CASE WESTERN RESERVE UNIVERSITY DEPARTMENT OF OCCUPATIONAL & ENVIRONMENTAL SAFETY (DOES) SAFETY SERVICE OPERATIONS ANNUAL REPORT 2006-2007

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SAFETY SERVICES
ANNUAL REPORT 2006-2007

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INTRODUCTION

This report is submitted to the President and designated members of the senior administration of Case Western Reserve University (CASE), as required by the Laboratory Safety Committee (LSC) Operating Guidelines. The report summarizes the activities of the Safety Services branch of the Department of Occupational & Environmental Safety (DOES) at the University. Its contents cover the period from July 1, 2006 through June 30, 2007.

LICENSES/ REGISTRATIONS

CASE 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	6/30/2008	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	11/18/2007	Animals/ Plants and Humans/ Bovine Spongiform Enchemlopathy (Prospective)
1801-0969-R00007	Ohio Department of Commerce	6/30/2008	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

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, Biomedical Research Building (BRB) and Wolstein Research Building. The following premises are registered as generators of hazardous waste: DOA990, Morley, Millis, University West, Cedar Avenue Service Center, Wolstein Research Building, and West Campus (formerly Mt. Sinai).

EPA/ RCRA INSPECTION

There were no EPA/ RCRA inspections of the University during the fiscal year. On June 17, 2003, the Ohio Environmental Protection Agency (OEPA) Hazardous Waste Division inspected the facilities suggested only minor programmatic modifications and assessed no violations.

OSHA COMPLAINTS

There were no OSHA complaints at the University during the 2006/2007 fiscal years.

INFECTIOUS WASTE TREATMENT FACILITY INSPECTION – AUTOCLAVE

The Sani-pak autoclave system was put into place in the late 1990's to treat infectious waste on site. As a result of this treatment, the resulting waste can be disposed of directly into a solid waste landfill rather then burned in an incinerator. This approach saves significant dollars over incineration as well as helps to reduce greenhouse gas emissions by not releasing the carbon bound in the waste to the atmosphere.

Part of the local EPA and City of Cleveland responsibilities, with regards to infectious waste, is to audit each treatment site. These audits did not occur over a 9-year period of time. As a result, the EPA brought the City of Cleveland Health Department to Case Western Reserve University for a comprehensive audit of all biohazardous waste activities on the campus. A series of minor paperwork and sign related issues were identified and fixed during the process. An additional item involving modification of the way the Sani-pak records times and temperatures was also noted and corrected. Since its original inspection, the City of Cleveland and EPA office returned for a second inspection. At this time some additional changes were requested that involved installation of an additional spill response kit and a first aid station in a temporary waste room. All matters identified were acted upon within in a few weeks of the inspection and the facilities were declared to be in compliance.

SAFETY SERVICES PROGRAM: RESPONSIBLE PARTIES

MANAGEMENT

Safety Services provides support for the safe use of chemical and biological agents. The Department reviews procedures, responds to incidents involving chemicals and biologicals, and assesses the laboratory infrastructure that affects safe experimentation. 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 Laboratory Safety Committee (LSC) serves as an advisory committee to the Department of Occupational and Environmental Safety (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 recommends 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 established and 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)

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

PROTOCOLS	06/07	05/06
Chemical Carcinogen Use in Animals – Supplement B	23	32
Pathogen Use in Animals – Supplement C	29	49
TOTAL	52	81

LSC MEMBERSHIP

The 2006-2007 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

Morris Burke, PhD. Professor Dept. of Biology Millis 109 Term Expires: 9/9/2007 Retired: 6/30/2007	Clive Hamlin, PhD. Associate Professor Dept. of Pathology Pathology 204 Term Expires: 10/1/2010 Chairperson: 10/1/2010	David Samols, PhD. Professor & Chairman of CASE Biosafety Committee Dept. of Biochemistry HG Wood 475 Term Expires: 10/1/2010	W. David Sedwick, PhD. Professor & Director of DOES Dept. of Medicine Service Building, 1st Floor
Yu-Chung Yang, PhD. Professor Dept. of Pharmacology HG Wood 348 Term Expires: 10/1/2010	William Durfee, DVM Asst. Professor & Director Dept. of Veterinary Research Services Animal Resource Center Term Expires: 10/1/2010	Anna-Liisa Nieminen, PhD Professor Dept. of Anatomy Wolstein 3134 Term Expires: 9/1/2007 Left CASE: 6/30/2007	Christina Hirsch, PhD Asst. Professor Dept. of Infectious Disease BRB 10 Floor Term Expires: 10/1/2010
Thomas Blanchard, PhD. Associate Professor Dept. of Pediatrics Horwitz Tower 8414 Term Expires: 9/1/2007 Left CASE: 1/31/2007	Thomas Gray, PhD. Asst. Professor Dept. of Chemistry Millis 418C Term Expires: 9/1/2008	Andrea Romani, PhD. Asst. Professor Dept. of Physiology/ Biophysics Med East 547 Term Expires: 9/1/2008	

