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

2010 Annual Report - Department of Environment, Health & Safety
University of North Carolina at Chapel Hill
The University of North Carolina at Chapel Hill (UNC-CH) is committed to providing a safe and healthful environment for all persons associated with the University, including faculty, staff, students, visitors, and members of the Chapel Hill community.

The University emphasizes an integrated systems approach, as well as safety education and training as the primary means of achieving this goal. The Environment, Health and Safety department is primarily responsible for environment, health and safety functions at the University, by developing EHS programs and performing various periodic inspections. Department heads, faculty members, and supervisors are considered directly responsible for maintaining full compliance with State and Federal regulations and University safety policies and procedures.

**Mission Statement**
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.

**Core Values of the EHS Organization**
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.
- 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.

**Mission of the Organization**
- Provide a safe work place.
- Ensure a process of compliance.
- Minimize future potential liabilities.

**EHS Motto**
- Strive Towards Excellence
Welcome to our third annual report. The primary themes of this year’s report are collaboration, compliance, and innovation.

“Together, making this a safe and healthy place to teach, learn and serve.” This is an appropriate and important theme, because almost everything we do here at the University to preserve the environment and ensure the health and safety of our community is done in collaboration with others. The number of relationships with people and organizations it takes to ensure and improve health and safety on this 37,000-member campus is enormous. We work with nearly every department, unit, and type of employee on campus, but we also work with dozens of vendors and regulatory agencies. We are proud of the spirit of collaboration that we share across the University. Lab researchers, administrative staff, facilities staff, students, professors, healthcare staff, and numerous others always impress us with their genuine interest in working together to ensure that the University community excels.

Compliance is an ever-growing effort in a stringent regulatory environment and sometimes compliance is seen as the enemy of creativity. But it is not seen as an enemy here at UNC. There is a genuine interest among staff and faculty to be compliant, as the staff and faculty understand the underlying premise of most compliance issues: to protect the environment and the health and safety of all. Thus, our efforts with our fellow Tar Heels allows all of us to do our tasks more efficiently and effectively. An excellent example of this was the implementation of the centralized web-based shipping system. As a Carolina Counts project it was cross functional, streamlining and compliant with four separate regulatory agencies.

Ensuring protection of the environment and the health and safety of others has always required unique and innovative solutions since the needs of both are ever changing. With the Chancellor’s strong leadership in this area, we will focus even more on this by formally recognizing those who work together to achieve solutions. Many of our programs have already become a standard for other colleges and universities around the country throughout our 36-year history. Examples of this are our online laboratory safety plans, management of hazardous waste, pandemic influenza emergency planning, storm water permitting and our environment, health and safety database—HASMIS. Each one is innovative in its approach, achieves efficiencies in its implementation, contributes to the Plan, Do, Check, Act management system, and is “an important idea put to use to benefit people and the natural world.”

Overall, 2010 was a good year for the environment, health and safety at the University of North Carolina at Chapel Hill. (Please see our Year In Review section for specific yearly accomplishments). It was a year in which we took great pride in our accomplishments, as well as contributing to the health and safety of one of the world’s leading academic and research institutions.

Mary Beth Koza
mbkoza@ehs.unc.edu

1. Innovate@Carolina: Important Ideas for a Better World, A Strategic Roadmap to Accelerate Innovation at The University of North at Chapel Hill (Roadmap), 7
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**

In 2008, UNC recognized the Biological Safety section as a separate support division within the EHS Department. 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 EHS 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 was created in 1994 to proactively manage 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 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.
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.

Radiation Safety
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. These are designed to support and not impede academic research.

Occupational and Environmental Hygiene
OEH is responsible for ensuring that indoor campus environments are conducive to good health and well-being 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.

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 as possible, so that fire safety becomes a collaborative effort, and a fire safety culture becomes the norm.
EHS makes implementation of the UNC Academic Plan possible by providing regulatory compliance in the areas of biological safety, chemical safety, controlled substances, environmental permitting, export shipping controls, fire/life safety, emergency response, occupational hygiene, radiation safety, and workplace safety.

University of North Carolina at Chapel Hill 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 2010, 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.

Setting goals for the department is an important part of this management system. It translates purpose into action and drives continuous improvement. The goals are consistent with our mission of providing a safe place, ensuring a process of compliance and minimizing future liability.
Check — Act
EHS Management System

<table>
<thead>
<tr>
<th>PDCA</th>
<th>Integrated Management System</th>
<th>UNC EHS Management System</th>
</tr>
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</table>
| **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 |

About this report:
Each year in the EHS annual report the goals of the organization are measured and the goals for the upcoming year are defined. The accomplishments of each EHS section are highlighted and compared against last year’s achievements as a method of measuring our progress towards EHS excellence. Education, customer service, and internal processes are the functions that are highlighted because they are integral parts of our mission from year-to-year. Reporting our progress drives continuous improvement and provides accomplishments that can be recognized internally and externally. Four levels of excellence have been identified, each one consisting of specific, measurable objectives. This provides a management system which recognizes process components for improvement, measures performance, reports results, and decides on activities that need improvement. In other words, implementations of the Plan - Do - Check - Act model.
Minnows Return to Stormwater Outfalls
In the summer of 2007, UNC created an Illicit Discharge Detection and Elimination (IDDE) Program as a part of the larger campus Stormwater Management Program. EHS designed the program to discover and prevent non-stormwater discharges from entering the storm drain system and polluting our local waterways. Using Geographical Information Systems to analyze potential high-risk areas and following up on tips to the EHS hotline, EHS investigated 58 potential illicit discharges to the storm drain system in 2010. Five significant leaks were found and repaired, stopping previously undetected sewer discharges into the storm drain systems. Additionally, the investigators found four other pipes connected to the storm drain system from building interiors. All of these were repiped to the sanitary sewer system. Investigations into these problems and the subsequent fixes have resulted in improved water quality in streams around campus. In 2010, for the first time in many years, fish were found in one of the campus stormwater outfalls.

Chemical Fume Hoods
The chemical fume hood is one of the most important pieces of laboratory equipment. It is the engineering control protecting the worker from harmful vapors and gases in the laboratory. With the addition of Murray and Veneable Halls, the number of fume hoods on campus has increased to more than 900. Biological Safety issues maintenance requests, educates workers, and ensures that each fume hood on campus is functioning properly. Biological Safety staff, with assistance from Industrial Hygiene, the CLIP team, and Facilities Services inspects every fume hood annually to ensure they are safe for use.

New Informational Brochure
In order to provide training and compliance information for new employees, and to provide information to all employees about the functions and training requirements of EHS, a new four-color brochure was created.

Policy for Moisture Intrusion Events
In collaboration with Facilities Services Division, the Occupational and Environmental Hygiene section developed a policy to respond to moisture events on campus including roof leaks, plumbing leaks, and sewage backups. Coordination between EHS and Facilities Services allows for rapid assessment of the extent of the damage and implementation of the appropriate response plan to mitigate the damage. This policy will result in overall savings to the university by reducing restoration costs and minimizing disruption of campus services.

Successful Radiation Program Inspection
The Radiation Safety Office administers eight radioactive materials licenses and 16 x-ray registrations containing over 300 radiation-producing machines. These licenses and registrations are audited on a regular basis by the NC Radiation Protection Section on differing schedules. A multi-person team inspected the broad medical radioactive materials license for UNC Healthcare for four days. The results of the inspection were that the program was in good shape and there were no citations or violations.

