Vice-Chancellor, she served magnificently in coordinating communications between EHS and Carolyn Elfland. She assisted in organizing Carolyn's time, maximizing efficiency, and providing support when there was an issue that needed immediate attention and guidance from Carolyn. Most importantly, Nancy has always been a very important ally in driving the culture of safety.

Associate Vice Chancellor Carolyn Elfland

Carolyn Elfland will retire on July 1, 2013 from a long and distinguished career at UNC-Chapel Hill. Since 1991, Carolyn provided the EHS department with the leadership and financial resources to build a nationally recognized, state-of-the-art environment, health and safety program

Before her oversight of EHS, the department severely lacked an information management system to manage regulatory needs. The processes were manual, recording data into logbooks and spreadsheets, a process that lacked flexibility and consumed enormous amounts of staff time. Carolyn found the resources to create the EHS management data base system. This important effort enabled the department to create numerous information modules ranging from workers' compensation, medical surveillance, fire safety, training and on-line laboratory safety plans to chemical inventories. This system allows EHS to operate efficiently while providing performance metrics so that we can analyze and improve our work.

Carolyn also recognized the increased demands that campus growth would place on the EHS program. Thus, she requested a percentage of funding from all new construction to be used for critical EHS, Public Safety, and Facility Services functions, thus enabling EHS to hire staff to meet those increased demands. She also obtained funds to build a new Radiation Waste Facility, a new waste processing facility, a new Environment, Health and Safety office building, as well as add space to the Hazardous Material Facility.

Through her leadership skills and commitment to provide a safe and healthful environment, Carolyn led the University in creating a premier environment, health and safety program, and in turn made UNC a safer and healthier place to teach, learn and serve.

Awards - Recognitions - Presentations Certifications & Acknowledgements

Awards

The University received the North Carolina Department of Labor's Gold safety award for the second year in a row.

Mark Brueckner, Associate Radiation Safety Officer, received the UNC Employee Forum Call of Duty award.

Publications

Penny Padgett, Associate Biological Safety Officer, co-authored Chapter 3: Phenotypic and Physiological Characterization - Methods in Microbiology, Volume 38 – Taxonomy of Procaryotes.

Presentations

Deborah Howard, Biological Safety Officer, presented a poster on a Limited Access Lab Emergency Response Drill at the American Biological Safety Association annual conference.

Deborah Howard, Biological Safety Officer, co-presented a program on "Case Studies in Institutional Biosafety Committee Application Review at the Campus Safety, Health and Environmental Management Association annual conference.

Roger Sit, Radiation Safety Officer, made a presentation on "UNC's Mini Cyclotron facility" at the biannual meeting of North Carolina Health Physics Society.

Mary Crabtree, Workplace Safety Manager, presented at the University of Brighton, United Kingdom, on "What Value is there in using Laboratory Compliance as a Leading Indicator."

John Covely, Public Communications Specialist, presented a program on "Six Elements of Social Marketing" at the Campus Safety, Health and Environmental Management Association annual conference.

Presentations (continued)

Bradford Taylor, Associate Radiation Safety Officer, presented a program on "Image Quality and Dose Comparison between Cone Beam and Spiral CT for Sinus Evaluation" at the biannual meeting of North Carolina Health Physics Society.

Mary Crabtree, Workplace Safety Manager, presented at the International Section of the Universities Safety and Health Association (USHA), United Kingdom's equivalent to CSHEMA, on "What Value is there in using Laboratory Compliance as a Leading Indicator."

Kim Haley, Industrial Hygienist, co-authored "Noise in the NICU: Monitoring and Measurement" poster presented by Maria Jaunakais, Audiology graduate student, at the UNC Division of Speech and Hearing Sciences Student Research Day.

Jonathan Moore, Associate Radiation Safety Officer, and Mary Crabtree, Workplace Safety Manager, presented "What Value is there in using Laboratory Compliance as a Leading Indicator" at the Campus Safety, Health and Environmental Management Association annual conference.

Mary Beth Koza, EHS Director, made a presentation on "The Importance and Benefits of an Annual Report to an EHS Management System and Organization" at the Campus Safety, Health, and Environmental Management Association Round-Table Meeting.

Recognitions

John Covely, Public Communications Specialist, was selected for the University Leadership Education and Development Program (ULead).

Penny Padgett, Associate Biological Safety Officer, will retire May 31, 2013.

Certifications

Janet Phillips, Industrial Hygienist, was certified as a North Carolina Lead Inspector and Lead Risk Assessor.

Appointments

Roger Sit, Radiation Safety Officer, was reappointed to a 5-year term as Adjunct Assistant Professor in the Department of Environmental Science and Engineering in the UNC School of Public Health.

Jonathan Moore, Associate Radiation Safety Officer, was elected President of the North Carolina Health Physics Society.

Constance Birden, formerly EHS Biological Safety Specialist, was appointed Export Compliance Shipping Specialist.

Michael Novitzky was appointed Hazardous Materials Specialist.

Frank Stillo was appointed Environmental Specialist.

David Catalano was appointed Occupational and Environmental Field Hygienist.

Aaron Schmidt was appointed Chemical Safety Specialist.

John Grachus was appointed Health Physics Technologist.

Christopher Smith was appointed Health Physics Technologist.

Lauren Skelly was appointed Occupational Health Nurse.

Luigi Troiani was appointed Physician Assistant-C

Annual Report Acknowledgements

Testimonials:
Nita A. Eskew
Linda Oakley
Eric Brustad
Karen Stone
Kathleen Wilber
Anthony Lindsey
Elizabeth Goslin
Stan Lemon

Contributors:
Catherine Brennan
Mary Crabtree
Daniel Elliott
John Murphy
Dr. James Hill
Deborah Howard
Constance Birden

Kitty Lynn
Sharon Myers
Roger Sit
Penny Padgett
Aaron Schmidt
Mary Beth Koza
Kara Milton
Dan Sears - Photo

Copy and Design:
John A. Covely

UNC ENVIRONMENT, HEALTH & SAFETY

2012 Highlights

Research Safety Support

- 989 chemical fume hood inspections.
- 8 BSL3 labs with 5 of them being used for 6 Select Agents.
- 447 Biological Safety Cabinets and in-line HEPA certifications.
- 574 Collaborative Laboratory Inspection Program (CLIP) inspections.
- 565 Laboratory Safety Plans covering chemical, biological and radiological laboratories.

Fire Safety & Emergency Response

- 1100 emergency responses.
- 450 life-safety fire alarm tests.
- 6500 fire extinguisher inspections.
- Conducted annual fire safety training for resident advisors.
- Trained approximately 2000 students, staff and faculty in the proper use of fire extinguishers.

Environmental Affairs

- 5,698 pickups or 70,859 kgs of hazardous, radioactive and hazardous chemicals for disposal.
- 23 environmental permits for air, waste, water, stormwater and underground storage tanks.

Workplace Safety

- Training Courses of EHS.
- 65 online EHS training courses offered.
- 182 Hazard Management Program inspections.

University Employee Occupational Health Clinic (UEOHC)

- 194 OSHA recordable related injuries/illnesses.
- 1540 employees in the medical surveillance program.
- 3,036 employees in the immunization review program.
- 464 Worker compensation claims and 2.34 million dollars expenditures.
- 3,868 clinic visits for immunization review, workers compensation and medical surveillance.

Paper for this report is Forest Stewardship Council certified to contain product from well-managed forests, controlled sources and 30% recycled post consumer fiber. All inks are environmentally safe, synthetic and dry-based.