

11/11/2009

**CASE WESTERN RESERVE UNIVERSITY
DEPARTMENT OF OCCUPATIONAL &
ENVIRONMENTAL SAFETY (DOES)
SAFETY SERVICE OPERATIONS
ANNUAL REPORT 2008-2009**

**W. David Sedwick, Director
Marc Rubin, Assistant Director
Felice Porter, Assistant Director/ Assistant RSO
Report Editor and Departmental Auditor**

SAFETY SERVICES ANNUAL REPORT 2008-2009

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INTRODUCTION

This report is submitted to the President and designated members of the senior administration of Case Western Reserve University, as required by the Laboratory Safety Committee (LSC) Operating Guidelines. The report summarizes the activities of the Safety Services division of the Department of Occupational & Environmental Safety (DOES) at the University. Its contents cover the period from July 1, 2008 through June 30, 2009.

SUMMARY

DEPARTMENTAL STRENGTHS

The Safety Services Office (SSOF) operations requires a staff with broad and diverse backgrounds that can address and resolve a wide range of issues faced in Chemical, Biological, Construction, and Physical Safety at THE UNIVERSITY. DOES has developed programs that meet or exceed regulatory requirements in all critical safety areas and proactively anticipates new safety regulations.

DEPARTMENTAL OPPORTUNITIES

Established DOES safety programs continually evolve to meet requirements of governmentally mandated safety initiatives. The DOES also continues to enjoy an excellent cooperative interaction with other University departments that are developing safety-related initiatives. Furthermore, DOES's relationships with outside agencies has augmented the quality of its environmental programs.

ACCOMPLISHMENTS FOR 2008-2009

Notable new accomplishments included:

- At the Department's annual retreat, all staff was presented with a standard format for departmental Standard Operating Procedures (SOP) and their attendant documentation and cross-referencing parameters. Over the past year, all SOPs have been reviewed and edited and all SOPs for Safety Service operations are slated for completion in the new format during 2008-2009. All SOP's have been collected for reference in a single volume to assist in training and operational implementation.
- Safety Services worked throughout the year with the Department's Safety auditor to obtain a clearer idea where improvements in Safety Services programs may be applied. This information will form the basis of SOP review and new program development in the coming year for all safety programs with special emphasis on the laboratory safety program.
- Implemented new software for all Safety Services programs.
- Level 2 organisms were emphasized in both training and program development.
- DOES implemented a harmonized safety program between Animal Resource Centre (ARC) and DOES. Regular audit and follow-up of harmonized waste program across Plant, Construction, DOES, and other administrative areas. DOES played a role in auditing all waste management at the University in order to ensure that all waste management decisions are made in a non-conflicting format.

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- DOES has been operating without a full work force for several months. New hiring will be completed for all operational areas in this coming fiscal year, with focus on recruiting an Industrial Hygienist.
- DOES moves into the second year of its reorganized DOT and IATA program. Training presentations for this program will be reviewed to ensure comprehensive coverage of all issues faced during the past year. Special attention will also be paid once again in this fiscal year to ensuring that this program accomplishes its goal of ensuring that all shipping of hazardous materials from the University occurs in compliance with government regulations.
- DOES has been involved in University pandemic influenza planning for the past two years and will develop a scenario for a table top exercise for the University during this fiscal year.
- Updated SOPS for all of Safety Services
- Started to bring Safety Services Databases over to new HPASSIST database and align data with Radiation Safety Program
- Developed a novel anesthetic gas scavenging system
- Started implementation of new biowaste handling system
- Changed inspection system from an all year system to intensive multi week inspection system spread through the year.

GOALS FOR 2009-2010

The principal goal for 2009-2010 will be to complete review all Safety Services programs and to re-examine or establish appropriate metrics and benchmarks for these programs. Recommendations of an outside review panel will also be implemented in 2009-2010. Just as important, however, are benchmarks and metrics that can be provided by students, faculty and staff, and by our partners in Plant Services, Protective Services and the University Administration. In this spirit SSOF will approach the following goals in 2009-2010.

- DOES will continue to strive to improve both safety awareness and safety performance for the University as a whole. Success in these programs will be measured in terms of reduced numbers of accidents and violations found during safety inspections throughout the University.
- DOES provides a large number of training opportunities for University students, staff, volunteers, and faculty involved in laboratory research. An effort will be made during this year to evaluate the effectiveness of these training programs through questionnaires following training sessions, on-line presentations and examination of training effectiveness at the program level as indicated by the laboratory inspection program.
- The Safety Services office will continue its efforts to work with responding agencies like fire, police and health departments off campus to ensure coordination of our safety efforts. Enhancement of National Incident Management Training for our Employees will support this effort. The University has enjoyed good relationships in its safety efforts with Case University Hospitals. The Case Western Reserve University Safety programs will continue their stewardship of these programs to ensure that safety efforts with our neighboring and collaborating institutions continue to thrive.
- Finish database implementation
- Update training system to take advantage of new database system
- Implement on line chemical waste disposal system
- Implement new anesthetic gas device and perform exposure testing
- Update IACUC supplement B to reduce PI workload.
- Prepare for renewal of Select Agent Program License
- Update CHP/ECP to reduce PI workload

LICENSES/ REGISTRATIONS

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Case Western Reserve University maintains certificates of registration through:

- ◆ The Department of Transportation (DOT)
- ◆ The Ohio EPA for Hazardous and Infectious Waste
- ◆ The United States Department of Agriculture (USDA) & Center for Disease Control (CDC)
- ◆ The Department of Commerce

REGISTRATION #	CERTIFICATE OF REGISTRATION	EXPIRATION DATE	PURPOSE
052907-551-092P	US DOT Research & Special Programs	6/30/2011	Hazardous Waste Transport
18-G-00351	OEPA Generator of Infectious Waste	12/4/2009	Infectious Waste
A20041118-0009	USDA High Consequence Agent Program and CDC Select Agent Program	2/19/2010	Animals/ Plants and Humans/ Bovine Spongiform Enchemlopathy (Prospective)
1801-0969-R00007	Ohio Department of Commerce	6/30/2010	Underground Storage Tanks

- ◆ EPA & OEPA RCRA Hazardous Waste Management - 8 sites

REGISTRATION #	LOCATION	EFFECTIVE DATE
OHD987033669	DOA 990	12/9/2006
OHD000812230	Millis G35	12/9/2006
OHR000112482	Art Studio (Greenhouse)	12/9/2006
OHG00061689	Bioenterprise (UCRC I)	12/9/2006
OHR000120147	Wolstein (WRB)	12/9/2006
OHD077757425	West Quad (Mt. Sinai)	12/9/2006
OHR000129148	Squire Valleevue & Valley Ridge Farms	12/9/2006
OHD004174660	Cedar Avenue Service Center (CASC)	12/9/2006

USE AND STORAGE LOCATIONS

The following facilities are registered for use and storage of chemical, biological, and etiological agents:

- Main campus of 10900 Euclid Avenue, Cleveland, OH
- University Hospitals (UH), 2065 Adelbert Road, Cleveland, OH
- University Circle Research Center II (UCRC II), 11001 Cedar Avenue, Cleveland, OH
- Wolstein Research Building, 2103 Cornell Road, Cleveland, OH
- Louis Stokes Cleveland Veterans Affairs Medical Center, 10701 Wade Park Blvd., Cleveland, OH
- MetroHealth Medical Center, 2500 MetroHealth Dr., Cleveland, OH
- Cleveland Clinic Foundation, 9500 Euclid Ave., Cleveland, OH
- Cleveland Center for Structural Biology (CCSB) Wright Fuel Cell, 1819 E. 101 St., Cleveland, OH

The following premises are registered as generators of infectious waste:

DeGrace (Biology)	Millis	Morley
AW Smith	Rockefeller	Bingham
Glennan	Olin	White
Wickenden	Med East (Robbins)	Pathology
Nursing	Dentistry	Health Services
CCSB	Wolstein Research Building (WRB)	Biomedical Research Building (BRB)

The following premises are registered as generators of hazardous waste:

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DOA990
University West
Wolstein Research Building (WRB)

Morley
CCSB

Millis
Cedar Avenue Service Center
West Campus (formerly Mt. Sinai)

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SAFETY SERVICES PROGRAM: RESPONSIBLE PARTIES

MANAGEMENT

Safety Services provides support for the safe use of chemical, biological agents, physical, and construction concerns. The Department reviews procedures, responds to incidents involving chemicals and biological materials, and assesses the laboratory infrastructure to mitigate hazards to employees. The Department also monitors regulatory compliance through its inspection and audit activities. Departmental audits, Laboratory Safety Committee audits, and external agency audits (insurance and regulatory bodies) are used to promote compliance with Federal, State, and local regulatory programs.

LABORATORY SAFETY COMMITTEE (LSC) PURPOSE

The Case Western Reserve University LSC serves as an advisory committee to the DOES. The LSC is comprised of faculty and staff appointed by the President to guide University programs in the safe use of chemical & biological materials. The LSC advises policies on laboratory safety to ensure compliance with all pertinent regulatory bodies [OSHA, EPA (Federal, State, Medical Waste), DOT, ODH, FDA, CDC, & USDA].

LSC RESPONSIBILITIES

The Laboratory Safety Committee is responsible for:

- Reviewing and recommending laboratory safety programs to comply with regulatory requirements and sound risk management practices.
- Consulting with faculty on safety issues related to chemicals, pathogens, and carcinogens; and in cooperation with the University's Biological Safety Committee, Recombinant DNA.
- Assigning its members, or appropriately qualified non-members, to serve as advisors in specific chemical and biological safety areas.
- Conducting audits to assess the effectiveness of DOES laboratory safety programs and procedures.
- Approving DOES chemical & biological safety programs as required that are amended following audit recommendations.
- Reviewing laboratory activities that may be of concern to the public.

SUBCOMMITTEES

The Laboratory Safety Committee reviews activities of five subcommittees:

- Institutional Review Board for Human Studies
- Institutional Biological Safety Committee (Recombinant DNA)
- Institute of Animal Care & Use Committee (IACUC) (Pathogen Safety in Animals)
- Carcinogen Use Committee (Carcinogen Safety in Animals)
- Select Agent Use Committee (Etiological/ Animal/ Plants/ Humans)

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These subcommittees review chemical, biological and exogenous substance administration protocols for safety content, as well as to ensure that specific guidelines are met.

PROTOCOLS	08/09	07/08	06/07	05/06
Chemical Carcinogen Use in Animals – Supplement B	26	24	23	32
Pathogen Use in Animals – Supplement C	45	19	29	49
Exogenous Substance (including Biohazardous Materials and Volatile Anesthetics) Administration - Attachment H	25	0	0	0
TOTAL	96	43	52	81

LSC MEMBERSHIP

The 2008-2009 LSC membership is listed below. The President of the University appoints the voting members to this Committee. The committee is also aided by input from ex-officio (non-voting) and visiting members (non-voting).

VOTING MEMBERS

Clive Hamlin, PhD. Associate Professor Dept. of Pathology Pathology 204 Term Expires: 10/1/2010 Chairperson: 10/1/2010	Thomas Gray, PhD. Asst. Professor Dept. of Chemistry Millis 418C Term Expires: 10/1/2011	David Samols, PhD. Professor & Chairman of CASE Biosafety Committee Dept. of Biochemistry HG Wood 475 Term Expires: 10/1/2010
Fady Faddoul Associate Professor AEGD Dental School 1 st Floor Term Expires: 10/1/2010	William Durfee, DVM Asst. Professor & Director Dept. of Veterinary Research Services Animal Resource Center Term Expires: 10/1/2010	Gregory Tochtrop Assistant Professor Chemistry Millis Term Expires: 10/1/2010
W. David Sedwick, PhD. Professor, Dept. of Medicine & Director of DOES Service Building, 1 st Floor Permanent member	Christina Hirsch, PhD Associate Professor Dept. of Infectious Disease BRB 1024 Term Expires: 10/1/2010	Andrea Romani, PhD. Asst. Professor Dept. of Physiology/ Biophysics Med East 547 Term Expires: 10/1/2011

Comment [DS1]: corner.