EX-OFFICIO MEMBERS

Kenneth Basch Vice President of Campus Planning and Operations Adelbert 329	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
Carol Dietz Director of Facilities Management & CASE School of Engineering Nord 502	Richard Jamieson Vice President of Campus Services Crawford 215	Kimberly Volarcik Director of Research Administration Sears Library
Marc Rubin Assistant Director & Chemical Safety Officer of DOES Safety Services Service Building 1st Floor	Felice Porter DOES Quality Assurance Specialist Service Building 1st Floor	

SUPPORT STAFF

Shirley Mele Office Supervisor - DOES Service Building, 1st Floor	Virginia LaGuardia Department Asst. - DOES Service Building, 1st Floor

During the fiscal year covered by this report, the Committee met on two occasions. Major topics considered by the LSC included:

- Presentation of Safety Services Annual Report
- Review of Previous Issues
- Internal Audits
- Departmental Accomplishments
- Introduction of New Members
- Assignment of 2007 Audits
- Review of Audit Activities
- Certification Program for Hazardous Material Shipping (DOT)
- New Packaging and Shipping software for IATA Program
- New Mercury Thermometer and Switch Program
- Fire Safety Program
- Incidents
- Anesthetic Gas Exposures and Resolution
- Committee Replacements
- Homeland Security
- Hazardous Materials Security/ Communication Training
- Emergency Plans

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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)
2nd shift Specialist (1)
Student (1)
Quality Assurance Specialist (1)
Construction & Plant Safety Specialist (1)

Safety Services continues to recruit individuals to Specialist positions 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. Two Specialist positions were filled with new individuals for Safety Services during the past year. These new staff members have an Environmental & Occupational Health background.

The Analyst Programming Specialist maintains the Departmental Homepage and databases. Safety Service operations are carefully monitored by the Quality Assurance Specialist. This individual also administers the DOES Liaison Program and the Laundry Program.

TRAINING AND PROFESSIONAL DEVELOPMENT

All Specialists receive job specific training from experienced personnel in the department or from outside training organizations. Specialists also attend training programs offered by outside experts that provide required certification for a number of new changing areas covered by our programs. Cross training is an important element of DOES programs that provides our responders with a broad range of capabilities for handling routine and emergency incidents. Cross training has also allowed the Radiation Safety Staff to become involved in non-radiation laboratory inspections and hood re-certifications and has provided Safety Services staff with the skills to handle routine problems involving radioactive materials, thus enhancing the overall response profile of DOES. Special training obtained by Staff members in 2006-2007 is listed in Table 1 & 2 of the Appendix.

SAFETY LIAISON PROGRAM

As part of the Safety Liaison Program, staff members visit all University buildings with laboratories to increase awareness of Departmental services and foster stronger relationships between staff members and the research community. This program includes quarterly visits to all buildings. Effective communication and a better understanding of issues that require attention throughout the University community are vital to the success of DOES programs.

LAUNDRY PROGRAM

To ensure that laboratory coats and uniforms are laundered regularly using the appropriate temperatures for disinfection, the Laundry Program was developed. Laboratory coats and uniforms are laundered by Merchants Linen Services, a private dry cleaning contractor. DOES administers a laundry service program to ensure that laboratory coats are serviced and provides an alternative to domestic and public laundry cleaning. It is strongly recommended that researchers and their personnel use the service on a monthly basis. Currently, greater than 100 researchers from 62 departments utilize the service monthly, cleaning an average of five pieces each month.

DOES EMAIL

The DOES Email (does@case.edu) has become a frequently used safety resource. Since implementing the email, the number of inquiries and safety concerns reported from CASE personnel continues at an average of 11 emails per day. This email communication has resulted in improved follow-up of issues reported.