Carolina North Groundwater Remediation Project
In the mid-1970’s, a 0.2 acre site near the Horace Williams Airport was used by N.C. Memorial Hospital and the University’s research laboratories to dispose of chemical waste using accepted legal disposal methods of that era. In 2010, as a follow up to the 2008 clean up of 22,000 bottles of chemical waste and 4,000 tons of contaminated soil, EHS initiated an aggressive and innovative approach to clean up groundwater at the former waste site. This effort includes the injection of a sodium persulfate solution into a specially designed infiltration gallery to oxidize the complex mixture of chemical contaminants to benign products. The injection process will augment an existing groundwater remediation system to recover contaminated groundwater and to stop subsurface migration. EHS developed this aggressive remediation strategy to reduce the timeframe of the cleanup, to treat effectively the wide variety of chemicals in the groundwater plume, and to mitigate potential impacts to future receptors.

Work Study Students Support Fire Safety Section
Three UNC-Chapel Hill undergraduate students gained first-hand knowledge about fire safety as they assisted in the implementation of a new bar coding system to keep track of the 6000 fire extinguishers on campus. With their assistance, the project was completed in six months, instead of the projected 12-month period. Two of the students assisted in testing fire alarm systems in campus buildings, developing the Fire Safety newsletter, updating the Emergency Coordinator Database, teaching fire extinguisher training, and designing literature for safety outreach programs. The students learned about all aspects of fire safety, while helping meet safety goals. The objective for supporting Work Study students is to provide them with awareness, education and training about fire safety while utilizing their work experience so the department can continue to meet its compliance and safety objectives.

Carolina Counts Project
A Carolina Counts project for Phase II of the online Lab Safety Plan expanded the existing Lab Safety Plan System to include IBC, shipping, mercury-free, laboratory signage, CLIP, and training notification. The objective was to reduce the number of manual paper-based and standalone computerized processes required to achieve OSHA and NIH compliance and to ultimately improve compliance including reducing the risk of fines for non-compliance with NIH guidelines for research involving recombinant DNA research and regulations governing transportation and shipping of research materials (49 CFR).
In Review

New Hazardous Waste Management Videoconference
Working with the NC Department of Environment and Natural Resources (DENR), EHS initiated and produced a hazardous waste management videoconference, and invited all North Carolina colleges and universities to participate in this first ever half-day event. The event was also supported by the North Carolina Independent Colleges & Universities Association. Sixteen colleges and universities hooked up to the seminar and heard presentations by Hazardous Waste Inspectors from the Waste Management section of DENR. The videoconference will be an annual event.

Enhanced Security Measures for Radioactive Materials
UNC implemented enhanced security measures for radioactive materials in quantities of concern for several facilities throughout the campus. These enhancements include utilizing three-factor access philosophy and the latest technology in remote monitoring systems. These enhancements were worth approximately $270,000 and were funded by the National Nuclear Security Administration’s Global Threat Reduction Initiative at no cost to the University.

Asbestos-Containing Ceiling Tile Survey
In response to OSHA’s policy on Presumed Asbestos Containing Materials, EHS commissioned a study to identify asbestos-containing ceiling tile systems within all pre-1981 buildings on campus. Ceiling tile systems were targeted based on the frequency of repairs performed by Facilities Services on utility systems located above ceiling assemblies. OSHA’s ruling required EHS to assume that all ceiling systems in pre-1981 construction were positive for asbestos, hampering Facilities Services ability to quickly perform maintenance and construction activities. The study revealed that only ten pre-1981 buildings contained asbestos ceiling systems. Facilities Services now only takes asbestos precautions in those identified buildings, enabling them to respond more quickly to events in buildings that do not have asbestos ceiling systems.

Interdisciplinary Safety Team Works With DLAM
An interdisciplinary EHS team with members from Biological Safety, Chemical Safety, Environmental Affairs, Occupational and Environmental Hygiene, and Workplace Safety was developed to support the activities and employees of the Division of Laboratory Animal Medicine (DLAM). The team works closely with the DLAM Training Coordinator to identify opportunities for regulatory compliance, reduce employee accidents and injuries, improve risk assessment and PPE requirements, training and waste management program.

New Nanotechnology Safety Policy
A new Nanotechnology Safety Policy and informational webpage was created to address potential hazards and risks involved in the emerging field of nanotechnology. The UNC Nanotechnology Safety Policy ensures that University employees performing nanotechnology research are aware of the potential hazards and risks involved and the control measures that should be utilized to limit exposures. The nanotechnology safety webpage contains further information for researchers, including a Nanomaterial Risk Level (NRL) table that outlines practices, engineering controls and PPE, based on the type of nanomaterial.

Hot Work Permit
A new program was developed to protect employees during welding and cutting operations, while protecting property and equipment from hot work operations at the University. Welding, cutting, and allied processes produce molten metal, sparks, slag, and hot work surfaces, which could cause fire or explosion if precautionary measures are not followed. Thus, it is important to determine if the work can be conducted in a designated space, or if it is a controlled space. Under controlled spaces, the program specifies how safe conditions can be created by moving or protecting combustibles with approved fire resistant materials. For the protection of the employees, it explains what type of personal protective equipment must be used.

Demonstration of Two “Dorm Room” Fires
Fire Safety welcomed the Safeway Sprinkler Company to give a demonstration of two “dorm room” fires at the School of Government parking lot. One of the rooms was equipped with a fire sprinkler, the other was not equipped. The fire quickly accelerated out of control in the un-sprinkled room, while in less than a minute, the sprinklers kicked on in the other room and extinguished the fire. This dramatic display demonstrated the effectiveness of the fire sprinkler systems present in many of our campus facilities, and reinforced to students and staff the importance of life safety systems.

EHS Web Management
The EHS website is a tremendous resource for the University community and requires daily management. The area that receives the most traffic is on-line training. This illustrates the University employee’s interest and commitment to understanding and controlling hazards by completing the training. Five thousand and ninety employees completed their training in 2010. Additionally job specific training is provided depending on the work task performed, such as Hot Work and machine guarding.

Improving Health and Safety Abroad
Working with the Office of the Executive Associate Provost, EHS and the University Employee Occupational Health Clinic developed a new travel immunization policy for faculty and staff traveling overseas. Highlights of the policy include increasing awareness about the on-campus international travel clinic and University-sponsored travel insurance. In addition, new requirements were created to reduce the risk of blood borne pathogen infections for clinical faculty and staff working internationally.
## 2010 Goals & Performance

As part of the “Plan, Do, Check, Act” management system, the department reviews the progress that was made on the previous year’s goals and then determines the goals for the next year. The following two pages contain the review of the 2010 goals, and whether they were achieved, not achieved, or in process.