EX-OFFICIO MEMBERS

Richard Jamieson Vice President of Plant Security Adelbert Hall 205	Carol Grove Director of UH Safety Dept. UH Lowman Hall 321	Kenneth Klika, PhD Asst. Dean & Director of Facilities Management & CASE School of Arts & Sciences Crawford 718
Marc Rubin Assistant Director & Chemical Safety Officer of DOES Safety Services Service Building 1 st Floor	Laurie Dudik Manager of Facilities & Technical Support RC Electronic Design Center Bingham 112	Kimberly Volarcik Director of Research Administration Sears Library
Felice Porter Asst. Director/Asst. Radiation Safety Officer		

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DOES Quality Assurance Specialist Service Building 1 st Floor		
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SUPPORT STAFF

Shirley Mele Office Supervisor - DOES Service Building, 1 st Floor	Jason May Department Asst. - DOES Service Building, 1 st Floor
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During the fiscal year covered by this report, the Committee met on two occasions. Major topics considered by the LSC included:

- ◆ Introduction of New Committee Members
- ◆ Presentation of Safety Services Annual Report
- ◆ Review of LSC Guidelines
- ◆ 2008/2009 LSC Audits
- ◆ AAALAK inspection of the Animal Resource Center
- ◆ Effects of OSHA Clarification on Personal Protective Equipment
- ◆ Effect of Government Stimulus on Research/ Safety
- ◆ Inventory of Engineering Machinery needing Machine Guarding
- ◆ 2009 Inspection Schedule
- ◆ Class 3 Substance Procedures

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SAFETY SERVICES OFFICE (SSOF)

STAFFING

The SSOF operates with the following staffing:

Director (1)	Assistant Director (1)
Department Assistant (1)	Specialist Positions (5)
2 nd shift Specialist (1)	Student (1)
Quality Assurance Specialist (1)	Construction & Plant Safety Specialist (1)

Safety Services continues to improve the Department's expertise and provide for more flexible response to emergencies and other issues. The SSOF Staff is qualified to support and maintain the Safety Services Program.

DOES EMAIL

The DOES Email (does@case.edu) has become a frequently used safety resource. Since its inception, the number of inquiries and safety concerns reported from Case Western Reserve University personnel averages 11 emails per day. This email communication has resulted in improved follow-up of issues reported.

DOES WEB SITE

The DOES home website (<https://www.case.edu/finadmin/does/>) provides integrated web-based access to department services. Information on training and retraining classes, as well as DOES safety manuals are available on-line. The DOES web site is updated regularly. Table 3 of the Appendix illustrates updates made to the Website in 2008-2009 and Table 4 of the Appendix enumerates services provided on-line by DOES.

DOES NEWSLETTER

The DOES newsletter is designed to keep the campus community informed of safety issues and concerns. It covers the latest government regulations and addendums, issues found during laboratory inspections, as well as answers to questions frequently asked by laboratory personnel. Safety Services related articles published in the newsletter included:

- From the Fireplace Hearth to the Laboratory Fume Hood
- Laboratory Safety—Electrical Equipment Safety Reminders
- Putting Trash in Its Place: Some Key Reminders for Proper Laboratory Waste Disposal
- Swine Flu: What It Means for You—Sensible Reminders amidst Media Hype
- Eating Food in the Lab: An Illegal Habit
- Disposal of Chemicals in Sanitary Sewers (Drains)
- Laboratory Sustainability
- Infectious Miseries During "Flu" Season
- State of Ohio Waste Log Requirement Reminder
- Research Laboratory Termination

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- Avoid a Fall No Employee Wants to Take
- Hand Lotions in the Lab
- DOES Welcomes Many New Faces in 2008
- Inspection Reports: Return Them Promptly
- Quiz: Know Your Role in the Lab
- Holiday Decorations: Play It Safe
- Dirty Laundry? Lab Coat Laundry Service
- Minors, Volunteers and Visitors in the Workplace—Know the Guidelines and Procedures
- Mercury-Containing Light Bulb (Lamp) Recycling
- E-Waste: What You Need to Know
- Compliance Issues: Reminders Fall Preparations—Is Your Lab Ready for the Fall Semester?
- Announcing a New Web Link on the DOES Website Construction Safety: A Necessary Precaution
- Shipping Dry Ice? —Training Required
- Eye Injury Prevention: Knowing the Basics

The Newsletter is available to all campus faculty, staff, and students on-line and is distributed as a hardcopy to all principal investigators and new employees at orientation. The Newsletter is included on the DOES Website in digital format. The digital format helps DOES to comply with the ongoing campus green initiative and helps DOES to save money.

EMPLOYEE COMPLIANCE COMMITTEE

The Employee Compliance Committee (ECC) is comprised of representatives from departments responsible for hiring laboratory personnel (Human Resources, Kelly Temporary Services, Nursing, Dental, Engineering, Arts/Sciences, Health Services, and Medical School). The Committee was formed to improve tracking of University employees to ensure that training and safety programs were comprehensively implemented for all members of the University community. Table 5 of the Appendix illustrates compliance Issues addressed by this Committee.

ORIENTATION PROGRAM

The Orientation Program developed with Human Resources ensures that new University employees have a general awareness of services provided by DOES. This program establishes job exposure-related safety-training classes that employees are required to attend. The goal of this program is to emphasize the importance of safety on campus and to encourage new faculty and staff to advocate safe working practices. Weekly Staff Orientation sessions are conducted for new employees. As part of this program, THE UNIVERSITY faculty members were contacted on an individual basis and were provided with information concerning safety.

ORIENTATION	08/09	07/08	06/07	05/06	04/05	03/04	02/03
New Employees	483	557	380	561	750	715	565
New Faculty	46	99	85	63	56	32	20

MONTH	NEW EMPLOYEES
7/2008	44
8/2008	47

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9/2008	52
10/2008	47
11/2008	33
12/2008	30
1/2009	45
2/2009	27
3/2009	41
4/2009	24
5/2009	32
6/2009	61
TOTAL	483

TRAINING

A major emphasis has been placed on expanding and refining SSOF training programs. Over the past year, the SSOF has made significant progress in contacting individuals requiring new worker training and annual retraining. This training is Web or lecture-based using PowerPoint, video and demonstrations at the DOES training center and various campus locations as requested by the group being trained. Both initial and retraining classes are offered on a weekly basis for most programs. Historical Training trends are illustrated in Table 6 of the Appendix.

SPECIFIC TRAINING PROGRAMS

HAZARD COMMUNICATION TRAINING (HAZCOM)

The Hazard Communication training, which includes required University employee-specific Right-To-Know training, addresses specific safety concerns of the target audiences. The largest groups provided HAZCOM training included Housekeeping, Dental, Nursing, Grounds, ARC, Facilities, Security, and Shipping/Mailroom. Groups receiving this training may only occasionally enter research areas, but none-the-less may encounter hazardous situations or hazardous materials exposures if not properly alerted.

CHEMICAL SAFETY AWARENESS TRAINING

Several general awareness classes for target groups such as the Animal Resource Center (ARC) and Housekeeping were conducted. These groups may enter specialized laboratories on a daily basis and thus require training specifically tailored to their work.

LABORATORY SAFETY TRAINING

Laboratory Safety Training is given to all personnel who work in laboratories. Several specialized Laboratory Safety classes for specific target groups included medical and dental students, Macromolecular Science and Chemical Engineering personnel, and the National Youth Sports Program (NYSP), Summer Program in Undergraduate Research

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(SPUR), Summer Undergraduate Research Program (SURP), Upward Bound, Center for Layered Polymeric Systems (CLIPS), and Equinox Summer Programs.

The University's temporary worker service, Kelly Services, trains temporary employees using SSOF training documents in Laboratory Safety and Bloodborne Pathogens as part of this program. During this fiscal year, Kelly Services personnel did attend DOES Training Programs while their training database was updated.

BLOODBORNE PATHOGEN TRAINING (BBP)

Materials containing and/or likely to contain Bloodborne Pathogens (HIV, Hep B) are widely used in the University laboratories. BBP training includes compliance awareness and implementation of required vaccination and health monitoring programs.

BIOLOGICAL SAFETY LEVEL 3 (BSL3) TRAINING

Extensive training is required for Select Agents used on THE University's campus. A training course was created for individuals who enter the BSL3 facility to use these agents.

DOT/IATA SHIPPING TRAINING

Personnel who prepare materials for shipment regulated by the Department of Transportation's Pipeline and Hazardous Safety Administration (PHMSA) or the International Air Transport Association (IATA) are trained every two years as mandated by these agencies using training materials prepared by DOES. These shipments are principally biologicals and include IATA-defined Infectious Substances.

RESPIRATOR TRAINING

Special training sessions for Facilities Services, Animal Resource Center (ARC), and BSL3 Facility employees were conducted. This training was augmented, as required by OSHA, with medical evaluations and respirator fit testing. Contractors were required to be trained by their employers before entering the BSL3 and ABSL3 facilities.

VEHICLE SAFETY TRAINING

Vehicle Safety Training is presented on an as needed basis. DOES conducted 48 Drivers Safety Training classes for THE UNIVERSITY employees and the summer help staff, training a total of 118 people.

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FIRE EXTINGUISHER TRAINING

Hands-on Fire extinguisher training using a live contained fire was provided for members of the Housing and Residence Life Staff. This training is administered by Protective Services. There were 75 students and supervisors in attendance.

FACILITIES SAFETY TRAINING

Training for Facilities Service personnel is conducted on a scheduled basis. Topics include:

- Slips, Trips, and Falls/ Ladder Safety
- Personal Protective Equipment
- Confined Space Entry
- Radiation Safety
- Lockout/ Tag out
- Workplace Cleanliness
- Hot Work Permits
- Powered Industrial Pallet Jacks
- Powered Industrial Lift Truck
- Hearing Conservation Training & Testing

These sessions are scheduled to accommodate all Plant Services shifts. Three training sessions were developed and offered for Plant personnel every month, training an average of 60 personnel.

Comment [DS2]: Total or average

CONTRACTOR TRAINING

To ensure that University Community members and Laboratory personnel are not exposed to hazardous conditions on the campus during construction and repair activities, a variety of training programs support construction work on the campus. Specific training includes confined space, hot work, tow motor, and ladder safety.

FACILITIES AND EQUIPMENT

THE UNIVERSITY administration and the LSC ensure that all facilities, equipment, and personnel are available and adequate for the safe operation, storage, and disposal of hazardous material. The SSOF is also responsible for reviewing regulated safety infrastructure and inspection of all facilities and equipment where chemical and biological materials are used. Facilities that are available at THE UNIVERSITY for activities involving use of hazardous materials include:

AW Smith	Bingham	BRB
Bishop	Bolwell	DeGrace
Glennan	Hanna Pavilion	HG Wood
Kent Hale Smith	Med East	Millis
Olin	Pathology	RBC
Rockefeller	Service Building	Wearn
White	Wickenden	UCRC II

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VA Hospital
CCF- Walker

Wolstein Research Building (WRB)

MetroHealth
Wood Research Tower (RT)

NASA
CCSB

LABORATORIES

The University Safety Service programs monitored approximately 1300 laboratories in 38 laboratory buildings on campus. These laboratories are located in four hospitals, the Case Western Reserve University Quad and the Medical, Nursing, and Dental School facilities, as well as offsite locations.

Case Western Reserve University's laboratories are equipped for research programs requiring use of hazardous material and specialized equipment. Protective engineering devices in laboratories typically include chemical hoods and Biosafety cabinets, eye wash stations, and safety showers (where needed). Air handling systems are generally designed to provide 8-15 changes of air per hour and to preclude recirculation of air in research laboratories. Laboratories are generally constructed to at least Level II containment specifications. Laboratories are required to stock needed decontamination supplies and personal protective equipment (PPE) such as gloves, laboratory coats, eye protection and job-specific respiratory protective equipment.