DOES WEB SITE

The DOES home website (http://does.case.edu) 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 2006-2007 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:

- Eye Injury Prevention: Knowing the Basics
- Career Overtakes Finances as Leading Cause of Stress
- OSHA Issues Citations in Biosafety laboratory case
- Media Accounts Led to Investigation
- Paperwork Burden Eased by Hazardous Waste Program
- Construction Safety—Important Reminders
- Eye Injuries under the BLS Microscope
- What Can I Do if an Employee's Disability Creates an Unsafe Situation?
- Nanotechnology: New Study on Workplace Safety Practices Released
- Physicians' Extended Work Shifts Associated with Increased Risk of Medical Errors That Harm Patients
- Ergonomics Series Part 1—Tips to Consider While Working at Your Computer
- Reminders for Handling Flammable Chemicals Safely
- Carbon Monoxide—Stay Safe at Work and in Your Home
- Ergonomic Series: Part 2—Office Ergonomic Tips

- Workers behind the Wheel Need to Learn How to Avoid Trouble, Not Just Manage It
- Eating Food in the Lab—A Dangerous and Illegal Habit
- Where is DOES?
- Proper Storage of Flammable Chemicals—Reminders
- Summer Cleaning for Safety's Sake

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.

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 CASE employees have a general awareness of services provided by DOES. This program establishes job exposure related safety-training classes that employees must attend. The goal of this program is to emphasize the importance of safety on campus from the start of employment at CASE and to encourage new faculty and staff to advocate safe working practices. Weekly Staff Orientation sessions were conducted for new employees. As part of this program, CASE faculty members were contacted on an individual basis and were provided with information concerning safety.

ORIENTATION	06/07	05/06	04/05	03/04	02/03
New Employees	380	561	750	715	565
New Faculty	85	63	56	32	20

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 Internet 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 University employee-specific required 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. CASE's temporary worker service, Kelly Temporary Services, trains temporary employees using SSOF training documents in Laboratory Safety and Bloodborne Pathogens as part of this program.

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 specifically tailored safety training.

LABORATORY SAFETY TRAINING

Laboratory Safety Training is given to all personnel that 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 NYSP, SPUR, SURP, Upward Bound, CLIPS, and Equinox Summer Programs.

BLOODBORNE PATHOGEN TRAINING (BBP)

Materials containing and/or likely to contain Bloodborne Pathogens are widely used in CASE laboratories. BBP training included compliance awareness and implementation of required vaccination and health monitoring programs.

BSL3 TRAINING

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

DOT/IATA SHIPPING TRAINING

Personnel involved in preparation of 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 three years or every two years respectively 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. One hundred fifty six individuals were trained in Vehicle Safety over the past year.

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.

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 so that all shifts can be accommodated. Three training sessions were developed and offered for Plant personnel every month, training an average of 60 personnel.

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, such as confined space, hot work, tow motor, ladder safety, and other training presentations.

FACILITIES AND EQUIPMENT

CASE 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 CASE for the 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	Wearn
White	Wickenden	UCRC II
VA Hospital	MetroHealth	CCF- Walker
Wood Research Tower (RT)	Wolstein Research Building (WRB)	

LABORATORIES

CASE Safety Service programs monitored approximately 1300 laboratories in 38 laboratory buildings on its 108 building campus. These laboratories are located in four hospitals, the CASE Quad and the Medical, Nursing, and Dental School facilities.
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 recirculation of air is generally avoided in laboratories. . Laboratories are generally constructed to at least Level II containment specifications. Laboratories are required to stock needed decontamination supplies and 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:

State-of-the-art computer hardware and software are crucial to handle the amount of data required to ensure efficient and quick access to records in the SSOF. For example, a Smart Board System augments the in-house training program allowing our trainers to directly demonstrate the use of the on-line database and training materials. This training equipment also provides direct access to library services and campus maps during training, staff meetings and emergency responses.