<table>
<thead>
<tr>
<th>Productivity</th>
<th>Accomplished</th>
<th>In Process</th>
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<tbody>
<tr>
<td>Continue to define and implement improvements to the Collaborative Laboratory Inspection Program (CLIP) by utilizing data analysis to drive safety compliance, training CLIP inspectors, and early identification of safety risks for evolving technologies.</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
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<tr>
<td>Design and implement a standardized laboratory freezer signage program for the University to improve safety and provide rapid response to power outages.</td>
<td>![Checkmark]</td>
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<tr>
<td>Continue to develop a strategy in collaboration with Facilities Services to expand air-handling unit cleaning to improve energy savings as well as enhanced indoor air quality.</td>
<td>![Checkmark]</td>
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<tr>
<td>Continue to investigate and design a systematic method to collect, categorize, and prioritize all EHS complaints, assess the response during and after the complaint, including a database configured to analyze these complaints in order to identify trends, performance, and communication issues.</td>
<td>![Checkmark]</td>
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<tr>
<td>Continue the systematic review of all occupational injuries of the last three years to assure proper program support and EHS areas of focus.</td>
<td>![Checkmark]</td>
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<tr>
<td>Continue to implement the updated incident investigation reporting process to assure timely reporting and corrective action implementation.</td>
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<tr>
<td>Implement SharePoint for documentation management for the EHS department. Biological Safety, Chemical Safety and Environmental Affairs implemented SharePoint in 2010 and in 2011 the remaining sections will implement.</td>
<td>![Checkmark]</td>
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<tr>
<td>Continue the comprehensive review of the EHS website to identify required updates for compliance, increase ease of navigation and provide a customer feedback mechanism.</td>
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<tr>
<td>Expand the Hazards Management Program (HMP) within EHS to be a cross functional team to increase its effectiveness and realize synergies within the department.</td>
<td>![Checkmark]</td>
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<tr>
<td>Evaluate and implement upgrades to the Hearing Conversation program to reduce costs to the affected departments and improve audiometric testing data management resulting in reduced incidents of progressive hearing loss for affected personnel.</td>
<td>![Checkmark]</td>
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<tr>
<td>Implement the SPOTS program upgrade to record new building inspection data for lead and asbestos resulting in improving the efficiencies of data collections and record keeping for EHS as well as providing ready access to information for Facilities Planning, Design and Construction and shops.</td>
<td>![Checkmark]</td>
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<tr>
<td>Develop an inclusive EHS team to support the activities of Division of Laboratory Animal Medicine; this team will identify EHS opportunities for regulatory compliance.</td>
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### Growth

<table>
<thead>
<tr>
<th>Accomplished</th>
<th>In Process</th>
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<tbody>
<tr>
<td>Support the compliance activities at the Bingham Facility and implement an integrated water approach.</td>
<td></td>
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<tr>
<td>Increase regulatory compliance with Homeland Security requirements for radioactive materials such as enhanced security hardware upgrades, new irradiator facilities, National Source Tracking System “NSTS”, and increase scrutiny on training and documentation 10CRF 35.</td>
<td></td>
</tr>
<tr>
<td>Preparation/renewal of UNC Hospitals Medical broad-scope Radioactive Materials License and UNC Academic Accelerator License.</td>
<td></td>
</tr>
<tr>
<td>Implement centralized web-base virtual system for shipping of letters, hazardous and biological material packages to domestic and international locations for the University. System will enhance and assure compliance with the Department of Transportation (CFR 49), Federal Aviation (FAA), Export Control Administration (CFR 15), International Traffic Arms Regulations (22 CFR), International Air Transportation Association (IATA) and U.S. Census Bureau.</td>
<td></td>
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<tr>
<td>Assure compliance in the areas of formaldehyde monitoring, 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.</td>
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### Training

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<tr>
<th>Accomplished</th>
<th>In Process</th>
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<tbody>
<tr>
<td>Continue to develop, implement, and upgrade job specific online training programs such as Machine Guarding, Walking/Working Surfaces, Fall Protection, Formaldehyde Monitoring, Hot Works Permitting, Lockout/Tag-out Requirements and Confined Space Entry.</td>
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<tr>
<td>Continue to improve and more broadly disseminate EHS newsletter, special alerts and other communication vehicles to raise safety awareness.</td>
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<tr>
<td>Work closely with Public Safety to assure the University is prepared for an emergency such as hazardous materials and bioterrorism, and identify and implement training exercises with Public Safety and Student Affairs.</td>
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<tr>
<td>Plan and coordinate a live confined space rescue exercise with South Orange Rescue, Energy Services and Facilities Services.</td>
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</table>
# 2011 Goals

## Productivity

<table>
<thead>
<tr>
<th>Task</th>
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<tbody>
<tr>
<td>Continue collaborating with Facilities Services to proactively address indoor air quality concerns, expansion of the SPOTS program and management of the containment laboratories.</td>
</tr>
<tr>
<td>Complete and document analysis of the applicability of the new EPA Subpart K, to the Resource Conservation and Recovery Act (RCRA) hazardous waste generator regulatory requirements in Part 262. This alternative set of regulations is applicable to colleges and universities providing the flexibility to make hazardous waste determinations in the laboratory, at an on-site central accumulation area, or at an on-site treatment, storage, or disposal facility (TSDF).</td>
</tr>
<tr>
<td>Apply for laboratory certification of airborne asbestos analysis to support the asbestos abatement projects by streamlining the process and improving timing of sampling results.</td>
</tr>
<tr>
<td>Continue systematic review of all occupational injuries of the last three years for re-evaluation and implementation of new metrics ensuring proper EHS programming and identify work areas that need additional support.</td>
</tr>
<tr>
<td>Implement University Employee Occupational Health Clinic scheduling system, streamlining process for both internal and external users while improving clinic management efficiencies.</td>
</tr>
<tr>
<td>Implement SharePoint for documentation management.</td>
</tr>
<tr>
<td>Continue reviewing the EHS website to identify required updates for compliance, increase ease of navigation and provide a customer feedback mechanism for training and EHS services.</td>
</tr>
<tr>
<td>Expand the EHS Hazards Management Program (HMP) to be a cross functional team, increasing its effectiveness and realizing synergies within the department.</td>
</tr>
<tr>
<td>Develop and implement a Biological Safety Level 2 Inspection checklist process for consistency in laboratory set-up and inspection in the Division of Laboratory Animal Medicine.</td>
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<tr>
<td>Implement the use of QuietDose in-ear noise dosimeters in departments enrolled in the Hearing Conservation Program to provide daily feedback on whether employees are properly wearing their hearing protection to prevent hearing loss.</td>
</tr>
<tr>
<td>Continue activities of EHS team supporting the activities of Division of Laboratory Animal Medicine. Team will continue to identify EHS opportunities for regulatory compliance, while preparing for the University’s 2011 AALAC accreditation inspection.</td>
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## Training

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<tbody>
<tr>
<td>Plan and coordinate a live confined space rescue exercise with South Orange Rescue, Energy Services, and Facilities Services.</td>
</tr>
<tr>
<td>Coordinate training for the Department of Public Safety and UNC Healthcare dispatch personnel to use, operate, and respond to the Remote Monitoring Systems to meet enhanced security requirements for radionuclides in quantities of concern.</td>
</tr>
<tr>
<td>Develop and implement the EHS Compliance Portal providing instant real-time data regarding medical surveillance and training compliance to the employee, their supervisor, and their Human Resource Facilitator.</td>
</tr>
<tr>
<td>Prepare an on-line and instructional Aerial Work Platform (AWP) training program for the campus community by evaluating the use of campus scaffolding systems and implementing an on-line training program assuring proper assembly and use.</td>
</tr>
<tr>
<td>Expand Fire Safety training by focusing on annual Fire Safety Fair and fire extinguisher training, providing a consistent message to the many diverse groups that live/work on campus.</td>
</tr>
</tbody>
</table>
### Growth

- Continue providing technical and educational support to joint Energy Services-EHS projects including reclaimed water conjunctive use at athletic fields and the NC Botanical Garden, the investigation and mapping of UNC stormwater infrastructure, and Stormwater Master Plan-related elements.
- Supporting and permitting the design, acquisition, and installation of new MRI research facilities at UNC. This consists of two facilities: modification of a current building (MRI) and design and building of a new building (IRB).
- Supporting and permitting the design, acquisition, and installation of the new Cyclotron research facilities at UNC. This consists of two facilities: GMB enclosure and new IRB building.
- Support the growth of the Kannapolis Site, and continue to provide technical expertise in the design, operation, testing and commissioning of the limited access lab.
- Complete Phase II update of the online Lab Safety Plan to improve campus wide compliance and reduce number of manual paper-based and standalone computerized processes required to achieve OSHA and NIH compliance.
- Provide technical and regulatory support to key Energy Services initiatives such as the Alternative Energy and Climate Action teams.
- Implement the University Travel Immunization program and advertise services to the campus community.
- Provide technical support, compliance assistance, and training for evolving Environmental Affairs initiatives in erosion and sedimentation control for construction/renovation projects.
- Provide technical support in the areas of radiation safety and hazardous waste management to the design of the UNC-Healthcare System Hillsborough hospital.