SAFETY SERVICES OFFICE

Safety Service's facilities and equipment are located in the Service Building (1st Floor), Medical School (DOA990), Millis Science Center (G35) and the Wolstein Building (1103).

PROGRAM OFFICE:

Service Building (1st Floor)-Program offices & Conference Room:

Up-to-date hardware is crucial to ensure efficient and quick access to records in the RSOF. A Smart Board System augments the in-house training program, and allows our trainers to directly demonstrate the use of on-line database and training materials. It also provides direct access to library services and campus maps during staff meetings, and emergency incident exercises or responses. This room also houses the campus Emergency Operations Center (EOP).

DOES maintains a large number of databases required for compliance and safety monitoring on the campus. The Legato backup service was set up on all DOES personal computers (PCs). The Carbonite backup service was used for the DOES Server. A Website backup was started to ensure that key files could be replaced.

The following information systems maintenance was accomplished this fiscal year:

Hardware Maintenance

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- Repaired about 80 workstation hardware problems
- Purchased and set up six new workstations
- Setup Carbonite backup on second server
- Restored crashed server from backup

Software Maintenance

- Repaired about 500 workstation software problems
- Rewrote and released departmental website
- Major transition toward Onsite database

Chemical Laboratory:

Service Building (1st Floor):

The SSOF is located in the Service Building on the 1st Floor at 2220 Circle Drive. The Safety Services division of DOES operates a laboratory equipped with industrial hygiene equipment, chemical-hood sampling equipment and cylinders, mercury vacuum equipment, respirator fit-test equipment, and spill and emergency response supplies. Equipment is also available for quantification of contaminants in air samples for odor responses, EPA audits, and identification of unknown chemicals.

HAZARDOUS WASTE FACILITIES:

Facilities are located in the 1st floor parking area of the CASE School of Medicine, 1st floor of the Wolstein Research Building and the ground floor of the Millis building. All facilities contain a processing area and a storage area.

MEDICAL SCHOOL WASTE FACILITY (DOA990)

This facility has a separate office and process/storage room for chemical material and disposal activities. This room has a filtered air exhaust system. It also has a chemical and walk-in hood, air monitoring equipment, and emergency response equipment.

MILLIS WASTE FACILITY

This waste facility is located on the ground floor in Millis G35. It is directly across the hall from the Fisher Scientific Chemical Stock Room. The waste facility has an office, a processing area, and a storage area. The waste storage area has shelving and flammable storage cabinets. The processing area has a walk in hood, chemical hood, and emergency response equipment. The office also has an emergency phone.

WOLSTEIN WASTE FACILITY

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This facility has an office and process/ storage area for hazardous material and disposal activities. This area is maintained at negative pressure relative to the adjacent hallway. The waste facility contains spill supplies and a computer. Available equipment allows access to web-based databases in the event of a chemical or biological spill. The area also contains a chemical hood, walk-in hood, and meters for environmental monitoring.

ANIMAL RESOURCE CENTERS (ARC)

Animal care facilities are located in Med East (Robbins), Wearn, and Wolstein Research buildings. Conventional animal care facilities are available in each of the Animal Resource Centers and are used by researchers to conduct animal studies with radioactive, chemical, and biologicals materials. A variety of animals (mice, rats, hamsters, rabbits, ferrets and large animals such as sheep, dogs, and pigs) are housed in one facility. The Wearn and Wolstein Facilities predominantly house mice. Contaminated items are stored in the ARC freezer until disposal. The University also maintains ABSL-3 laboratories for Select Agent research and ABSL-3 facilities for safe handling of infectious agents in both laboratory and animal research applications.

INSTRUMENT CALIBRATIONS

Properly calibrated instruments are necessary for Industrial Hygiene (IH) and hood certifications. Annual factory calibrations of 24 industrial hygiene, respirator, ventilation, noise, and lighting instruments are maintained. Table 7 of the Appendix lists instruments maintained for the Safety Service Program.

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SAFETY SERVICES PROGRAMS

GENERAL COMMITMENTS AND SERVICES

The SSOF is meeting its commitments to conduct programs in compliance with local, state, and federal regulatory programs. Regulatory compliance areas managed include DOT and IATA for transport of goods, all EPA RCRA programs for environmental chemical releases and waste disposal, and all OSHA programs for employee safety.

SAFETY SERVICE OFFICE (SSOF) AND PRINCIPAL INVESTIGATORS (PIs)

Laboratory safety is a shared responsibility between the Safety Services office and Principal Investigators. The SSOF is responsible for implementing safety programs in accordance with Federal, State, and Local regulations and sound risk management principles. Principal Investigators (PI) are responsible for monitoring safety during experiments in accordance with these established programs. Laboratories inspections carried out by DOES aid in laboratory safety program compliance.

INSPECTIONS

Laboratory Inspections are conducted to address chemical, biological, and physical concerns and to measure the progress and depth of compliance in the University laboratories. Concerns and violations are summarized on the inspection report and mailed to the researcher. Researchers are asked to address and correct their safety issues by a specified date. Some issues represent repeated items from the previous year.

CASE has more than 448 PIs authorized to use chemical and biological materials in 3851 laboratories, rooms, and facilities. Inspections include physical inspections, verification of training records, verification of correction of previous violations, and follow-up. Audits are more frequent if there are particular concerns in a laboratory.

Case Western Reserve University interacts directly with the Safety groups monitoring safety in associated Institutions that are under independent management but may provide research locations occupied by University personnel. Such research laboratories are located at Case University Hospitals, The Cleveland Clinic Foundation, Metro Hospitals, and the Cleveland VA Hospital. Where regulatory interfaces are impacted, letters of Agreement between the institutions supports these activities.

Inspections of outlying sites are carried out at University Hospitals (UH), Metro Health, Cleveland Clinic Foundation (CCF), and Veterans Administration (VA) Hospitals through cooperation of the safety offices at these institutions. Squire Valleevue Farm and Valley Ridge Farm, University owned property, are also inspected or audited. The Inspection Program for Chemical Safety compliance also investigates and resolves biological safety compliance and hazards.

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Cross training of Radiation Safety specialists at DOES has complemented and aided the Safety Services laboratory inspection program. Responses to the majority of inspections are received within 30 days of the inspection. Outstanding inspections are sent to the department chairperson for follow up. Programmatically, repeated issues that are not addressed by the investigator or chairperson can be referred to the Deans or Provost for further action, but these measures are rarely required. Inspection statistics for 2008/2009 are presented in Table 8 of the Appendix.

Safety problems found during the 2008 inspections were followed-up and audited to increase compliance. In 2009, inspections have demonstrated that this procedure achieved better compliance and resulted in fewer repeat violations.

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SPECIFIC SAFETY PROGRAMS

OSHA LABORATORY PERFORMANCE STANDARD

The OSHA Laboratory Performance Standard requires compliance with a number of specific programs and procedures.

MATERIAL SAFETY DATA SHEET (MSDS) PROGRAM

MSDS are available on-line through Chemwatch at the DOES Website. The University provides this access to Material Safety Data Sheets (MSDS) for chemicals used in laboratories at local computer terminals in each laboratory. This database currently gives access to MSDS for 3,000,000 chemicals and mixtures of chemicals and comprehensively covers the greater than 60,000 chemicals in use at various times at the University. In a few basic chemistry laboratories, the laboratories develop their own safety information for unlisted compounds synthesized during the course of research project execution.

CHEMICAL HYGIENE PLANS/ EXPOSURE CONTROL PLANS

All laboratories working with chemicals and/or Bloodborne pathogens are required to generate, educate, and make available to their personnel the contents of their Chemical Hygiene (CHP) and Exposure Control Plans (ECP). Example forms and instructions are currently on-line at the DOES website.

PLANS	08/09	07/08	06/07	05/06	04/05	03/04	02/03	01/02
CHP	289	230	194	159	42	21	24	7
ECP	280	227	49	33	35	19	23	4
TOTAL	569	457	243	192	77	40	47	11

PREGNANT WORKER PROGRAM

Any worker who is pregnant or thinks she may be pregnant may complete a Declaration of Pregnancy Form at the DOES. Services include job specific evaluation, which includes monitoring of hoods, calibration of equipment, inspections of workspace, and critical examination MSDS information for chemicals used by pregnant workers. No workers completed the Declaration of Pregnancy Form this fiscal year.

REGULATED CHEMICALS

Through occupational hazard assessments, the more frequently used regulated chemicals are reviewed each year. Additionally, there is a yearly review of users. The results of this survey dictate the kind of monitoring that should be implemented. Initiation of the assessment technique for regulated chemicals consists of a questionnaire attached to a quiz for new training programs. All new employees must

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attend initial Regulated Chemical Training and any employee using a regulated chemical must take the annual online retrain.

Agent-specific sampling plans are utilized for the medical, dental, biology, and nursing anatomy laboratories. Formaldehyde vapor samples are periodically carried out for Anatomy laboratories. The samples collected provided analysis of Short Term Exposure Limits (STEL) and Time Weighted Average Permissible Exposure Limits (TWA-PEL). Anatomy laboratories used virtual examination of the body over the past year. Therefore no formaldehyde monitoring was required in 2008-2009.

INDUSTRIAL HYGIENE

INDOOR AIR QUALITY (IAQ) MONITORING

The IAQ monitoring protocol ensures that concerns are addressed in a timely manner using the appropriate techniques. Air monitoring is carried out when necessary and an assessment is made through sampling and analysis by EA Group. EA Group is a consulting firm and laboratory specializing in environmental, health and safety issues that provided outside compliance monitoring in the following areas:

- Asbestos and Lead-Based Paint Hazard Management
- Environmental Laboratory Analysis
- Indoor Air Quality Management
- Environmental Compliance Services
- Industrial Hygiene, Health and Safety Services
- Assessment and Remediation of Microbiological Contamination

Eight IAQ complaints were investigated over the past year. Follow-up included assessment through questionnaires, performance monitoring, contracting for in-depth monitoring, analysis of EA Group results, and presentation of summary reports. Follow-up is executed when the analyses is complete. A report is written assessing the results and given to any complainants and their immediate supervisors.

ENVIRONMENTAL MONITORING

The complexity of water quality assessment is reflected in current required monitoring and wastewater quality indicators. These measurements include:

- Total suspended solids (TSS)
- Dissolved metals and salts
- Microorganisms such as fecal coliform bacteria
- Dissolved metals and metalloids
- Heavy Metals

Some of simple measurements can be made on-site (temperature, pH, dissolved oxygen, conductivity), directly at the site of the water source in question. More complex measurements must be made in a laboratory setting that requires a water sample to be collected, preserved, and analyzed at another location.

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Required environmental sampling protocol ensures collection of samples from various media in a timely manner (e.g., soil, surface water, ground water, and containers). All environmental sampling is addressed on a case-by-case basis. No request for sampling was made this year.

ANESTHETIC GAS MONITORING PROGRAM

Concerns about anesthetic gas exposures led to development and implementation of an anesthetic gas-monitoring program. The anesthetic gas and vapors that leak into work areas during medical procedures are considered waste anesthetic gases. People who work in hospitals, operating rooms, dental offices and veterinary clinics, can be exposed unnecessarily to harmful levels of waste anesthetic gases. The waste anesthetic gases and vapors of concern are nitrous oxide and halogenated agents (vapors) such as halothane, enflurane, methoxyflurane, trichloroethylene, and chloroform. Some potential effects of exposure to waste anesthetic gases are nausea, dizziness, headaches, fatigue, and irritability, as well as sterility, miscarriages, birth defects, cancer, and liver and kidney disease.