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

The following maintenance was accomplished this fiscal year:

Hardware Maintenance

- Set up new PCs
- Replaced three power supplies on old Dell computers
- Switched hard drives on old PC
- Replaced failed hard drives on server
- Retrieved information from failed WebSTAR server

Software Maintenance

- Restored compromised server to functioning order after December 2006 attack
- Re-RAID and install new operating system on server
- Secure new server against further attack
- Set up new user accounts for secure server access for DOES personnel
- Diagnosed compromised PC and reformatted the PC
- Fixed Palm Pilot file access issue

An important achievement over the last year involved transition of the Department of Occupational and Environmental Safety to Employee ID numbers in lieu of Social Security Number in their training program. Complete transition has been implemented for most areas, but transition of some data is still ongoing for some specific databases. The urgency of this transition was illustrated when the main DOES server was compromised by a hacking attack in December 2006. At this time, all critical data was removed from the vulnerable computer system and the system was restored with a new operating system and much stronger security measures. In this effort, DOES enjoyed the help and advice of the University Information Security Department, which was able to verify that no data was leaked during the period when the system was affected.

<u>Chemical Laboratory:</u>

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

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 the Med East (Robbins), Wearn, and Wolstein Research buildings. Conventional animal care facilities are available in 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, 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 an ABSL-3 laboratory 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 19 industrial hygiene, respirator, ventilation, noise, and lighting instruments are maintained. Table 7 of the Appendix lists instruments maintained for the Safety Service Program.

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 and biological concerns and to measure the progress and depth of compliance in the University laboratories. Each researcher is contacted at the time of inspection. 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. Non-compliance in laboratory settings is dropping significantly. Corrections in most cases were achieved due to staff perseverance with the investigators to work out reasonable methods to eliminate deficiencies.

CASE has more than 787 Principal Investigators (PIs) authorized to use chemical and biological materials in 4,676 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 locations are found 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 include University Hospitals (UH), Metro Health, Cleveland Clinic Foundation (CCF), and Veterans Administration (VA) Hospitals. Squire Valleevue Farm and Valley Ridge Farm, University owned property, are also inspected or audited through cooperation of the safety groups of these institutions. The Inspection Program

for Chemical Safety compliance also investigates and resolves biological safety compliance and hazards.

Cross training of the Radiation Safety specialists 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 2006/2007 are presented in Table 8 of the Appendix.

Safety problems found during the 2006 inspections were followed-up and audited to increase compliance. In 2007, inspections have demonstrated that this procedure achieved better compliance and resulted in fewer repeat violations.

CORRECTED BY	# OF VIOLATIONS CORRECTED	PERCENTAGE
Laboratory	2620	63%
DOES	877	21%
Facilities	551	13%
Security	126	5%
Total	4174	100%

Further expansion of the inspection results is shown in Table 9 of the Appendix.

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 1,000,000 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.

Communication methods were also evaluated with regards to Right-to-Know issues related to construction. To this end, DOES populates an electronic posting board on the DOES website with MSDS sheets for each long-term construction project, as required by OSHA.

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	06/07	05/06	04/05	03/04	02/03	01/02
CHP	194	159	42	21	24	7
ECP	49	33	35	19	23	4
TOTAL	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 and habits. The results of this survey dictate what monitoring is required. Initiation of the assessment technique for regulated chemicals consists of a questionnaire attached to a quiz for new training programs. All new employees must attend initial Regulated Chemical Training and any employee using a regulated chemical must take the annual online retrain. An audit of the Chemical Hygiene Plans of researchers is summarized in Table 10 of the Appendix.

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 2006-2007.

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 was 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

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.

Eight IAQ complaints were investigated in the Art Studio, Bingham, Med East (Robbins), Wood, Nursing, BioEnterprise, Kelvin Smith Library and BRB buildings. Follow-up included assessment of questionnaires, performance monitoring, contracting for in-depth monitoring, analysis of EA Group results, and presentation of summary reports.

Of the Eight IAQ complaints, two were discontinued due to no response from the original complainant. The six remaining complaints were followed up by DOES monitoring. This included monitoring for exposure to anesthetic gases, which was raised as a particular concern over the past year. Following this assessment DOES recommended use of approved scavenging systems that were demonstrated to be effective in preventing anesthetic gas exposures when implemented following tested procedural guidelines. All of these measures were coordinated with the IAUCUC Committee, the Animal Resources Center, Plant Services and Customer Services.

ENVIRONMENTAL MONITORING

The complexity of water quality is reflected in current monitoring required for assessment of water 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), in direct contact with 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.

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. There were 6 water sampling requests concerning the ARC Renovation Project. Three types of samples were taken. There were 2 requests made for Total Suspended Solids (TSS) sampling, 2 requests for metal sampling, and 2 requests for Coliform sampling. All sampling and analysis of results was done by EA Group.