### Compliance

- Continue providing technical and permitting expertise for all environmental, biological, and ecological facets of the Carolina North project. In 2011, this includes the 401-water quality certification, environmental impact assessments and adding UNC-CH as a co-permittee on RDU Authority’s stormwater permit to support the relocation of Medical Air Operations to RDU.
- Support the construction and compliance activities of the wastewater treatment system at the Bingham Facility.
- Increase regulatory compliance with Homeland Security requirements for radioactive materials such as enhanced security hardware upgrades, new irradiator facilities, National Source Tracking System “NSTS,” and increase scrutiny on training and documentation per 10CFR 35. Partner with Department of Homeland Security’s Global Threat Reduction Initiative to enhance security to three additional facilities containing radionuclides in quantities of concern.
- Implement a University Formaldehyde Exposure Plan per the OSHA formaldehyde standard (29CFR1910.1048), including specific policies for identification of employees that use formaldehyde, training, monitoring, and medical surveillance.
- Continue expansion efforts to detect and eliminate illicit connections to the stormwater system, commencement of education and inspection programs for food service facilities on campus, use of GIS to identify all locations where the sanitary sewer and stormwater system cross and inspect all inlets within a 50-foot radius of these crossings for potential sewer leaks in support of the UNC Stormwater permit.
- Re-evaluate and implement process improvements to the University Employee Occupational Health Clinic Needlestick program.
- Work with various University departments to reduce the number of fire alarm activations through training, physical control, and preventative maintenance activities.
- Support the compliance requirements of training, and update of the Cogeneration facility’s One Plan with Energy Services.
- Develop and submit the required information to renew the UNC-CH Title V air permit for the campus, which expires on 9/30/2011.
- Work with Energy Services to develop an air permitting strategy incorporating new requirements pertaining to modeling, the boiler MCAT standard and energy generators on campus.
Regulated Shipping

As one of the world’s leading research institutions, the variety of goods — dangerous, and not so dangerous — shipped to and from UNC research labs on campus is always a major concern — for reasons of both safety and savings.

A single violation for shipping something that is on a Federal Aviation Administration restricted list without proper training or certification could cost the University a fine of $37,000 — at minimum. Not only that, but the shipment could endanger others if not properly contained and shipped.

As more and more research came to campus, EHS saw the need to provide closer oversight and assistance to departments and lab researchers to ensure safe and compliant shipping. The goal was also to make sure that departments were getting the most savings from their shipping expense through use of the University’s volume discounts. Working with UNC’s Logistics and Purchasing Services and FedEx, the team found a tool to help with both of these objectives. FedEx had recently created “FedEx Shipping Administration,” a centralized web-based shipping administration system that offered the functions the team was looking for. Implementing this improved web-based system involved collecting shipping and FedEx user data from Purchasing Services, loading this data into the online system, and communicating to each department the improved web functions they could utilize.

This new tool provides for consolidation of all UNC FedEx shipping activity under one administrative system. Additionally, it flags the shipping activity on UNC’s campus and increases compliance by identifying areas where assistance in shipping was needed.

The system also generates real time shipping data and grants dangerous goods shipping permissions only to those users who have passed the required training to send dangerous goods packages. In addition to the increased visibility for shipping compliance, this web-based system offers extra features that departments on campus can use to improve their internal accounting practices for shipping activity.

As one of the world’s leading research institutions, the variety of goods — dangerous, and not so dangerous — shipped to and from UNC research labs on campus is now safer and cheaper, thanks to the collaboration and innovation of people who cared to make UNC a safer and healthier place to teach, learn and serve.

Biological Safety

“It was great to work with Biosafety and Fed Ex to put this new centralized web-based shipping program together. We created a program that will save money while making it safer for everyone to ship important research materials.”

Melaina Hall, Department Services, UNC Purchasing
The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
The nervous system is very sensitive to all forms of mercury and exposure to high levels of mercury can permanently damage the brain, kidneys, and a developing fetus, according to an agency of the U.S. Department of Health and Human Services. Yet most research labs at UNC and all across the nation have relied on the traditional mercury instruments, like thermometers, barometers, and manometers for all kinds of routine daily experiments.

The health risks to emergency responders and remediation personnel responding to spills in UNC labs was great, because over an eight-year period, roughly seventy percent of chemical spill response/clean-up at UNC labs involved mercury. For many years, there were more than 30 mercury spills per year at UNC labs. Spills not only pose a huge risk to researchers, they also pose a risk to the personnel who clean up the spill, and they consume a significant amount of time and money. Clean up of a typical mercury spill can cost from $5,000 to $15,000. Multiply that by an average 30 spills per year and the costs amount to far more than the benefit; particularly when, in many cases, there are safe and effective alternatives to a traditional mercury instrument.

In addition, improper disposal and unrecognized or unreported releases of mercury are a threat to the whole community and can lead to significant regulatory consequences. As a generator of hazardous waste, the University had an obligation to protect the researchers and community, and abide by federal and state recommendations to reduce the volume and quantity of mercury generated on campus.

In 2003, a new mercury replacement program was created, providing money to UNC labs to replace their mercury-containing instruments. Then, to further reduce spills, a new policy — Mercury Free@UNC — was adopted in 2009 to eliminate all nonessential uses of elemental mercury. EHS continued to contribute money to researchers to assist in reducing the use of the mercury instruments.

To build awareness of the program, EHS personnel combed through lab reports identifying labs where mercury was used, then sent mass email alerts to PIs and Safety Supervisors. Inspectors for the Collaborative Lab Inspections Program (CLIP) promoted the program during their regular inspection rounds. EHS then worked with Fisher Scientific and individual labs to get the best pricing and appropriate non-mercury replacement meters.

Emergency responders and remediation personnel face significant health risks when containing and remediating mercury spills and remediation can costs thousands of dollars, so UNC created an innovative way to reduce the spills and the risks.

“Kannapolis Fire Department is very appreciative of the staff of EHS for providing basic lab safety training for our personnel. As the primary emergency responder for the NC Research Campus in Kannapolis, which includes a UNC facility, we were actively looking for someone to provide this type of training. Catherine’s presentation and walk through of the facility was very informative and provided insight for equipment purchases as we implemented our hazardous materials response team.”

Rick Barnhardt, Division Chief, Kannapolis Fire Department, Kannapolis, NC
The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
In order to understand this vast acreage, EA staff walked the entire 950 acres multiple times to identify precisely the locations of streams and wetlands. Then, working with a team of experts from Facilities Planning, Energy Services, Biohabitats and USACE, the project design was analyzed several times and modified in order to minimize and avoid impacts to streams and wetlands. Only truly unavoidable impacts were included in the permit application to the USACE.

The initial 1998 plan for Carolina North would have impacted approximately 5 acres of wetlands and 9,700 linear feet of stream, but the UNC team moved or realigned proposed building footprints, greenways and sidewalks, as well as water/sewer and other utility infrastructure to avoid impacts, reducing those impacts to 2.3 acres of wetlands and 377 linear feet of stream.