In locations where anesthetic gases are used and employees are at risk for exposure to waste anesthetic gases, exposure may be assessed and/or controlled by some or all of the following:

- Effective anesthetic gas scavenging systems that remove excess anesthetic gas at the point of origin
- Effective general or dilution ventilation
- Good work practices on the part of the health-care workers, including the proper use of controls
- Proper maintenance of equipment to prevent leaks
- Periodic personnel exposure and environmental monitoring to determine the effectiveness of the overall waste anesthetic gas control program. The Table below shows locations in which specific gas monitoring was carried out.

ANESTHETIC GASES/ VAPORS	08/09	07/08	06/07
AIR	0	0	1
CARBON DIOXIDE	0	0	1
DIETHYL ETHER	0	0	1
ENFLURANE	0	0	1
ETHER	7	7	2
ETHYL CARBAMATE (URETHANE)	6	6	0
HALOTHANE	9	9	3
ISOFLURANE	168	168	44
METHOXYFLURANE	3	3	0
NITROUS OXIDE	5	5	4
TOTAL	198	198	57

Repeat questionnaires were not sent this year. For the 83 researchers that are using the anesthetic gas in their laboratories and not in the ARC, a new standardized nose cone design and in-house vacuum protection filter was developed that helps to ensure anesthetic gas scavenging system effectiveness. The Table above shows that Isoflurane is the anesthetic gas in predominate use. The remaining researchers that were surveyed either no longer work with anesthetic gas or are currently working in the ARC. There are currently 115 researchers that use anesthetic gas in the ARC. Fourteen

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(14) anesthetic gas setups in the laboratories were inspected and 1 researcher moved their anesthetic system to the newly reconstructed ARC facility.

ASBESTOS MONITORING

Asbestos monitoring is addressed on a per case basis. EA Group sampled 126 asbestos projects and analyzed them. All 126 requests were made for field projects. No asbestos requests were made for laboratories. For all projects positive for asbestos, a request was submitted to Customer Service or arrangements were made by DOES to have the area remediated by an approved asbestos contractor. All samples that tested positive for asbestos containing material were abated before work was started.

BIOAEROSOL MONITORING

The Semi-Annual Bioaerosol Monitoring Project was suspended since historical data revealed that this program could be curtailed as a cost savings measure. Monitoring continues to be conducted on a case-by-case basis. There were 3 mold assessments done for three buildings. All samples that tested positive for mold growth were abated.

Historical bioaerosol sampling results were analyzed to study changes in the patterns of bacteria and fungal growth in different seasons of the year. These sampling strategies and consultation with the construction teams about abatement and mold remediation have resolved ongoing mold growth problems. For all projects impeded by mold growth problems, a request was submitted to Customer Service or arrangements were made by DOES to have the area remediated by an approved contractor. There were 8 projects that were assessed for mold. All samples that tested positive for mold growth were abated.

LEAD MONITORING

Lead monitoring is addressed on a per case basis. For all projects positive for lead-based paint above EPA regulations, a request is submitted to Customer Service or arrangements are made by DOES to have the area remediated by an approved contractor. No request for sampling was made this year.

RESPIRATOR PROGRAM

The OSHA Respiratory Protection Program is designed to protect workers from airborne hazards in the absence of feasible engineering controls. Currently, experimental requirements for respiratory protection in CASE laboratories, is limited largely to biological work involving N95 respirators. A few laboratories only require chemical protection. The largest portion of the respiratory protection program is aimed at less controlled areas such as those encountered by emergency response workers and Plant Services Workers. Workers and students sometimes wear additional respiratory protection devices on a voluntary basis. Such voluntary use occurs in anatomy classes

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and in animal resource facilities by personnel who attend to animals in the ABSL-3 facility. The respiratory program was further expanded as part of pandemic influenza planning for the University to include Police, Security, BSL3, and Custodial.

The Respirator Protection Plan includes:

- Physical Evaluations
- Respirator Training
- Fit-Testing
- Annual Questionnaire

An inventory of respiratory protection equipment was carried out that included cartridges, filters, face pieces, wipes, and valves. All response personnel have a face piece that is used at least once per year. There are currently 2 Self-Contained Breathing Apparatuses (SCBAs) in inventory. DOES has also recently accepted responsibility for cartridge replacements for Medical school personnel. Initiated through the Liaison Program, the P100 respirator was researched and recommended for nanoparticle use with the half faced mask for one researcher who was concerned about the release of nano-sized particles into their breathing zone while conducting experiments.

Medical evaluations were completed for 481 employees. Of the 481, 440 employees attended Respirator Safety Training. Among the 440 trained employees, only 277 were fit-tested for a respirator. Those workers that do not report for physicals are not able to wear respirators and are actively encouraged to complete their certification. Workers who utilize respiratory protection who do not receive a fit test are users of powered air purifying respirators (PAPR). Most of Plant Services falls into the PAPR user category because of the vigorous physical demands of their occupational use. The custodial workers will only receive a fit test if there is an outbreak of a disease like pandemic influenza at the University. The statistics of this program are shown in Table 9 of the Appendix.

HOOD CERTIFICATION PROGRAM

CHEMICAL FUME HOODS

The objective of the chemical hood program is to ensure that all fume hoods are safely protecting workers utilizing them for protection from hazardous materials. Testing includes velocity testing to assure that the existing chemical hoods previously ASHRAE tested have remained in the same functional condition under which they were certified. With velocity testing, DOES is able to provide a much greater measure of safety and security of the chemical hoods in the absence of yearly ASHRAE testing. ASHRAE testing, however, provides the performance parameters monitored by the velocity testing procedures in order to maintain a high level of safety assurance for the fume hood program.

All chemical hoods have been ASHRAE tested once. Based on this procedure the ASHRAE test is ideally performed on each chemical hood once every four years and velocity testing is carried out every year to ensure mechanical operation of the hoods is not compromised. A decrease in average face velocity below 90% or an increase in

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average face velocity above 120% of the benchmark velocity requires additional ASHRAE follow up to assess hood performance.

Velometers with data download capabilities are used for the annual face velocity tests. Implementation of the use of acetic acid based smoke tubes and aluminum tanks for SF₆ has been effective. One hundred (100) work order requests were initiated with Facilities for chemical hoods that were performing below par and needed repair. Monitor repair is one of the biggest issues concerning the chemical hoods followed by high velocity.

Face velocity tests were conducted on 536 chemical hoods, while ASHRAE 110 tests were done on only 7 chemical hoods over the past year. Certification of chemical hoods by Safety Services that were located in off-campus facilities was transferred to University Hospitals (155) MetroHealth Hospital (26) and Veterans Administration Hospital (19) facilities and a process was set up to obtain copies of chemical hood certifications from each Facility Safety Officer. This allows Safety Services to reduce hood monitoring by 23% (214).

As an Energy Platform for DOES along with Facilities Management, the "Shut the Sash" initiative helps to promote Sustainability Energy Savings. This endeavor not only saves energy but also, encourages safe working practices for researchers when using chemical hoods. Hood testing was carried out in a majority of the laboratories that were occupied or used by CASE personnel. The statistics for the hood certifications are shown in Table 10 of the Appendix.

Current research indicates that a hood that passed the ASHRAE test could easily be releasing many thousands of nano-sized particles into the researchers' breathing zone. DOES hopes to help in development of a nanoparticle exposure system that could be used for IAQ programs.

BIOSAFETY CABINETS AND LAMINAR FLOW HOODS

Biosafety cabinets (BSC) and Laminar Flow hoods were certified through a contracted company, Laboratory Certification Services (LCS). The laminar flow and Biosafety cabinets are recertified at a cost of \$95/laminar flow hood and \$110/hood/biosafety cabinet. PIs are notified annually to re-certify their hoods. An online database on the DOES website allows the researcher to sign up for re-certification or repair of their laminar flow hoods and Biosafety cabinets.

BIOHOODS	08/09	07/08	06/07	05/06	04/05
RECERTIFY	253	181	234	274	142
REPAIR	88	51	25	31	16
TOTAL	341	232	259	305	158

CLEARANCE/ RELOCATION PROGRAM

DOES coordinates safety clearance of equipment and laboratory spaces in need of repair, renovation, and relocation. DOES staff ensure safe transition of materials and equipment to new locations and also the proper decommissioning of the existing location

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ensuring the disinfection and decontamination process for equipment and Biosafety cabinets, chemical and biological waste disposal, and communication with professional movers and researchers.

The implementation of the Clearance Program centralizes the process of equipment and maintenance surveys. The Laboratory Relocation and Termination Procedures are used for moves, departures from CASE, and Safety Clearances. There were 678 Clearance forms issued, which covered clearance of approximately 678 pieces of equipment. This equipment was either moved or discarded during the 2008/2009 fiscal years. There were 27 Primary Investigators (PIs) representing more than 81 research laboratories that relocated for different purposes such as decommissioning, renovation, relocation or termination. The results are shown in Table 11 of the Appendix.

DOES specialists spent 63 hours cleaning four laboratories including moving, decontaminating, recycling, and discarding equipment and materials. These acts continue to foster cooperative interaction with other University departments and build lasting relationships.

DOT/ IATA SHIPPING PROGRAM

The SSOF facilitates and expedites the shipping of Hazardous Packages for Departments. The DOT/IATA Shipping Program was established to provide employees with instruction in the shipping of hazardous materials according to DOT, ICAO, and IATA requirements. The Department of Transportation (DOT), and the FAA have precise regulations with respect to packing, labeling and transport of hazardous materials. Therefore, employees who handle regulated materials are required to receive training. (See Table 12 of the Appendix for the DOT/ IATA Shipping Trends.) ChemTrek was maintained as the emergency responder for shipments originating at the University.

Training Guidelines for Exempt Human Specimen & Dry Ice were developed and implemented in May 2008. There have been 45 special training sessions for Exempt Human Specimen shipment and 54 for Dry Ice shipment using the training materials. There were a total of 301 packages of dangerous goods sent from CASE by FedEx alone. The DOES DOT Specialist set six of the 301 packages.

AFTER-HOURS SECURITY CHECKS

Security checks are carried out during the evenings and weekends by the DOES 2nd shift Specialist. Special sweeps are done during orange and red alert periods. All buildings, BSL3 facilities, and irradiators are inspected to ensure that they are secured. After-Hours Security Checks of 15 buildings on the campus are conducted every month. A total of 180 security checks were carried out during this fiscal year (Table 13 of the Appendix.) Only minor violations of required security procedures were found. These were documented and reported to the researcher to prevent occurrences in the future.

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INCIDENT/ INQUIRY PROGRAM

The Incident/ Inquiry Program was established to ensure that all incidents and inquiries were handled in a timely manner and appropriately documented. This record included all incidents involving Emergency Response, Indoor Air Quality, and other types of non-standard assignments (Table 14 of the Appendix.) Injury Investigation and reporting was also reestablished. Formal interviews following incidents are conducted along with follow up. Finally, preventative measures are documented and the record is sent to the Risk Management department. The complete spectrum of incidents is listed in Table 15 of the Appendix.

EMERGENCY RESPONSE PROGRAM

Following the 911 tragedy in 2001, the Federal government put into place a National Security Alert System that codes the level of security required on a daily basis. When the level is raised from red to orange, the DOES staff increases its on-call schedule to 24-hour status. The DOES Conference Room has been designated as the Emergency Operations Center (EOC) should the need arise.

Collaboration with Case Protective Services, Cleveland Fire and Hazmat as well as Summit County Hazmat in live scenario trainings has improved communication and allowed outside response partners to become familiar with the University campus. DOES coordinated its response with the Risk Management Department to prospectively meet FM Global Insurance recommendations concerning the safety of the University. Follow up of specific safety concerns were again completed and which documented better compliance with each year.