Total Suspended Solid Analysis including heavy metal and bacterial testing were also carried out.

ANESTHETIC GAS MONITORING PROGRAM

Concerns following anesthetic gas monitoring over the past year led to development of a new anesthetic gas-monitoring program. The anesthetic gas and vapors that leak into the surrounding room during medical procedures are considered waste anesthetic gases. People who work in hospitals, operating rooms, dental offices and veterinary clinics, might 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, among operating room staff or their spouses (in the case of miscarriages and birth defects).

In anesthetizing locations, where employees are at risk of exposure to waste anesthetic gases, exposure may be 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.

ANESTHETIC GASES/ VAPORS	TOTAL
Air	1
Carbon Dioxide	1
Ether	2
Diethyl Ether	1
Isoflurane	44
Enflurane	1
Halothane	3
Nitrous Oxide	4
Total	57

In support of this program, questionnaires were sent to 100 PIs using anesthetic gases to verify use and the conditions associated with use. The program is ongoing and will continue to be a special focus during the coming year. An outside contractor also independently employed to evaluate a laboratory of concern during the initial phases of this program.

ASBESTOS MONITORING

Asbestos monitoring is addressed on a per case basis. EA Group sampled 62 asbestos projects and analyzed them. Of the 62 cases, DOES made 24 requests for laboratories and 38 requests were made for field projects. Reports were written assessing the results and sent to the concerned parties. 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.

BIOAEROSOL MONITORING

The Semi-Annual Bioaerosol Monitoring Project was suspended during the past year because it was felt that enough historical data had been gathered and that this program could be curtailed as a cost savings measure. Monitoring continues to be conducted on a case-by-case basis. 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 grout 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.

Two suspect areas were sampled and analyzed using a new sampling strategy (Air-O-Cell) monitoring. The Air-O-Cell spore trap sampler is a particulate sampling cassette designed for the rapid collection and analysis of a wide range of airborne aerosols that include particles. This sampler is specifically designed for mold spores, pollen, and all organic and non-organic particles. This sampling device is useful for rapid analysis of

airborne contaminants in indoor air quality testing. There was no evidence of any mold growth present in the areas.

LEAD MONITORING

Lead monitoring is addressed on a per case basis. For all projects positive for lead-based paint above EPA regulations, a request will be submitted to Customer Service or arrangements will be made by DOES to have the area remediated by an approved contractor. There were 5 cases of lead sampling for the 2006/2007 period. Overall address of IAQ issues is illustrated in Table 11 of the Appendix.

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. Chemical protection is only required by a few laboratories. 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. Additional respiratory protection devices are sometimes worn by workers and students on a voluntary basis in anatomy classes and by Animal Resource personnel who attend to animals in the ABSL-3 facility. In the coming year, however, this program will be significantly expanded as part of pandemic influenza planning for the University.

The Respirator Protection Plan includes:

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

An inventory of respiratory protection equipment was carried out including 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 been accepting responsibility for cartridge replacements for the Medical school personnel.

Sixty-four workers were trained and reported for Physical Evaluations. Those workers that do not report for physicals are not able to wear respirators and are actively encouraged to complete their certification. The 64 workers that were trained were also fit tested for active use. Workers who do not receive a fit test are users of powered air purifying respirators (PAPR). Use of this type of respiratory protection for this group of workers does not require fit testing. Most of Plant Services falls into the PAPR user category. The statistics of this program are shown in Table 12 of the Appendix.

HOOD CERTIFICATION PROGRAM

The objective of the chemical hood program is to provide velocity testing to assure that the existing chemical hoods previously ASHRAE tested have remained in the same condition under which they were certified. In doing so, DOES is able to provide a much greater measure of safety and security of the chemical hoods in the absence of yearly ASHRAE testing than if ASHRAE testing had not previously been performed. DOES will re-establish the ASHRAE program next year in order to maintain this level of assurance.

All chemical hoods have been ASHRAE tested once. Based on this procedure the ASHRAE test is 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 average face velocity above 120% of the benchmark velocity requires additional ASHRAE follow up to assess hood performance.

Two velometers with data download capabilities were obtained for annual face velocity tests. Implementation of the use of acetic acid based smoke tubes and aluminum tanks for SF_6 has been effective. Software for developing real time computer analysis of ASHRAE was obtained and an excel program for the VelGrid velometer was written. Twenty-six work order requests were initiated with Facilities for chemical hoods that were performing below par and needed repair.