UNC also reduced the human impact to the site by limiting the development to the areas that had already been impacted, such as the Horace Williams Airport, the old Town of Chapel Hill Public Works and the old Town of Chapel Hill landfill.

The 50-year development plan for Carolina North limits the development footprint to 233 acres and will put 311 acres of land into permanent conservation easements. Working at full speed throughout 2010, and sometimes meeting with other team members three and four times a week, EHS submitted the permit application to USACE in early 2011.

UNC expects to receive a permit from the USACE in late 2011 or early 2012. Receipt of this permit will clear a significant regulatory and scheduling hurdle for construction of Carolina North and allow development to begin as funding becomes available. And, fifty years from now, UNC will have created another world-class research campus while being a good steward of the beautiful land given to it more than a century before, thanks to the collaborative efforts of UNC employees and others, dedicated to the preservation of the environment.
The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
False Fire Alarms

False fire alarms cost thousands of dollars and risk the lives of firefighters while potentially taking those same firefighters away from a real fire event, but thanks to the innovative efforts of a team of students and employees, UNC is a safer place.

During the 2009/2010 academic year, the Chapel Hill Fire Department responded to 359 “fire” emergency calls at UNC residence halls and student housing. Only four of these emergency responses were actual fires. The rest were:
- 272 cooking incidents,
- 67 smoke detector activations from shower steam and hair dryers,
- Seven maliciously pulled fire alarms, and
- Nine activations from cigarettes and other unauthorized smoking materials.

At an approximate cost to the Fire Department of $1,000 per fire call, the costs for any academic year could be as much as $350,000. In addition to the mostly unnecessary expense is the unnecessary risk to firefighters as well as the time those firefighters and a firefighting truck are taken away from what might be a real fire with more serious consequences. Given the expense and the all around risks, every year the Fire Safety section evaluates the number of fire calls and designs new ways to reduce the numbers through education and training of UNC students. The task is not an easy one, because each academic year approximately 3,400, or 40%, of the nearly 9,000 students in residence halls and student housing are new to UNC, and usually have little idea of the information they need to practice fire safety.

So in 2010, the fire safety section staff decided to try a unique approach to educate new students about fire safety and false alarms. Prior to the return of the students, the staff enlisted UNC Community Directors to brainstorm ways to get the attention of 19-22 year olds. Then, they hosted the annual training session with 20 new and returning Resident Advisor Mentors (RAMs) in Spencer Hall kitchen and invited them to be writers and actors in videos that recreated themes of real and false fire scenarios. Divided into 7 teams, the 20 RAMs unpacked cooking utensils, blankets, pizza boxes, and other props, and staged funny — yet serious — videos of what not to do to reduce false alarms.

Among the humorous but serious videos were making a cheese sandwich in a toaster, microwaving popcorn for six minutes, and the notorious “warming pizza in the box.” The RAMs energy and laughter during the filming was contagious and it was a great way for them to foster teamwork and expand their leadership skills. As part of the annual fire safety training program, the “instructional” videos were shown to the 170 Resident Assistants (RAs). The RAs’ reactions were overwhelmingly positive — as known by the gales of laughter — as they watched their leaders act out the vignettes of how to be safe. More than 230 RAs viewed the videos, and approximately half of the 9,000 student residents received fire safety training. A serious — and fun — training education in fire safety.

“I would like to thank the EHS department for their continued hard work and professionalism. Together we have worked on training new and existing employees with fire extinguisher training. We have developed a building safety committee in which EHS came out to help us with roles and responsibilities and we also have numerous employees that are now Building Safety Coordinators.”

Sean Downing, Director of Facilities and Distribution Services, School of Government
The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
Asbestos Protection

Storing and retrieving thousands of documents about asbestos-containing places on campus takes time and money, but quick access to the information is very important, so teamwork and an innovative solution makes UNC a safer and healthier place.

Asbestos is a fibrous mineral used in a variety of building construction materials for insulation and as a fire-retardant since the late 1800s. However, when asbestos-containing materials are damaged or disturbed by repair, remodeling or demolition, the microscopic fibers can become airborne and inhaled into the lungs, where they can cause asbestosis, malignant lung cancer and mesothelioma.

It exists in almost all buildings built before the 1980s, and UNC buildings are no exception. Because of this potential health hazard, EHS has been documenting the location of asbestos in UNC buildings since the department was created in 1978, and has instituted numerous asbestos control programs, including exposure monitoring services, asbestos awareness training, building inspection/surveys, and review of asbestos removal project designs. But filing that data and then being able to access the same data years later so contractors and maintenance personnel could locate the asbestos and take precautionary measures had become an enormous task. Imagine spending hours searching through thousands and thousands of hard copies, dozens of three ring binders and multiple electronic files and hard copy reports.

So, in 2010, EHS, Facilities Services and Facilities Planning set out to find a way to store and then easily access the information. Facilities Services had created SPOTS (an acronym for Space Planning and Occupancy Tracking System), a web-based real time information system that allows facilities services personnel access to facility floor plans, including electrical and plumbing information with dynamic highlighting and labeling of every single building on campus. The task then was to put critical asbestos (and lead) information into SPOTS so it could graphically and photographically display the information for all relevant campus buildings.

With SPOTS, EHS can now easily track asbestos and lead data being generated by environmental consultants and remediation contractors. After abatement of the areas where there is asbestos, EHS is able to update SPOTS without losing the historical data. Facilities Planning can research the asbestos and lead data prior to renovation/demolition activities and/or maintenance activities. Architects and engineering firms can access the information prior to scheduled projects and provide detailed building updates of asbestos and lead. Consultants can conduct fewer inspections because they now have access to all the data and know where they do not need to test, saving money from unnecessary duplication. EHS is already planning to expand SPOTS to include data like mercury and water testing. A UNC team created an innovative program that will make UNC a safer place and likely be duplicated at universities all across the country.

To assist in our study of a medieval illuminated manuscript held in the University Library’s Rare Book Collection, we were looking for a portable x-ray fluorescence analyzer to analyze the ink., and discovered that EHS uses this equipment for detecting lead in paint. Ours was a most unusual request, but the EHS staff members were willing to share this high-tech resource and provide help with a project well outside their daily responsibilities. We feel very fortunate to have such collaborative and engaged colleagues on this campus.”

Jan Paris & Andrea Knowlton, Conservators for Special Collections, University Library
### Compliance

The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
Radiation Reduction

An irradiator that had been used for research was no longer needed, took up valuable research space and was a potential risk, but removing it was not possible because of the expense. EHS found the funds and then worked to get it removed, making this a safer place.

Radiation Safety

"For years our department has discussed removing the irradiator, but the cost was prohibitive. The Radiation Safety staff did us a great favor by finding the funding and executing the removal at no cost to us. Their persistent effort has greatly reduced our risk of exposure and made the lab space much more useful."

Christy Inscoe, Senior Lab Manager, Physics & Astronomy

In the 1960s, UNC was involved with research in the effect of radiation on the degradation of materials. The improvement of everything from nuclear power plants to high-energy research accelerators like the famous Fermi accelerator near Chicago, space satellites, and even prosthetics for replacement of hips, was—and still is—dependent on such research to improve performance. So, in the mid-60s, UNC acquired radioactive sources to conduct such research.

Fast forward to the 21st century, the UNC Physics and Astronomy department had since ended that research, but the radioactive sources remained, secured in an underground vault in Phillips Hall. Without the money to remove the sources, they remained safe and secure—yet unnecessary and unwanted.

Such situations existed on many of the nation’s research campuses, so, after 9/11, the United States Department of Energy’s Global Threat Reduction Initiative created a program called Offsite Source Recovery to begin removing these sources to ensure that none of these radioactive materials could ever be stolen and used for terrorism. The Initiative provided the funds—in this case, nearly $300,000—to have the radiation sources removed.