EMERGENCY RESPONSE PLAN

The DOES Emergency Response Plan was reviewed and revised to integrate with the Campus Incident/Emergency Management Plan. This DOES plan was distributed to University staff, Cleveland Fire Department, Cleveland Police Department, and Hospitals. With the heightened post 911 security levels and in response to events that have taken place at CASE, the need for full-scale emergency response compatibility is mandatory. A committee has been assembled to plan exercises leading to an emergency scenario involving CASE personnel and its City and regional partners in Police and Fire Departments, and Emergency Services. Working with Protective Services and the new CASE Police Department, DOES has begun to assemble an expanded collaborative network that includes Cleveland Fire, Cleveland Police, University Heights Police, University Hospitals, and the County Emergency Medical Association (EMA). DOES has also established representation on the Lake County Emergency Preparedness Committee, the Regional Medical Response System (RMRS) Committee, and the University Hospitals Emergency Preparedness Sub-Committee of the Environment of Care Committee.

RESPONSE EQUIPMENT

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All emergency response vehicles and response equipment are checked and maintained regularly. Table 16 of the Appendix illustrates equipment that supports response readiness at Case Western Reserve University and supplies kept on hand for these purposes.

Other forms of response equipment have been incorporated into the inventory such as tack cloth for powder clean up and mercury thermometer containment tubes. Personal Protective Equipment (PPE: goggles, gloves, N95 respirators and chemical respirators) has also been evaluated for adequacy and the types of materials kept on hand were augmented to increase response capabilities.

BIOLOGICAL SAFETY

BSL-3 FACILITIES

In the aftermath of September 11, 2001, the Patriot Act was enacted to protect against bio-terrorism. Two federal agencies are under its auspices, the Center for Disease Control (CDC) and the US Department of Agriculture (USDA). The Departments of Health and Human Services (HHS) and the USDA have promulgated rules in the Federal Register governing facilities that possess, use, or transfer select biological agents or toxins that became effective on February 7, 2003.

SELECT AGENT PROGRAM

Currently there are two Biological Safety Level-3 (BSL-3) facilities for prion research (one for molecular and biochemical research, and one for animal research); a specifically equipped BSL-2 facility for prion research, as well as one BSL-3 facility for other potentially dangerous agents including HIV and Mycobacterium Tuberculosis. There were no researchers added over the last year that are using a select agent in a regulated quantity.

A specific Biosafety Committee was formed as an oversight committee. The Responsible Official (RO) is the Vice President of Campus Planning and Operations at the University. The Assistant Responsible Official (ARO) is the Assistant Biological Safety Officer for DOES. The Biological Safety Officer (DOES Director) also sits on the following committees: Select Agent Committee, ABSL3 Committee, Institutional Biosafety Committee (IBC), Institutional Health & Safety Committee, the University Compliance Committee, 2 BSL-3 Advisory Committees, the Task Force on Avian Influenza Preparedness, and has been Chair of the Bio-defense and Emerging Diseases Task Force. The Assistant Biological Safety Officer sits on the IACUC, IBC, Select Agent Committee, and the Avian Flu Subcommittee.

One select agent on campus is currently registered with the government agencies. Forty (40) individuals, involved in this program, underwent background checks and fingerprinting carried out by the Federal government and are authorized to enter the

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facilities. The increased number of persons involved in the program is due to an inclusion of those users that use the facility yet are not directly using the select agent. There are three levels of security controlling select agent access in the BSL3 select agent facilities.

- Card swipe entry security at the entrance of the laboratory
- A second card swipe system for the isolation laboratory
- A third locked location for storage of BSE materials within the laboratory

An internal audits of the files is conducted once a year. The importance of the information requires that the RO and ARO be audited in this fashion to add a level of comfort for those ultimately responsible.

Each researcher generates an electronic sample log. The manuals for the program require annual audit, as do the SOP's and forms for the program. These documents have been reviewed and updated.

SELECT AGENT COMMITTEE

The Select Agent Committee is comprised of Select Agent Users, the CASE Biological Safety Officer, the Operational Alternate RO from DOES, the Director of Animal Facilities, and the ARC Veterinarian. This Committee is charged with the responsibility for maintaining regulatory compliance with regard to use, handling, and disposal of Select Agents within the University and associated facilities. This committee reviews applications, develops procedures, and guides researchers in use and disposal of Select Agents.

Annual inspection of both facilities was conducted in November 2008 and correction of minor programmatic defects was completed in December 2008. The RO and ARO, all BSL3 and ABSL3 facilities were re-inspected and all paperwork associated with the program was reviewed to ensure continuity of the program. A DOES representative handles Security for the Select Agent Program and completed the Select Agent Security Plan.

PHYSICAL SAFETY

PHYSICAL SAFETY MANUAL

The Physical Safety Manual is available online. Distribution of the manual is carried out through direct contact with investigators during inspections, publication of the DOES website, and by promotion in the DOES Newsletter. Laboratories that do not have an emphasis on chemical use can find many applicable safety recommendations in the Physical Safety Manual, however, all laboratories should be concerned with physical safety.

FIRE INSPECTION PROGRAM

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Fire evacuation drills were conducted in all University-owned residence halls and Greek houses twice this fiscal year (once each semester). Currently Protective Services oversees the enforcement of Emergency Evacuation Plan updates and Fire Evacuation Drills for the Residence Facilities.

FACILITY INSPECTIONS

The DOES participates in scheduled building walkthroughs each week. Under this program, each building, excluding residence halls, is inspected twice a year. DOES focuses on possible safety/building code violations as well as life safety (means of egress) and fire protection/ prevention issues. Ninety buildings were inspected this year. Inspections were carried out on an on-call basis before execution of any maintenance procedures that could result in hazardous exposures.

DOES, in cooperation with Property Management also inspects University-owned rental properties annually. DOES further inspects Underground Storage Tanks (UST) that may be found on properties owned by the University. One UST is housed at the Wolstein Research Building. City inspectors inspect this UST biyearly. These inspections address potential code violations as well as fire/life safety hazards and general liability issues. Recommendations for correction/ improvements are made as necessary and response is timely.

REMEDIAL SERVICES

The Physical Safety Specialist incorporates on-site problem solving in all areas of physical safety. The DOES received many calls for help in solving on-site problems such as means of egress issues, ergonomics, noise problems, and lighting problems. These issues are addressed as needed.

ERGONOMIC EVALUATIONS

Ergonomic assessments are conducted in response to employee's requests. Twenty-seven (27) individual office assessments were completed in 2008-2009. Questionnaires were completed and suggestions were made on how individuals can improve areas through implementation of good ergonomic work practices and information was provided to help them understand these practices. Most suggestions were accepted and implemented with minor impact on Departmental budgets. Out of 36 ergonomic keyboards, 24 keyboards were distributed to those that requested them. Requests were received by several departments mainly Nursing. Other ergonomic equipment such as pens, wireless computer mice, eyeglasses, and aromatherapy stress balls were distributed during two vendor fairs.

HEARING CONSERVATION PROGRAM

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The Hearing Conservation Audiometric Testing and Training Program is ongoing. The services of the Cleveland Clinic and a Licensed Audiometric Specialist continue to be enlisted for this program. This annual program includes approximately 150 CASE employees.

In an attempt to identify and resolve possible noise hazards on campus, sound level monitoring is addressed on a per case basis. There were no sound level assessments requested during the fiscal year.

LIGHTING PROGRAM

The Safety department, on an as needed basis, conducts primary lighting measurements to evaluate lighting in work environments for adequacy. Measurements are compared to the OSHA/ANSI Standards. Recommendations are made to improve lighting quantity and quality. No lighting assessments were conducted this year.

PLANT SAFETY

The DOES Plant Safety Specialist met monthly with the Zone Safety Committee to address unusual problems and individual problems and concerns. Several pieces of safety equipment are distributed to plant personnel as needed.

The Plant Safety Specialist is always available to plant personnel during all hours of the day or night. Means of communication include pagers, cellular phones, and radios. Mutual Training with the Cleveland Fire HAZMAT Unit was used over the past year to enhance Plant service's employees' knowledge of fire department procedures and protocols.

PLANT SAFETY MANUAL

A Plant Safety Manual has been compiled, published, and distributed by DOES. This manual includes safety considerations, pertinent situations and topics regularly faced by plant maintenance workers.

PROGRAMS

Job Safety Analysis allows the Plant skilled tradesmen to be more efficient and safety oriented. DOES is continually developing Standard Operating Procedures for safe operation in each relevant plant safety area.

PLANT SAFETY INFRACTIONS

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Plant Safety Infractions are now documented in the incident database for such actions as lack of personal protective equipment and horseplay during task execution. Accident investigations are conducted and documented following any accidents following prescribed reporting procedures.

EXHAUST FAN MAINTENANCE

There were 21 shutdowns of the fan exhaust in Medical School, BRB, RT, Millis and WRB. All exhaust fans were monitored by the SSOF 2nd shift Specialist to ensure safe air quality for Plant personnel before maintenance and filter replacements. This operation occurs after work hours on a quarterly basis. No regulatory exposure levels were exceeded during these procedures.

CONFINED SPACE PROGRAM

'Confined Space' means a space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- Is not designed for continuous employee occupancy

OSHA uses the term "confined space" to describe such spaces. In addition, there are many instances where employees who work in confined spaces face increased risk of exposure to serious hazards. In some cases, confinement itself poses entrapment hazards. In other cases, confined space work keeps employees closer to hazards, such as asphyxiating atmospheres or the moving parts of machinery. OSHA uses the term "permit-required confined space" (permit space) to describe those spaces that both meet the definition of "confined space" and pose health or safety hazards.

The Confined Space program was reviewed and revised this year including permitting, signage, and training. Forty-five (45) permits for entry were issued this year for CASE employees and outside contractors working on CASE property.

HOT WORK PERMITS

OSHA requires hot work permits for soldering, welding, and any type of heating operation. The DOES administers this program for Plant personnel and the Contractors. The permit is attained from the SSOF, after an inspection of the site, to check for adequacy, and a fire watch is established on the site. The permit is required to be posted near the site. The permit is issued for a certain time period, which is normally no more than one week.

The Hot Work and Hot Work Permitting Programs were reviewed and revised this year. The program now includes site and equipment inspection as well as training. One

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hundred twenty (120) permits, both long-term and short-term, were issued to CASE employees and outside contractors. Long-term permits that extended over one month were issued that required weekly inspections. DOES reviews only Contractor Hot Work permits since the amount of campus construction decreased and the Facilities Department oversees CASE maintenance projects requiring hot work permits.

CONSTRUCTION SAFETY

A DOES representative oversaw the Hazardous Materials Waste Collection Program of Construction Debris Recycling for Fluorescent Bulbs and Ballasts, conducted weekly Construction Safety Walkthrough Inspections on projects throughout campus, and participated in the Construction Managers Weekly Project Meetings on the projects listed in Table 17 of the Appendix.

CONTRACTOR OVERSIGHT

The Plant Safety Specialist conducted weekly Construction Safety walkthrough inspections on projects throughout the campus for outside contractors and CASE employee projects. Contractors utilized by the University for large projects include the Movers, Painters, Carpenters, Plumbers, Packers, Apprentices, Helpers, Drivers, Electricians, Pipe fitters, and Roofers. CASE Plant personnel respond to small projects and maintenance issues. The interface between Plant, Construction Administration, Technical Assurance, and outside contractors on safety related issues has aided in the efficient, and safe conclusion of projects.

Contractor Safety Awareness training includes all types of contractors and personnel that carry out construction on CASE property. There were 32 classes for 80 different outside contractors conducted and this program informed three hundred thirty (330) outside contractors.

EPA AND WASTE DISPOSAL PROGRAM

ENVIRONMENTAL RELEASES

The Northeast Ohio Regional Sewer District (NEORS) requires semi-annual reports as part of Best Management Practices (BMP) for minimization of mercury discharge from dental offices to the Cleveland sewer system to a regulatory level of 25 parts per trillion. CASE's sewer releases were in compliance with both federal and state regulations. In the past fiscal year, the report for January through December 2008 was filed on February 2009.