Face velocity tests were conducted on 744 chemical hoods, while ASHRAE 110 tests were done on 13 chemical hoods. Certification of chemical hoods by Safety Services that were located in off-campus facilities was transferred to University Hospitals (155) MetroHealth Hospital (40) 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 a 23% reduction (214) in chemical hoods re-certifications. Currently 74% of the annual velocity test schedule of chemical hoods was completed.

As an Energy Platform for DOES along with Facilities Management, the “Shut the Sash” initiative was promoted as part of the Sustainability Energy Savings campaign. 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 13 of the Appendix.

BIOSAFETY CABINETS AND LAMINAR FLOW HOODS

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

BIOHOODS	06/07	05/06	04/05
RECERTIFY	234	274	142
REPAIR	25	31	16
TOTAL	259	305	158

CLEARANCE/ RELOCATION PROGRAM

DOES coordinates safety clearance of equipment that needs repair or belongs to researchers that are relocating or terminating a laboratory. The disinfection and decontamination process for equipment and Biosafety cabinets, chemical and biological waste disposal, and communication with professional movers and researchers is done efficiently and effectively by DOES staff to ensure safe transition of materials and equipment to the new location as well as proper maintenance of the existing location.

The implementation of the Clearance Program centralizes the process of equipment and maintenance surveys. Revision of Laboratory Relocation and Termination Procedures was completed and used for moves, departures from CASE, and Safety Clearances. There were 458 Clearance forms issued, which represented approximately 877 pieces of equipment. This equipment was either moved or discarded during the 2006/2007 fiscal years. There were 45 Primary Investigators (PIs) representing more than 100 research laboratories that relocated for such purposes as decommissioning, renovation, relocation or termination. The ARC Reconstruction Project is included in the demolition and relocation totals shown in Table 14 of the Appendix.

MOVE TYPE	AMOUNT
TERMINATIONS	16
RELOCATIONS	29
TOTAL	45

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), through regulations found in the Code of Federal Regulations (CFR) 49, The International Civil Air Organization Regulations (ICAO), International Air Transportation Association Regulations (IATA), specific carrier restrictions, and regulations specific to countries involved with international shipments, governs the shipment of regulated hazardous materials. The regulations are very precise as to how such materials must be packed, labeled and transported and, therefore required specific training reinforcement for involved employees. (See Table 15 of the Appendix for the DOT/ IATA Shipping Trends.) ChemTrek was maintained as the emergency responder for shipments originating at the University.

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 16 of the Appendix.) Only minor violations of required security procedures were found, which were documented and reported to the researcher to prevent occurrences in the future.

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 17 of the Appendix.) Injury Investigation and reporting has been reestablished. Formal interviews are conducted along with follow up. Preventative measures are documented and the record is sent to the Risk Management department.

The number of serious incidents has decreased over the last year; however, the number of minor incidents has increased slightly. Observation and analysis of these incidents is trended as time permits to identify patterns. An example of this is the observation of needle sticks. As driving issues are identified, they are added to the list of trended items that are monitored. The complete spectrum of incidents is listed in Table 18 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 reduce the FM Global Insurance recommendations concerning the safety of the University. Follow up of specific safety concerns were completed and documented revealing 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 security levels of post 911 and the 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, DOES has begun to assemble a collaborative network with Cleveland Fire, Cleveland Police, University Heights Police, University Hospitals, and the County Emergency Medical Association (EMA). DOES 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

All emergency response vehicles and response equipment are checked and maintained regularly. Table 19 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 was one researcher added over the last year that is 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 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 is 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. Thirty-eight individuals, involved in this program underwent background checks and fingerprinting carried out by the Federal government and were authorized to enter the facilities. 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

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 2006 and correction of minor programmatic defects was completed in December 2006. The Select Agent License renewal is due in November 2007 and all the necessary paperwork and the mandatory Site Inspection by APHIS was completed on March 30, 2007. 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.

FIRE INSPECTION PROGRAM

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.

FACILITY INSPECTIONS

The DOES participates in the 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 inspects Underground Storage Tanks (UST) that may be found on properties owned by the University. No property assessments were completed this year. One UST is housed at the Wolstein Research Building. An outside contractor inspects the UST once every three years. 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. Twelve individual office assessments were completed in 2006-2007. Suggestions were made on how individuals could improve their 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.