In 2010, after pushing the request through the Offsite Source Recovery Program to put it high on their priority list and receiving approval from DOE, the staff at EHS, Physics and Astronomy, and Public Safety all began the final stages to prepare for removal. There were meetings with vendor engineers to design the removal equipment, coordination with a forklift vendor to get the proper forklift, coordination of security arrangements, coordination of licensing of radiological material transfers, security approvals of vendors, traffic control for unloading/loading, and filing of all National Source Tracking System paperwork and reporting. Four months of work just to complete the final plans.

After years of planning and collaboration, all was set to take the radioactive sources from their protected underground repository. To ensure that there was no risk from radiation, a lead cask weighing thousands of pounds was brought in and placed over the source for shielding. The source was pulled into the cask, sealed, loaded into an overpack container and a forklift transported the cask to a truck. To ensure against theft or terrorism, the department of Public Safety provided armed protection during the middle of the night removal. What took years of planning and collaboration took only three days to complete. The facility was decommissioned and thus poses no threat to anyone.
The above chart reinforces to EHS employees and EHS stakeholders the importance of three primary functions: customer service, education, and internal processes. None of the bullets is weighted in its importance over another, because each is critical to the overall mission to provide a safe work place, ensure a process of compliance, and minimize future potential liabilities.
Job Safety Analysis

Accidents and injuries are expected in a community of 37,000 people, but reducing them is not always an easy task and can require extensive investigation and analysis. EHS collaborated with the Division of Laboratory Animal Medicine to dramatically reduce injuries.

With the help of EHS, we have a safety manual and training program developed for each department. Since we have areas of public assembly, EHS has also helped develop safety programs and guidelines for our front of house staff to ensure the safety of our patrons. And EHS keeps us informed with the constant updates to OSHA rules, regulations and training resulting in a much safer work environment.

Michael Rolleri, Production Manager/Associate Professor, Dramatic Art
**2010 Performance Level Assessment Chart**

### Education
- Trained/Number of Employees: Respiratory Protection/1,609; New Employee Orientation/5,090; Joint Commission/5,020; Tuberculosis Infection Control/5,054; Bloodborne Pathogens/5,120; Ladder Safety/485; machine guarding/80; Lockout/Tagout/76.
- Assisted Facility Services with four training sessions on Workers’ Compensation and Incident Investigation.
- Retrained DLAM Supervisors on Hazards Management Program and inspection process, and Job Safety Analysis.
- Presented Workers’ Compensation program, where to go for treatment, reporting injuries, and WC statistical information to the Chemistry CASH committee, developed and implemented new on-line Machine Guarding training.
- Provided Ergonomic Hand Injury Prevention training to Facilities Services employees.
- Trained new Botanical Gardens interns.
- Created new chair-adjustment video assisting University staff in changing chair position for proper fit.
- Created on-line training program and pocket information sheet on boating safety for the Institute of Marine Sciences.
- Hosted Alfred Williams’s Lunch-n-Learn series on Human Scale products.

### Customer Service
- Fit tested 506 employees with some receiving additional consultations services under the Respiratory Protection program.
- Conducted 180 ergonomic evaluations, provided recommendations and ergonomic loaner products.
- UEOHC served 4,270 patients under medical surveillance and workers’ compensation program.
- Processed and managed 658 workers’ compensation claims with medicall, work status, and monthly expenditures.
- Converted IMAC manual to PDF format allowing users to fill out forms and save to computers.
- Assisted ES Chilled Water Technical Support Service Work Unit in developing JSAs for work operations performed.
- Assisted the Energy Services Safety Committee in performing safety inspections of work areas at South Chiller Plant, Manning Steam Plant, and EDS- Manning Substation.
- Attended US Coast Guard cold-water safety training and took videos and pictures to assist Institute of Marine Science in development of on-line refresher training program.
- Assisted Human Resources with information about temporary service and workers’ compensation in order to develop MOU with NCSU regarding temporary employment services, then trained UTS about Workers’ Compensation.
- Consulted with the ADA office regarding ergonomic product needs.
- Presented Fall Protection and Hot Work Welding policies to USSC committee for approval.

### Internal Processes
- Held meetings with Corvel, the State’s new TPA regarding concerns with processing of claims, budget codes, invoicing and reconciliation.
- Held meetings with IT programming regarding Ergonomics, Erosion Sedimentation Inspection, EHS Compliance Portal, and UEOHC Scheduling System data-base products.
- Completed Fall Protection, Walking, Working, Surfaces, and Hot Work Permit Welding policies for IMAC manual and drafted a chair adjustment storyboard for on-line web training.
- Reviewed and updated University’s immunization review program to coordinate with UNC Hospitals’ efforts to increase compliance with pertussis vaccination requirements.
- UEOHC applied to be Yellow Fever Vaccine site as part of Travel Clinic.
- Implemented broken link procedure to ensure all EHS website links are viable.
- Implemented new UEOHC scheduling system, manually converting appointments from GE scheduling system into new system, created training documents for new system and reviewed and updated Position Physical Data in HASMIS for billing and scheduling.

### Compliance

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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.

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<td>12/20/2010</td>
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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.

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**Environmental Affairs**

The Environmental Affairs section is committed to a safe and healthy environment for all. 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.

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</table>

**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.

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</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>University Safety &amp; Security Committee Members</th>
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</thead>
<tbody>
<tr>
<td>Dr. Richard Mann</td>
<td>Vice Chancellor for Finance and Administration, Chair, University Safety &amp; Security Committee</td>
</tr>
<tr>
<td>Dr. Robert Adams</td>
<td>Clinical Assistant Professor, Director, Radiation Oncology School</td>
</tr>
<tr>
<td>Dr. Lorraine Alexander</td>
<td>Clinical Associate Professor, Epidemiology, Chair, Laboratory/Chemical Committee</td>
</tr>
<tr>
<td>Carolyn Elfland</td>
<td>Associate Vice Chancellor, Campus Services</td>
</tr>
<tr>
<td>Dr. David Kaufman, MD</td>
<td>Professor &amp; Vice Chair for Research Development, Chair, Radiation Safety Committee</td>
</tr>
<tr>
<td>Steve Kenny</td>
<td>Director, Risk Management Services, Chair, Enterprise Risk Management and Business Continuity Committee</td>
</tr>
<tr>
<td>Mary Beth Koza, MBA</td>
<td>Director, Environment, Health &amp; Safety</td>
</tr>
<tr>
<td>Brenda Malone, Esq.</td>
<td>Vice Chancellor, Human Resources</td>
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</table>
**Hazards Management Safety Committee (HMSC)**

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.

**Hazards Management Committee Members**

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Michael Rolleri</td>
<td>Associate Professor of Dramatic Art; Chair, Hazards Management Committee</td>
</tr>
<tr>
<td>Alana Maffessanti</td>
<td>Safety Officer, Facilities Services Division</td>
</tr>
<tr>
<td>Jeff McCracken</td>
<td>Director, Public Safety</td>
</tr>
<tr>
<td>Steve Kenny</td>
<td>Director of Risk Management Services</td>
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<tr>
<td>Larry Henry</td>
<td>CRO, Energy Services</td>
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<tr>
<td>Derick Pacio</td>
<td>Team Leader, Laboratory Animal Medicine</td>
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<tr>
<td>Mary Crabtree</td>
<td>Workplace Safety Manager, Environment, Health and Safety</td>
</tr>
<tr>
<td>George Devinney</td>
<td>HVAC Supervisor, Energy Services</td>
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<tr>
<td>Lisa Daley</td>
<td>Human Resources Manager, Energy Services</td>
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<tr>
<td>Susan Smith</td>
<td>Accounting Services</td>
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<tr>
<td>Christine Bhirdo</td>
<td>Assistant Operations Director, Laboratory Animal Medicine</td>
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<tr>
<td>Brian Bogie</td>
<td>Engineering Specialist, Energy Services</td>
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<tr>
<td>Larry Henry CRO</td>
<td>Energy Services</td>
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**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).