No water testing of boilers for nitrates and nitrites was performed in the dormitories this fiscal year. The current design of the boiler alleviates the requirement for sampling.

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Overall, waste collection at CASE continued to increase during the 2008-2009 fiscal year. The ability of the Chemical Analytics contractor to perform de-activation of Peroxides, Picric acid, and Perchloric acid reduces the intrinsic cost of disposing of this material and represents a significant cost savings. Most importantly, reduction in hazard through on-site performance of waste handling complies with OSHA requirements.

A regular audit of all manifests is routinely carried out to ensure all manifest records are complete before the 42-day time limit impact by EPA regulations. Approximately 870 Hazardous Waste Forms from 2008-2009 were scanned into the database and organized into folders on the server. The number of bottles listed on the forms vary from one bottle to several bottles per pickup. The scanned forms were then verified against the Hazardous Waste Log Book for discrepancies.

TREATED INFECTIOUS WASTE

Hazardous waste at CASE is treated by autoclaving before landfill disposal. Autoclave Certification was first completed for disposal of biohazardous waste in November of 2003. Elements of this disposal program include ongoing Validation Testing and Quality Assurance Testing of the autoclave. These tests use of test packs to assess sterilization following autoclaving under standard conditions. The samples are then incubated for 24 hours, 48 hours, and one week. Growth in any of the samples would indicate failure of the decontamination process and reassessment of the autoclaving procedures. Records of autoclave certification are kept both in hard copy and an electronic database on the DOES Server.

Quality Assurance Testing is carried out once a month to ensure the autoclave unit is functioning properly. An average of 1015 loads were treated per month equaling 13,720 cubic feet of infectious waste. Infectious waste treated in the SaniPak Autoclave equaled a total poundage of 85,572 and was transported by Waste Management Industries (WMI) to the American Landfill. Stericycle incinerates the remaining waste.

STATE MEDICAL WASTE

Stericycle (formerly BFI), the waste disposer, incinerated all Regulated Medical Waste through Regulated Medical Waste Treatment Disposal Shipping. This waste included dead animals, syringes, needles, and potentially infectious materials. The total number of Regulated Medical waste boxes that were treated totaled 7,128 containing a total 262,887 pounds of waste for the fiscal year.

RECYCLING PROGRAM

The Recycling Program for chemical solvents was terminated in October 2001; however, recycling of a number of materials continues to be carried out successfully for materials

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collected from the main campus Complex. Currently the following types of waste are recycled:

- Lead
- Paint
- Batteries
- Computer monitors (weigh up to 30 pounds and contains 8 pounds of lead)
- Computers
- Equipment (Electronic)
- Fluorescent Bulbs

Twenty (20) Bills of Lading were collected for recycled material.

WASTE FACILITIES

CASE Waste Facilities are used to segregate and prepare waste for disposal. The different waste streams include aqueous waste and dry solid waste. Reducing the volume of waste to be disposed remains a continuing aim of the waste program promoted by the SSO. As part of the Waste Minimization Program, researchers are encouraged and instructed in how to reduce the volume of waste generated in the laboratory.

WASTE DISPOSAL

Hazardous waste rooms are used as central collection points for what the EPA defines as a site. CASE presently has 8 sites. CASE also operates 90-day waste accumulation areas that are inspected on a weekly basis. The accumulation areas are located at DOA990, Millis G35, and WRB 1103.

The hazardous waste disposer was Chemical Analytics for Hazardous Waste, PCB material, Batteries, Non-PCB Ballasts, Mercury, and RQ Solutions (Polychlorinated). The disposer for Hazardous Solid Waste such as Lead and chrome was Michigan Disposal Waste Treatment Plant. Metallic Resources was the disposer for Computer Monitors and Office Equipment, while Heritage Waste Management Services collected hazardous materials associated with moves from one on-site facility to another. Disposal site waste distribution and recycling are shown in Table 18 & 19 of the Appendix.

MANAGEMENT CENTER WASTE DISTRIBUTION

MANAGEMENT CENTER	ARTS/ SCIENCE	ENGINEERING	DENTAL SCHOOL	MEDICAL SCHOOL
WASTE COST	\$112,782	\$34,019	\$0	\$166,055

WASTE COST	08/09	07/08	06/07	05/06	04/05	03/04	02/03
ARTS/ SCIENCE	112,782	105,197	54,950	47,250	41,746	51,961	112,064
ENGINEERING	34,019	56,876	41,808	28,485	64,292	37,952	71,723
DENTAL SCHOOL	0	5,473	4,452	4,735	4,238	2,335	5,475
MEDICAL SCHOOL	166,055	129,625	431,601	547,094	471,374	413,696	138,999

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REGULATORY INTERACTIONS

EPA/ RCRA INSPECTION

The following Environmental Protection Agency/Resource Conservation & Recovery Act (EPA/RCRA) inspections took place during 2008/2009:

9/25/2008 – COMPREHENSIVE QUARTERLY INSPECTION OF AUTOCLAVE UNIT

There were no violations notes during this inspection.

3/20/2009 – COMPREHENSIVE QUARTERLY INSPECTION OF AUTOCLAVE UNIT

There were no violations notes during this inspection.

6/29/2009 – COMPREHENSIVE QUARTERLY INSPECTION OF AUTOCLAVE UNIT

There were no violations notes during this inspection.

OSHA COMPLAINTS

No Occupational Safety & Health (OSHA) complaints were received in 2008/2009.

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AUDITS

The Laboratory Safety Committee conducts audits of Safety Services' activities throughout the year.

AUDITS	08/09	07/08	06/07	05/06	04/05	03/04	02/03
Chemical Hygiene and Exposure Control Plans	X		X		X		X
Hoods	X		X		X		X
Bloodborne Pathogens	X		X		X		
Industrial Hygiene & Indoor Air Quality	X		X		X		X
Training	X		X		X		X
Respirator	X		X		X	X	
Clearances		X		X		X	
Regulated Chemicals		X		X		X	
Waste		X		X		X	
Incidents		X		X		X	
Website		X		X		X	
Inspections		X		X		X	
Protocols	X			X		X	
Hazardous Material Shipment & DOT Training	X	X	X		X		
Facilities		X		X		X	
Licensing	X			X			
Select Agent	X	X		X			
TOTAL	10	9	7	10	7	9	4

Ten areas were subject to audit during the 2008/2009 fiscal years. These included:

- Chemical Hygiene and Exposure Control Plans
- Hoods
- Training
- Bloodborne Pathogens
- Hazardous Material Shipment & DOT Training
- Industrial Hygiene and Indoor Air Quality
- Licensing
- Research Protocol
- Respirator
- Select Agent

CHEMICAL HYGIENE AND EXPOSURE CONTROL PLANS

LSC AUDIT COMMENT

Almost 50% of 27 files examined had problems with either the Chemical Hygiene Plan (CHP) or the Exposure Control Plan (ECP). Five instances were found where the CHP needed updating, no CHP in 3 cases, hand-written CHP in 2 cases, and no written procedures in 2 cases. There were no ECP in 2 cases and the ECP needed updating in one final case. An electronic system would alert one to most of these delinquent cases.

SSOF RESPONSE

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The researchers whose chemical hygiene and exposure control plans are the Associate Director has followed up most delinquent for update will a direct call. A large number of PI's have been or are in the process of being purged from our systems. Many of the problem PI's are in fact emeritus or have left. This update is part of the on going HP Assist conversion.

HOODS

LSC AUDIT COMMENTS

Databases and inspection system is in good shape. Nevertheless continued effort is directed at improving updates by Facilities Services to a frequency greater than once a month.

SSOF RESPONSE

No response required.

TRAINING

LSC AUDIT COMMENTS

Training records were in order and easily accessible. Notifications were issued to advise personnel of expired training.

SSOF RESPONSE

No response required.

BLOODBORNE PATHOGEN PROGRAM

LSC AUDIT COMMENT

Records were in good order and easily accessible. 37 PIs and 232 other personnel were late in meeting the annual retraining.

SSOF RESPONSE

All personnel that are past due for training are sent monthly delinquent notices. Protocols are held until training of researcher and personnel is current.

HAZARDOUS MATERIAL SHIPMENT & DOT TRAINING

LSC AUDIT COMMENT

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It is recommended that consideration be given to limiting hazard shipments to Federal Express. Improved record keeping and accountability is essential to ensure that all shipments are made by trained personnel. It should be possible to clearly identify the number of chemical and biological shipments made. A running total must be maintained throughout the year. Either a database or simply a spreadsheet should be maintained to keep track of activities.

SSOF RESPONSE

A new survey of needs is underway at this time.

INDUSTRIAL HYGIENE & INDOOR AIR QUALITY PROGRAM

LSC AUDIT COMMENT

It is recommended a general System Operating Procedure (SOP) be created. At present, this program runs with individual incident reports and scattered SOPs, that pertain to specific sub-programs such as animal anesthesia, but no unification.

SSOF RESPONSE

An SOP was written for Industrial Hygiene and Indoor Air Quality. A dedicated IH person was hired this year. Collating the programs and preparing a comprehensive SOP and manual is in progress.

LICENSING STATUS

LSC AUDIT COMMENT

All licenses are current.

SSOF RESPONSE

No response required.

RESEARCH PROTOCOLS

LSC AUDIT COMMENT

Five audits of each IACUC supplement, A or B for a total of 10 audits were sufficient. There is no electronic file to flag missing or out-dated CHP or ECP. Of the 20 files audited, 3 had expired CHP and ECP at the time of Protocol approval. One was past due for Lab Standard and Regulated Chemical Standard Training and another had no record of this training at the time of Protocol approval.

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SSOF RESPONSE

Currently all protocols are checked for training and plan update before they are approved. This system is transitioning to an online database. Paper will be eliminated and all checks will need to be in place before the approval is given.

RESPIRATORS

LSC AUDIT COMMENT

The respirator program was found to be well run. Two deficiencies were noted: equipment calibration being out of date for 2 months, and risk assessments need to be done, having last been performed 7 years ago.

SSOF RESPONSE

Both pieces of equipment were calibrated. Risk assessments will be reviewed.

SELECT AGENTS

LSC AUDIT COMMENT

All records and logs were found to be up-to-date and complete.

SSOF RESPONSE

No response required.

SUMMARY

LSC AUDIT COMMENT

Overall, DOES oversees an extensive program covering large employee and student populations. Increased use of databases, with monthly reporting capabilities, will improve the overall efficiency of the Department.

SSOF RESPONSE

The Safety Services Office thanks the Laboratory Safety Committee for its time and helpful scrutiny.

DOES INTERNAL AUDITS

In addition to audits conducted by the Laboratory Safety Committee, the Department's Quality Assurance Specialist reviews all programs and records on a periodic basis, and

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assists with resolving compliance issues in the Safety Services Office. Internal audits are conducted to support program effectiveness and efficient operation. These audits have resulted in several program enhancements.

INTERNAL AUDITS

Chemical Hygiene Plans	Exposure Control Plans
Training	Chemical Hoods
Biohoods	Bloodborne Pathogens
Hazard Communication Plan	Industrial Hygiene
Indoor Air Quality	Respirators
Clearances	Regulated Chemicals
Hazardous Waste	Incidents
Website Accuracy	Inspection Reports
Research Protocols	Infectious Material Shipment
DOT Shipments	Laboratory/ Waste Facility
Select Agents	License/ Registration
Liaison Program	Physical Safety Programs
Plant Safety Programs	SOP Reviews

This year, in response to internal audit findings, Safety Services continues to improve its procedures and programs.

MINORS, VOLUNTEERS, VISITORS AUDIT

Comments

- Guidelines were completed and distributed in 9/2008.
- 141 volunteers have submitted forms since its inception. 40 volunteers in 2008 and 48 volunteers for 2009 thus far.
- All records are current and program run well.