NOISE LEVEL MONITORING

In an attempt to identify and resolve possible noise hazards on campus, sound level monitoring is addressed on a per case basis. 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.

This full-scale Noise Management Program includes training, managing a program for audiometric tests for employees, PPE selection consulting and PPE use training, OSHA compliance, and provision of engineering control methods to reduce noise levels. To improve the quality of noise measurements, a new Sound-Pressure Level Meter (Quest) with noise analyzer was purchased. Standard Operating Procedures are being developed for sound level meter use during field monitoring.

Noise monitoring in response to a request by an employee was conducted on one occasion in the Medical school office area after an employee complained of excessive noise levels in their work environment. After monitoring the area it was determined that there no noise levels exceeded regulatory guidelines (Neither the OSHA Hearing Conservation (OSHA HC) limit of 85 dB for an 8-hour Time Weighted Average (TWA) was not exceeded nor the OSHA Permissible Exposure Limit (OSHA PEL) of 90 dB for an 8-hour TWA requiring the use of engineering controls to reduce noise levels was exceeded.)

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 currently developing Standard Operating Procedures for safe operation in each relevant plant safety area.

PLANT SAFETY INFRACTIONS

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 28 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. Thirty-three permits for entry were issued this year.

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 hundred and fifty seven short-term permits were issued. Long-term permits that extended over one month were issued that required weekly inspections. Due to the increased volume of Hot Work Permits, DOES will review only Contractor Hot Work permits in the future since the amount of campus construction will decrease during the fiscal year and the Facilities Department will oversee 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 20 of the Appendix.

CONTRACTOR OVERSIGHT

The Plant Safety Specialist carried out on-site inspections and monitoring of contractor safety practices and programs. Contractors completed more than 181 projects with oversight by a DOES representative. 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 was reviewed and revised to include all types of contactors and personnel that carry out construction on CASE property. Three hundred twenty eight contractors were trained in this program.

EPA AND WASTE DISPOSAL PROGRAM

ENVIRONMENTAL RELEASES

The Northeast Ohio Regional Sewer District (NEORSD) 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 2006 was filed on February 2007.

Water testing for nitrates and nitrites were performed in the dormitories on the southern half of the campus during the month of December 2006. The assessment included collection of 72 samples, summary of results, and distribution of reports to the facility coordinator for the dormitories. There were 18 residence halls sampled, including 9 residence halls on the North campus and 9 residence halls on the South campus. Four samples were taken in each location. No regulatory exposure levels were exceeded.

Overall, waste collection at CASE continued to increase during the 2006-2007 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 669 Hazardous Waste Forms from 2006-2007 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.

STATE MEDICAL WASTE

Stericyle (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 8,689 containing a total 219,256 pounds of waste for the fiscal year.

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 indicates 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. All infectious waste treated in the SaniPak Autoclave equaled a total poundage of 312,500 and was transported by Waste Management Industries (WMI) to the American Landfill. Stericycle incinerates the remaining waste.

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 collected from the main campus Complex. Currently the following waste streams are recycled on the campus:

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

Fifty-two Bills of Lading were collected for recycled material. Environmental Recycling collected the University's Flourescent Bulbs.

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 21 & 22 of the Appendix.

MANAGEMENT CENTER WASTE DISTRIBUTION

MANAGEMENT CENTER	ARTS/ SCIENCE	ENGINEERING	DENTAL SCHOOL	MEDICAL SCHOOL
WASTE COST	$54,950	$41,808	$4,452	$431,601

WASTE COST	06/07	05/06	04/05	03/04	02/03
ARTS/ SCIENCE	54,950	47,250	41,746	51,961	112,064
ENGINEERING	41,808	28,485	64,292	37,952	71,723
DENTAL SCHOOL	4,452	4,735	4,238	2,335	5,475
MEDICAL SCHOOL	431,601	547,094	471,374	413,696	138,999

SAFETY SERVICES
ANNUAL REPORT 2006-2007

SUMMARY

DEPARTMENTAL STRENGTHS

The SSOF operations requires a staff with broad and diverse backgrounds that can address and resolve a wide range of issues faced in Chemical and Biological Safety at CASE. 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. Further, DOES's relationship with outside agencies has augmented the quality of its environmental programs.