**Occupational Health and Clinical Safety Committee Members**

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<tr>
<td>Michele Leigh Clark</td>
<td>Administrative Support Specialist, Radiology</td>
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<tr>
<td>Karen Doran</td>
<td>Environment of Care Manager, Student Health Services</td>
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<tr>
<td>Dr. James Hill</td>
<td>Medical Director, University Employee Occupational Health Clinic</td>
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<tr>
<td>Amber Kimball</td>
<td>Human Resources Manager, UNC School of Nursing</td>
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<tr>
<td>Mary Crabtree</td>
<td>Workplace Safety Manager, Environment, Health and Safety</td>
</tr>
<tr>
<td>Dr. Enrique Platin</td>
<td>Clinical Professor, Diagnostic Science &amp; General Dentistry</td>
</tr>
<tr>
<td>Mike Proctor</td>
<td>Facility Maintenance Supervisor, Facilities Services</td>
</tr>
<tr>
<td>Janet Perry</td>
<td>Workers’ Compensation Administrator, UNC Healthcare</td>
</tr>
<tr>
<td>Jennifer Rees</td>
<td>Nurse Supervisor, Clinical and Translational Research Center</td>
</tr>
<tr>
<td>Deb Bergman</td>
<td>Worker’s Compensation/Clinical Hygienist, Environment, Health and Safety</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Institutional Biological Safety Committee Members</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. John Olsen</td>
<td>Research Associate Professor, Chair, IBC</td>
</tr>
<tr>
<td>Dr. Jeff Beecham</td>
<td>Research Associate, Gene Therapy Center</td>
</tr>
<tr>
<td>Dr. Dwight Bellinger, DVM</td>
<td>Professor, Laboratory Animal Medicine</td>
</tr>
<tr>
<td>Sandra F. Bradshaw</td>
<td>Laboratory Manager, Orange Water &amp; Sewer Authority</td>
</tr>
<tr>
<td>Dr. Miriam Braunstein</td>
<td>Associate Professor, Microbiology and Immunology</td>
</tr>
<tr>
<td>Deborah Howard, CBSP</td>
<td>Biological Safety Officer, Environment Health and Safety</td>
</tr>
<tr>
<td>Dr. Craig Fletcher, DVM, DACLAM</td>
<td>Associate Director, Division of Laboratory Animal Medicine</td>
</tr>
<tr>
<td>Dr. Jeffrey A. Anderson, MD</td>
<td>Assistant Professor, School of Medicine Center for Infectious Diseases</td>
</tr>
</tbody>
</table>

| Dr. Ann Matthysse                                          | Professor, Department of Biology                                                         |
| Caprice Mellon                                            | Deputy Chief of Operations, Chapel Hill Fire Department                                  |
| Dr. Paul E. Monahan, MD                                    | Associate Professor, Pediatrics, Hematology/Oncology                                      |
| Regional Director, Region IV-N Hemophilia Treatment Centers, Gene Therapy Center |
| Dr. Penelope J. Padgett, MPH                               | Associate Biological Safety Officer                                                      |
| Environment, Health and Safety                             |
| Dr. Amy C. Sims                                            | Research Assistant Professor, Epidemiology                                               |
| Dr. P. Frederick Sparling, MD                              | Professor, Medicine, Microbiology and Immunology                                         |
| Dr. Matthew Wolfgang                                       | School of Medicine, Microbiology and Immunology                                          |
| Mary Beth Koza, MBA                                        | Director, Environment, Health and Safety                                                |

Laboratory and Chemical Safety Committee (LCSC)
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 work-sites 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.

(Laboratory and Chemical Safety Committee continued on next page)
(Laboratory and Chemical Safety Committee continued from previous page)

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<thead>
<tr>
<th>Laboratory and Chemical Safety Committee Members</th>
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</thead>
<tbody>
<tr>
<td>Dr. Lorraine Alexander</td>
<td>Clinical Associate Professor, Epidemiology</td>
<td>Katherine Hamil</td>
</tr>
<tr>
<td>Dr. Bruna Brylawski</td>
<td>Research Associate, Pathology &amp; Laboratory Medicine</td>
<td>Dr. Erik Alexanian</td>
</tr>
<tr>
<td>Kimberlie Burns</td>
<td>Research Specialist, UNC Cystic Fibrosis Pulmonary Research and Treatment Center</td>
<td>Dr. Rihe Liu</td>
</tr>
<tr>
<td>Dr. Howard Fried</td>
<td>Associate Professor, Biochemistry &amp; Biophysics</td>
<td>Susan McMahan</td>
</tr>
<tr>
<td>Dr. Rita Fuchs-Lokensgard</td>
<td>Assistant Professor, Psychology</td>
<td>Dr. Kirby Zeman</td>
</tr>
<tr>
<td>Pat Boone, MSPH, CIH</td>
<td>Assistant Director, UNC Healthcare Environmental, Health and Safety</td>
<td>Karen Hogan</td>
</tr>
<tr>
<td>Cathy Brennan</td>
<td>Chemical Hygiene Officer, Environment, Health and Safety</td>
<td>Dr. Daniel Elliott</td>
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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.

<table>
<thead>
<tr>
<th>Radiation Safety Committee Members</th>
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</thead>
<tbody>
<tr>
<td>Dr. David G. Kaufman, MD</td>
<td>Professor &amp; Vice Chair for Research Development, Chair, Radiation Safety Committee</td>
<td>Dr. Jian Liu</td>
</tr>
<tr>
<td>Dr. Louise M. Ball</td>
<td>Professor, Environmental Science &amp; Engineering</td>
<td>Dr. Scott Plevy, MD</td>
</tr>
<tr>
<td>Carolyn Elfland</td>
<td>Associate Vice Chancellor for Campus Services</td>
<td>Dr. Jeff Sekelsky</td>
</tr>
<tr>
<td>Dr. Beverley J. Errede</td>
<td>Professor, Biochemistry &amp; Biophysics</td>
<td>Dr. Roger Sit</td>
</tr>
<tr>
<td>Dr. Marija Ivanovic</td>
<td>Clinical Associate Professor, Radiology</td>
<td>Dr. Mahesh A Varia, MD</td>
</tr>
<tr>
<td>Dr. Hong Yuan</td>
<td>Director, BRIC Small Animal Imaging Facility</td>
<td>Mary Beth Koza, MBA</td>
</tr>
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Employee of the Year

Mark Brueckner
Health Physicist, LSO
Radiation Safety

Mark Brueckner has been selected as the 2010 EHS Employee of the Year. Mark emulates the mission and values of the organization every day and provides consistent high value service to his customers. The implementation of the security upgrades pertaining to the irradiators, the daily operations and maintenance of the irradiators as well as the training of the users were contributing factors to his selection. Mark’s role in overseeing the radiation protection program for the manufacture and testing of the latest emerging imaging technology (carbon nanotube based x-ray devices) demonstrates his willingness to accept additional responsibilities and increase his knowledge.

History of the Award

The Employee of the Year 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

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.
- 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.
In order to emphasize the department’s core values and to support the attribute of collaboration among EHS employees, as well as between EHS employees and other University employees, or other groups or organizations, the department instituted a new Collaboration award for 2010.