2008 INSPECTIONS AUDIT

Comments

- 2008 Inspection report return was 90% completed.
- Inspectors contacted delinquent researchers.
- Repeat violations decreased from average 4 to 3.

INCIDENTS AUDIT

Comments

- Incidents were logged, documented, and filed in a timely manner.
- Incidents were signed by the inspector and reviewed by the Asst. Director.

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CHEMICAL HYGIENE & EXPOSURE CONTROL PLANS

Comments

- 171 of 448 Exposure Control Plans are past due
- 163 of 448 Chemical Hygiene Plans are past due
- Chemical Hygiene & Exposure Control Plans were requested for all new researchers once notified through Human Resources and annual inspections.
- Training of researcher and personnel was verified once plan received.
- Most plans were updated annually.
- All protocols were checked to ensure both plans and training were current.

SSOF Response

No response required.

Prepared by Felice Thornton-Porter on 10/30/2009.

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APPENDIX

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TABLE 1 - Training and conferences attended in 2008-2009 included:

- Industrial Hygiene Management
- Rules & Regulations of Workplace Safety & OSHA Compliance
- Essentials of Hazardous Materials Course
- Comprehensive Industrial Hygiene
- HVAC Systems and Design Course
- Level B Industrial Ventilation Design Certification
- ACS Safety & ACGIH Membership
- Threat & Risk Assessment Certification
- Emergency Response to Domestic Biological Incidents Certification
- OSHA 30 hour General Industry Certification
- Ohio Safety Congress Attendance in Columbus, OH
- ICS-100 for Higher Education with FEMA
- DOT 49 CFR
- Ohio Asbestos Building Inspection Certification
- Ohio Asbestos Management Planner Certification
- Ohio Asbestos Project Designer Certification
- NFPA Life Code Specialist for General Construction and Health Care Systems
- Regional Medical Response System (RMRS) for Northeast Ohio Attendance

TABLE 2 - All staff members received:

- 8-hour RCRA Hazardous Materials Manager Refresher Certification
- The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) Certification
- Industrial 8-Hour Hazardous Materials Refresher
- 8-Hour National Incident Management System (NIMS) & IMS Practical Drills
- 16-hour Incident Command Certification

TABLE 3 - DOES Web Page Updates:

- Updated 40 web pages
- Added or updated 15 pdf files
- Uploaded new website in Sandbox

TABLE 4 - DOES has provided researchers with the following Online services:

- Training Page
- Equipment Disposal and relocation
- Compressed Gas Safety
- Cryogenic Liquids
- Waste Page
- Glove Page
- Eye Protection Page
- Laboratory Coat Page
- Laboratory Safety Manual
- Regulated Chemicals Page
- Chemical Storage and Compatibility Page
- Chemical Hygiene Plan Page
- Respirator Page
- Hazardous Materials Transport Page

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TABLE 5 - Compliance Issues Addressed by Employee Compliance Committee (ECC)

YEAR	COMPLIANCE ISSUES
2008	New DOES Safety Inspection Enforcement Policy New DOES Policy on Minors, Volunteers, & Visitors 2008 DOES Laboratory Inspection Schedule Phase 2 – Satellite CASE Facilities Kelly Services reviewing new training modules for Kelly employees Irradiators personnel must now be fingerprinted CLIPS Program has six students for the Summer List of CASE employees working at NASA New Job Exposure Checklist New Faculty Checklist 2008 DOES Laboratory Inspection Schedule Phase 3 – Medical Complex DOES Peer Review on 9/29-30/2008 went well Research Administration Department Reconstruction
2009	Distribution of both Radiation Safety & Safety Services Annual Reports DOES conducts Ergonomic Assessments CASE employees at the VA Hospital Kelly Services employees at the VA Hospital Rabies vaccine shortage DOES/UH Safety Roundtable – 1/28/2009 OSHA final rule for Personal Protective Equipment (PPE) – 12/12/2008 DOES Strategic Plan Research of Policy on Reproductive Protection Employee Relations will assist Bureau of Workers Compensation claims Kelly Services will send Kelly employee injury log to DOES for tracking Animal Resource Center inspection on 2/24-26/2009 by AAALAK Accreditation went well

TABLE 6 - Historical Training Trends

TRAINING	NEW USERS (Class settings)	ONLINE
Hazard Communication	673	118
Laboratory Safety	1189	1392
Regulated Chemical	270	893
Bloodborne Pathogen	1164	872
Respirator	481	0
Vehicle Safety	118	0
Fire Extinguisher	0	0
Plant	600	0
Custodial	600	0
BSL3	78	0
DOT/IATA Shipping	169	0
Contractor	330	0
Dental	126	0
Kelly Service	0	0
SOM	400	0
Squire Farm	4	0
Special Classes	902	0
TOTAL	7104	3275

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TRAINING	08/09	07/08	06/07	05/06	04/05	03/04	02/03
Hazard Communication	791	481	197	118	276	272	52
Laboratory Safety	2581	2032	2364	1884	1754	753	940
Regulated Chemical	1163	868	1720	0	0	0	0
Bloodborne Pathogen	2036	1396	1400	1330	1001	859	910
Respirator	481	177	44	103	73	118	70
Vehicle Safety	118	94	156	98	128	135	0
Fire Extinguisher	0	0	75	75	72	60	0
Plant	600	600	70	240	280	282	0
BSL3	78	30	29	38	39	49	0
DOT/IATA Shipping	118	169	55	168	26	15	4
Contractor	330	317	328	422	118	190	80
Special Classes	902	890	395	396	207	195	90
Other	1181	0	0	0	0	0	0
TOTAL	10379	7054	6833	4872	3974	2928	2146

TABLE 7 - Calibrated Instruments

INSTRUMENT	MODEL	SERIAL #	FREQUENCY	NEXT DUE
High flow Impactor Pump	10-709	1298-2617	Annually	Out of Service
Mini-Buck Calibrator	M-30	M-5648B	Annually	11/12/2009
Mercury Vapor Analyzer (Jerome)	431-X	1835	Annually	4/16/2010
PhD Ultra Atmosphere Monitor (Combustible Gas Meters)	02-30102N	10406	As Needed	Out of Service
PhD Ultra Atmosphere Monitor (CGM)	02-30102N	10389	As Needed	Out of Service
CMS-Analyzer Unit	640-5050	ARKH-0164	Annually	6/19/2010
Accuro (Hand Pump)		ARSE-FO23	No Calibration	
Accuro (Automatic Pump)	2000		No Calibration	Out of Service
HCHO 7000 Series	7162	811647	Every 2 years	Out of Service
Airchek Sampler	224-PCXR7	523142	Annually	Out of Service
Airchek Sampler	224-PCXR7	523121	Annually	Out of Service
Airchek 2000	210-2002	00529	Annually	Out of Service
Airchek 2000	210-2002	00820	Annually	Out of Service
Airchek 2000	210-2002	00870	Annually	Out of Service
Airchek 2000	210-2002	00503	Annually	Out of Service
Airchek 2000	210-2002	00868	Annually	Out of Service
Pocket Pump	210-1002	07413	Annually	Out of Service
Miran Sapphire (ASHRAE)	205B	205B-67068-357	Annually	4/28/2010
Miran Sapphire (ASHRAE)	205B	205B-79375-398	Annually	12/16/2009
Shortridge Instrument (Velocity Meter)	ADM-870C	M04132	Annually	Out of Service
Extech (Light Meter)	407026	Q102498	Annually	11/12/2009
Tramex Survey Encounter (Moisture Meter)		SE 10061608	No Calibration	
LXR Boroscope			No Calibration	
VelociCalc Plus	8360	40110	Annually	Out of Service
VelociCalc Plus	8360	603016	Annually	Out of Service
VelociCalc Plus	8384A	57020273	Annually	11/12/2009
VelociCalc Plus	9535	0720005	Annually	11/12/2009
VelociCalc Plus	9545	0807001	Annually	3/31/2010
VelociCalc Plus	9545	0807006	Annually	3/31/2010
FitTester 3000 Quantitative Respirator Leak Rate Analyzer		0189	Annually	5/25/2010
MultiRae Personal Multigas Monitor	PGM50-5P	095-512273	Annually	7/2/2010
MultiRae Personal Multigas Monitor	PGM50-5P	095-518178	Annually	3/26/2010
MultiRae Personal Multigas Monitor	PGM50-5P	095-518221	Annually	10/20/2009

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MultiRae Personal Multigas Monitor	PGM50-5P	095-518218	Annually	3/26/2010
MultiRae Personal Multigas Monitor	PGM50-5P	095-518200	Annually	4/30/2010
Rotameter	MMA-25		No Calibration	
Pulse Check Pump Module	710466	G1-5713-F99	Annually	Out of Service
Pulse Check Pump Module	710466	G1-5712-F99	Annually	Out of Service
Pulse Check Pump Module	710466	G8-15922-L01	Annually	Out of Service
Pulse Check Pump Module	710466	G1-5709-F99	Annually	Out of Service
Pulse Check Pump Module	710466	G1-5710-F99	Annually	Out of Service
Quest Sound Level Meter	2900	CDD010048	Annually	11/8/2009
Quest Sound Calibrator	QC-10	QID020090	Annually	11/8/2009
Quest Sound Calibrator	QC-10	QIE 070033	Annually	Out of Service
Quest Octave Band Filter	OB-100	HWD020018	Annually	11/8/2009
Quest Noise Pro DL Dosimeter		NLE 080021	Annually	Out of Service
Quest Noise Pro DL Dosimeter		NLE 080022	Annually	11/8/2009

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TABLE 8 - Inspection Statistics

In the table, "Rooms Inspected" includes laboratories, closets, mechanical room, offices, classrooms, dark rooms, cold rooms, tissue culture facilities, and animal rooms. All areas are inspected to ensure proper storage and maintenance as well as to document changes in use of a room.

BUILDING NAME	08/09	07/08	ROOMS INSPECTED IN 2006/07
ART STUDIO	0	32	32
AW SMITH	128	126	125
BINGHAM	124	122	143
BISHOP	0	20	20
BOLWELL	0	18	19
BIOMEDICAL RESEARCH BLDG.	495	614	876
CLEVELAND CLINIC FOUNDATION	3	5	0
CEDAR AVENUE SERVICE CENTER	0	3	34
CLAPP	33	0	30
CLARK	0	0	0
DEGRACE (BIOLOGY)	41	42	42
DENTAL	228	233	221
GLENNAN	219	193	137
HANNA PAVILION	0	45	45
HEALTH SERVICES	0	41	39
KENT HALE SMITH	182	199	193
LOWMAN	0	0	1
MACDONALD	24	44	42
MATHER GYM	0	0	0
MATHER MEMORIAL	0	0	0
METROHEALTH	93	88	77
MILLIS	204	240	190
MORLEY	0	0	39
NURSING	139	144	131
OLIN	89	118	118
PATHOLOGY	141	148	143
RAD WASTE FACILITY	0	0	2
RBC	48	47	68
RESEARCH TOWER	108	147	90
ROBBINS (MED EAST)	66	273	237
ROCKEFELLER	93	89	91
SEARS BLDG.	2	0	0
SEARS TOWER	0	74	103
SERVICE BLDG.	2	4	6
SQUIRE VALLEYVIEW FARM	0	1	3
STROSACKER	19	2	3
VA HOSPITAL	24	31	17
WEARN	55	118	44
WEST QUAD (MT. SINAI)	29	24	34
WHITE	124	126	126
WICKENDEN	151	146	141
WOLSTEIN RESERCH BLDG.	583	872	615
WOOD	295	273	273
UCRC II	9	27	36
UNIVERSITY WEST	100	89	90
TOTAL	3851	4818	4676

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TABLE 9 - Respirator Statistic

RESPIRATOR USE	USERS 08/09	USERS 07/08
PHYSICAL	481	388
TRAIN	440	354
FIT TEST	277	205

RESPIRATOR TYPE	USERS 08/09	USERS 07/08
PAPR	11	3
HALF FACE	1	2
FULL FACE	32	35
N95	362	234
N/A	75	114
TOTAL	481	388

DEPARTMENT	RESPIRATOR USERS 08/09	RESPIRATOR USERS 07/08
TERMINATED FROM PROGRAM	46	59
ARC	45	25
RESEARCH	47	33
CUSTODIAL	136	107
FARM	1	1
HEALTH SVCS.	18	0
SECURITY	82	68
PLANT	75	64
DOES	31	31
TOTAL	481	388

TABLE 10- Hood Certification Statistics

ASHRAE TEST	08/09	07/08	06/07	05/06	04/05	03/04	02/03	01/02	00/01
PASS	6	6	13	6	90	20	65	58	149
RESTRICTED	0	0	0	7	17	3	17	21	54
FAILED	1	1	0	0	0	4	16	15	17
N/A	0	0	0	0	0	0	0	0	1
TOTAL	7	7	13	13	107	27	98	95	221

VELOCITY TEST	08/09	07/08	06/07	05/06	04/05	03/04	02/03	01/02
SATISFACTORY	298	288	527	156	296	121	431	0
RESTRICTED	142	110	184	35	106	92	140	0
INOPERATIVE	96	16	33	6	55	39	58	1
TOTAL	536	414	744	197	457	252	629	1

TABLE 11- Clearance/ Relocation Trends

CLEARANCES	08/09	07/08	06/07	05/06	04/05	03/04	02/03	01/02
RELOCATION	337	289	177	244	245	934	808	50
REPAIRS	0	24	10	61	68	53	44	18
DISPOSAL	310	223	190	210	316	230	311	69
DEMOLITION	3	67	16	162	8	1	12	1
RENOVATION	27	1	20	18	15	29	4	1
RELOCATION TO STORAGE	0	35	10	1	1	0	40	0
TERMINATION	0	0	17	7	30	3	0	0
CLEAN	0	0	0	7	3	0	1	0
RETURN TO VENDOR	10	2	2	1	0	0	0	0

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DECOMMISSION	18	10	16	4	0	1	0	0
TOTAL	705	651	458	715	698	1256	1190	147

TABLE 12 - DOT/ IATA Shipping Trends

DOT/IATA SHIPPING	08/09	07/08	06/07	05/06
Aviation	3	0	0	5
Biological	5	48	47	40
Corrosive	0	0	1	0
DOT/ IATA	7	66	61	92
Dry Ice	54	25	46	51
Employee Handling	0	1	0	11
Exempt	45	7	0	0
Infectious	3	1	2	10
Radioactive	1	7	1	0
TOTAL	118	155	158	209

TABLE 13 - Security Check Trends

SECURITY CHECK VIOLATIONS	08/09	07/08	06/07	05/06
BRB	7	12	13	18
MED EAST	1	2	4	2
WOOD	6	13	7	18
RESEARCH TOWER	0	4	5	12
HOSPITAL BUILDINGS	1	0	0	6
WOLSTEIN	8	5	23	12
MILLIS	1	0	3	4
AW SMITH/ ROCKEFELLER	0	1	1	2
KHS	0	0	0	0
TOTAL	24	37	56	74

TABLE 14 - Injury Trends

INJURY TYPES	08/09	07/08	06/07	05/06
NEEDLESTICK	18	16	2	23
BLOOD SPLATTER	2	0	0	1
CHEMICAL SPILL	10	8	11	10
BURN	4	0	0	0
CONCUSSION/ CONTUSION	4	0	0	0
LACERATION	30	21	16	1
PUNCTURE	4	2	9	2
STRAIN/ SPRAIN	8	3	17	2
SLIP/ FALL	28	24	11	3
OTHER	23	21	9	12
INHALED	4	6	3	0
ANIMAL BITE	16	3	3	0
TOTAL	155	104	81	54

DEPARTMENT OF INJURY	08/09	07/08	06/07	05/06
DENTAL	26	21	13	25
NURSING	1	5	0	0
MEDICINE	8	28	8	11
CUSTODIAL	8	17	14	1
ARC	3	3	3	4
ARTS/SCIENCE	12	8	3	6
ENGINEERING	12	4	0	1
PLANT	10	8	5	0
SECURITY	6	0	0	0

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OTHER	69	10	35	7
TOTAL	155	104	81	54

TABLE 15 - Incident Trends

INCIDENTS	08/09	07/08	06/07	05/06	04/05
INDOOR AIR QUALITY	8	6	3	0	2
DEAD MOUSE	0	1	0	0	0
ODOR	80	96	54	49	107
ASBESTOS	0	0	0	38	15
MOLD/ FUNGUS	3	9	3	19	18
WATER SAMPLING	0	0	0	0	14
NOISE	0	0	1	2	1
SPILLS	9	17	14	38	22
FIRE	1	5	2	3	4
INJURY	5	1	81	54	10
WASTE DISPOSAL	12	37	12	7	12
LEAD	0	0	1	0	2
FORMALDEHYDE	0	0	0	0	3
GAS	0	0	19	24	25
OTHER	22	16	12	13	49
ALARM	15	11	21	15	0
ANESTHETIC	14	1	0	0	0
HOOD	2	3	0	8	0
EXPOSURE	18	2	2	0	0
FLOOD	6	5	9	0	0
LEAK	9	2	4	0	0
MERCURY	0	11	6	0	0
REPAIR	0	0	1	0	0
TOTAL	190	223	245	271	306

INCIDENT/ INQUIRY	08/09	07/08	06/ 07	05/ 06	04/ 05	03/ 04	02/ 03	01/ 02	00/ 01	99/ 00
TOTAL	190	223	245	271	306	297	204	210	152	201

TABLE 16 - Emergency Response Equipment

AN ACTION PLAN FOR MAINTAINING PROPER READINESS WAS DEVELOPED USING EQUIPMENT AS FOLLOWS:

Kappler ER Decon shower (1) MSA 5 minute escape pack (1) Spill Containment kits, orange (7) (4) Mercury absorbent and kit (3 lbs) Spill filter strips (40-50) Respirator Cartridges (20-30 pair) Chemical classifiers Hydrophyllic Spill Kits (12) SCBA (2) Mercury Vacuum (1) Amphomag cartridge refill (1 container) Biosystems air monitor hand test pumps (2) Biosystems calibration kit (1) Pelton communication headsets (2)	Kappler containment pool (1) North 5 minute escape pack (1) Spill Containment kits, white Absorbents, Various (100 lbs.) Drager kit and analyzer (2) Waste water classifiers Hydrophobic Spill Kits (8) Mobile Decontamination Tent (1) Drum leak kit (1) Spill-X Guns (5) Biosystems portable air monitor (2) Biosystems air monitor electric pump (1) Kappler pressure test kit (1)
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SPECIAL EQUIPMENT ON-HAND INCLUDES:

Gloves (Boxes) Nitrile gloves (8) Silvershield glove liners (20) Viton gloves (1)	Silver shield gloves (1) Butyl rubber gloves (1) PVA gloves (1)
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Suits (Boxes)

Tyvek suits, white (8)	Tyvek QC suits (3)
Saranex suits (1)	Kappler vapor suit "A" (2)
Kappler training suits, blue (3)	Polycoat overalls (35)

Foot Protection (Pair)

Tyvek polycoated booties (24)	Hazmat boots (4)
Tingley ER orange boots (3)	Rainfair ER yellow boots (2)

Eye Protection (Each)

Face shields (2)	Flexi-Filters P100 (21)
Safety glasses (5)	

Respirator (Each)

Full face respirator 3000 series (1)	N95 Respirator (80-100)
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TABLE 17 - Construction Projects Inspection for 2008/2009

- ARC Renovation Project Phase 1, Phase 2, & Phase 2B (3 year project)
- Bingham Structures Laboratory Renovation – Environmental Survey & Renovation
- Pathology Building Renovation and Joint Venture Project with UH Hospital
- Morley Building Environmental Assessment Project
- BioEnterprise Floors 1 & 4 Renovation Project
- Sidewalk Replacement Campus wide
- Air Handler Projects in #55 Parking Garage 2 levels (M-1, C-1, D-1, & D-2)
- Boiler replacement at different buildings
- Triangle Apartment Building #2 Renovation
- Elevator Repair and Replacement on 4 Dorms on North Campus
- Clark Tower Fire Sprinkler installation entire building
- Dennison Lobby upgrade & Band Room Renovation
- Parking Garage #55 Renovation
- Bolton Nursing School Room NOB 080 Renovation
- Robbins Room 429 & EG6 Renovation
- White Foundry Office upgrade
- MSASS Offices Upgrade 1st Floor
- Tomlinson Building, Art School, & Morley Phase I Environmental Assessment Project
- Leutner Cafeteria & Hayden Grad Student Office Renovation
- Emergency Generator Installations Campus wide

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TABLE 18 - DISPOSAL SITE WASTE DISTRIBUTION

WASTE TYPE	ARTS/ SCIENCE	ART STUDIO	MEDICINE	DOA	UCRC II	CASC	WOLSTEIN
CONTAINERS, <1 GAL (#)	2353	0	695	3084	19	73	515
CONTAINERS, UNKNOWN (#)	101	0	22	75	0	0	4
CONTAINERS (DIRECT INCINERATION) (#)	106	0	35	59	0	0	39
CYLINDERS (#)	85	0	1	12			3
DRUM, OIL (55 GAL)	2	0	0	0	0	0	0
DRUM, FORMALIN (55 GAL)	0	0	0	21	0	0	0
DRUM, PHOTO WASTE (55 GAL)	0	3	0	18	0	0	0
DRUM, METHANOL/TISSU E (55 GAL)	0	0	0	30	0	0	0
DRUM, MERCURY WASTE (55 GAL)	1	0	0	0	0	0	0
DRUM, CAUSTIC (30 GAL)	0	0	0	0	0	0	1
DRUM, NON HAZARDOUS SOLID (55 GAL)	1	0	0	0	0	0	0
DRUM, FLAMMABLE (55 GAL)	1	0	0	10		1	0
PAILS (5 GAL)	1	0	0	1		2	0
PAILS (2-5 GAL)	172	0	3	80		86	3
VIALS	125	0	0	52	0	0	0
VIALS (DIRECT INCINERATION) #	12	0	49	24	0	0	0
VIALS (UNKNOWN) (#)	3	0	114	42	0	0	0
MERCURY SPILL CLEAN UP	1	0	0	0	0	0	0
P-TRAPS MERCURY CONTAMINATED	0	0	0	1	0	0	0
FIRE EXTINGUISHER (10 LB)	1	0	0	0	0	0	0

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ELECTONIC WASTE BY MONTH	# of REQUESTS
7/2008	12
8/2008	11
9/2008	9
10/2008	10
11/2008	7
12/2008	5
1/2009	15
2/2009	7
3/2009	7
4/2009	7
5/2009	12
6/2009	16
TOTAL	118

TABLE 19- RECYCLING

WASTE TYPE	CASC (# of units)	MILLIS (# of units)	PBL (# of units)	WRB (# of units)
BALLASTS (PCB)	3627	0	0	0
BALLASTS (NON-PCB) (#)	2445	0	0	0
LAMP INCANDESCENT (#)	0	0	0	0
LAMP, MERCURY VAPOR (TUBES)	0	0	0	6
CRUSHED FLOURESCENT LAMPS	0	0	0	0
ELECTRONIC EQUIPMENT (#)	0	0	0	0
BATTERIES, ACID (#)	725	1	0	0
BATTERIES, NON-SPILLABLE (#)	1879	0	782	42
BATTERIES, ALKALINE (#)	325	1	0	0
BATTERIES, NI-CD (#)	5	1	0	0
BATTERIES, LITHIUM (#)	33	1	0	0
ELEMENTAL MERCURY (#)	5	0	0	0