EHS Core Values related to collaboration:

- 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.

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

**Collaboration Award**

**Janet Clarke**

**Fire Safety Inspector**

**Fire Safety and Emergency Response**

Janet’s participation in the Fire Alarm Call Reduction Project earned her the nomination for this Collaboration award. As Fire Safety Inspector, Janet compiled statistics to determine the causes and prevention of fire alarms in residence halls and developed training for the Resident Advisors. She gathered the following groups to work together on this project: Clark-Nexsen Architecture & Engineering, UNC Housing and Residential Education and Support, UNC Life Safety, Resident Advisors, Information Technology Services and Chapel Hill Fire Department. Each group brought their technical expertise to the team meetings and implemented the actions needed to reduce fire alarms.

The nominator of Janet provided this insight into her successful and collaborative efforts. “Empathy is easy for Janet Clarke. She has a smile for everyone, every day. …Janet is one of those individuals who work tirelessly to help others, is a joy to be around… and promotes the values of the University to help others.”

**2010 Collaboration Award Nominees**

Catherine Brennan - Chemical and Laboratory Safety: Laboratory Safety Plan – Phase 2
T.J. DeLuca, Janet Clark, Kitty Lynn - Fire Safety: Work Study Students Program
Aaron Gunsalus, Mike Soles, Eric Zack - Radiation Safety: Decommissioning of Phillips Hall irradiator
Jonathan Moore, Montego Farrington - Radiation Safety: NCSU Research Reactor
Sharon Myers - Environmental Affairs: Wetlands Permit Carolina North
Bradford Taylor - Radiation Safety: Training of NC-DENR inspectors
Innovation Award

Kim Haley and Janet Phillips
Industrial Hygienists
Occupational and Environmental Hygiene

Management of the University’s data concerning the location and abatement of asbestos and lead is an enormous task. In 2010, Kim Haley and Janet Phillips, Industrial Hygienists for the Occupational and Environmental Hygiene section of EHS, wanted to find a way to store and then easily access the data. They evaluated the possibilities and decided to use a Facilities Services program called SPOTS, for Space Planning and Occupancy Tracking System. SPOTS is a web-based real time information system that allows facilities services personnel access to facility floor plans, including electrical and plumbing information with dynamic highlighting and labeling of every single building on campus was determined the appropriate avenue. The task then was to put asbestos and lead information into SPOTS so it could graphically and photographically display the information for all relevant campus buildings. Facilities Planning and Construction Services provided the funding for Information Technology to develop the application into the SPOTS program.

EHS can now easily track asbestos and lead data being generated by environmental consultants and remediation contractors. After abatement of the areas, EHS is able to update SPOTS without losing the historical data. The asbestos and lead data can be found prior to renovation/demolition activities and/or maintenance activities. Architects and engineering firms can access the information prior to scheduled projects.

2010 Innovation Award Nominees

Conor Keeney, Environmental Specialist
Identifying the use of a pole camera to detect cracked joints and deteriorating pipes as part of the campus Stormwater Management Program.

Vicki Jacobson, Ergonomist
Developing a “seed program” with a manufacturer to provide 17 sit/stand work stations across campus. These stations are ergonomically designed which increases comfort and productively.

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.

Requirements
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.
AWARDS - RECOGNITIONS - PRESENTATIONS - APPOINTMENTS

Certifications & Acknowledgements

Acknowledgements

Awards
Employee of the Year (see page 36)
Collaboration Award (see page 37)
Innovation Award (see page 38)

Recognitions
T.J. DeLuca, Fire Safety Inspector, attended training for Emergency Responder Hazardous Materials Technician for Chemical, Biological, Nuclear and Explosive (CBRNE) incidents at the FEMA Center for Domestic Preparedness in Anniston, AL.

Cathy Brennan, Chemical Hygiene Officer, attended training for Emergency Responder Hazardous Materials Technician for Chemical, Biological, Nuclear and Explosive (CBRNE) incidents at the FEMA Center for Domestic Preparedness in Anniston, AL.

The EHS department was featured in the April 2010 edition of “Compliance Advisor,” a monthly newsletter produced by BLR, a compliance information company.

Publications
Deb Howard and Dan Vick worked with faculty and staff from other leading research institutions to write and develop an Expert Control training program for the Collaborative Institutional Training Initiative (CITI), a web-based training program in research ethics and compliance.

Presentations
Deborah Howard, Biological Safety Officer, presented a seminar on “Complying with U.S. Export Controls” at the 53rd Annual Biological Safety Conference in Denver, CO.

Jonathan Moore, Associate Radiation Safety Officer, gave a presentation on “Every Day Uses of Radiation” at the NC Science Teachers Association’s 41st Annual Professional Development Institute in Greensboro, NC.

Roger Sit, Radiation Safety Officer, gave a presentation on “Investigation of the Feasibility of a Small Scale Transmutation Device” at the American Nuclear Society Annual Winter Meeting in Las Vegas, NV. The abstract was also published in the Proceedings of the meeting.

Roger Sit, Radiation Safety Officer, gave a presentation on transmutation efficiency of a conceptual transmuter at the NC Health Physics Society, 2010 Spring meeting.

Mary Beth Koza, EHS Director, presented a poster on “BSL3 Operations & Maintenance Team” at the annual meeting of the American Biological Safety Association in Denver, CO.

John Covely, Public Communications Specialist, led a seminar on “Marketing Your EHS Department” at the Campus Safety, Health and Environmental Management Conference in Baltimore, MD.

Certifications
Larry Daw, L.G., Geophysicist/Licensed Geologist, received his Grade 2 Biological Water Pollution Control Systems Operator certification by the North Carolina Water Pollution Control System Operators Certification Commission.

Cathy Brennan, Chemical Hygiene Officer, was awarded a Certificate in Community Preparedness and Disaster Management (CPDM) from the UNC School of Public Health.

T.J. DeLuca, Fire Safety Inspector, received his certification as a FEMA/CDP Instructor in Weapons of Mass Destruction Awareness.

Appointments
Dan Elliott, PhD., was appointed Environmental Affairs Manager.

John Murphy was appointed Occupational & Environmental Hygiene Manager.

Kara Milton was appointed Assistant Biological Safety Officer.

Mary Beth Koza was appointed to the Safety Group Committee of the American Chemical Society.

Neah Tucker, MS, was appointed Occupational Field Hygienist.

Becca Artinian, PA, was appointed Physician's Assistant for the University Employee Occupational Health Clinic.

Contributors
Constance Birden
Catherine Brennan
Janet Clark
Mary Crabtree
Daniel Elliott
Kim Haley
Nelda Hamlet
Dr. James Hill
Deborah Howard
Mary Beth Koza
Conor Keeney
Kitty Lynn
Billy Mitchell
Kara Milton
John Murphy
Sharon Myers
Penny Padgett
Janet Phillips
Kathy Schwabauer
Roger Sit
Daniel Vick
Rebecca Watkins

UNC Printing
Kellie Faircloth
Arnold Ferguson
Glenn Haugh
Dorothy Keith
Copy & Design
John Covely
Biological Safety + Chemical Safety + Emergency Response + Employee Health + Environmental Hygiene + Environmental Management + Environmental Permitting + Fire Safety + Health and Safety Training + Laboratory Inspections + Laboratory Safety + Occupational Hygiene + Radiation Safety + Regulatory Compliance + Seasonal Influenza Vaccinations + Shipping Regulations + Waste Management + Workers’ Compensation + University Employee Occupational Health Clinic