ACCOMPLISHMENTS FOR 2006-2007

Notable new accomplishments included:

- Significant attention was directed toward solidification of EPA programs for all programs with particular attention paid to simplifying waste handling in laboratories through provision of satellite containers and training of laboratory workers to utilize satellite container rules when storing waste before its disposal by the University's waste handling vendor. This program has resulted in a significant reduction in areas liable to assessment of violations by regulating authorities through mislabeling of containers and incorrect storage of chemical waste. The rest of the EPA program was also reviewed for any deficiencies and alterations in the program made wherever improvement was needed. Plant Services and the Safety Department's Waste Management Coordinator worked effectively together to ensure that waste areas and accumulation sites meet mandates of all EPA regulations on a continuing basis. A special emphasis was placed on managing DOT and IATA shipments of hazardous materials to ensure compliance in this important area of safety management.
- Plant services personnel and administrators responsible for setting the schedule for laboratory moves throughout the University worked effectively together to ensure that an exceptionally large number of laboratory moves could be accomplished smoothly.
- The laboratory inspection program was given special emphasis in 2006 that continues into 2007. Because of this emphasis, Safety Services completed a complete inspection survey of all laboratories in the University and achieved its highest historical level of compliance follow-up in this program.
- In coordination with Plant services, a program for ensuring that contractors work under safe conditions was developed that places more responsibility for safe practices on the contractors in a context of audit by DOES.
- A hearing program for exposed employees entered its second year and provided for ongoing hearing tests and follow-up for University Employees. In coordination with Plant services, a program for ensuring that contractors work under safe conditions was developed that places more responsibility for safe practices on the contractors in a context of audit by DOES.
- Joint training sessions with outside trainers between plant services, construction and development and DOES were carried out to ensure that all involved employees understand their safety obligations.
- The Safety Services worked throughout the year with the Departments 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.

- Additional training in National Incident Management Systems was obtained to better prepare DOES staff member for incident response and to improve their ability to respond to large disasters that might be imposed by events such as long term power failures and pandemic influenza.
- Enhanced programs in Pipeline and Department of Transportation (DOT) and International Air Transport Authority (IATA) training and shipping were developed and implemented. This program is now the responsibility of a transportation specialist and a backup specialist who will work with all University personnel to solve shipping problems and to ensure that shipping of hazardous materials occurs in compliance with government regulations.
- The process of review continued for all Safety Services programs.

GOALS FOR 2007-2008

The principal goal for 2007-2008 will be to review all programs and to re-examine or establish appropriate metrics and benchmarks for these programs. Clearly, one of the important benchmarks is established by outside regulatory agencies for Case Western Reserve University's safety programs and it is clear from Inspection results in the first part of this new fiscal year that by these metrics, our programs are performing well. Just as important, however, are benchmarks and metrics that can be provided by our "customers", students, faculty and staff of the University, and by our partners in Plant Services, Protective Services and the University Administration. In this spirit DOES will approach the following goals in 2007-2008.

- DOES strives to improve both safety awareness and safety performance for the University as a whole. Success in these programs can be measured in terms of reduced numbers of accidents and fewer violations found during safety inspections throughout the University.
- Procedures for the laboratory inspection program will be reviewed and the goals and benchmarks of this program will be re-evaluated during 2007-2008.
- DOES provides a large number of training opportunities for University students, staff 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.
- DOES moves into its first year of its reorganized DOT and IATA program. Special attention will be paid 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. Attempts will be made over the coming year to consolidate these efforts and to provide for continuity of planning for large emergencies at the University.
- The Department as a whole will review all of its Standard Operating Procedures to provide for continuity in Departmental operations and as a basis for benchmarking of Departmental operations.
- The Department 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 Institution continue to thrive.

AUDITS

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

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

Seven areas were subject to audit during the 2006/2007 fiscal years. These included:

- Chemical Hygiene/ Exposure Control Plans
- Hoods
- Bloodborne Pathogen Program
- Industrial Hygiene and Indoor Air Quality Program
- Training
- Respirator
- Hazardous Materials Shipment & DOT Training

CHEMICAL HYGIENE AND EXPOSURE CONTROL PLANS

LSC AUDIT COMMENT

Two databases were found that did not always agree. It is recommended these be merged. A significant percentage of PIs are formally delinquent in providing updated copies of documents to DOES. It is recommended that a non-confrontational reminder mechanism be established. A similar situation exists with Exposure Control Plans, as with Chemical Hygiene Plans, not being uniformly forwarded to DOES by PIs.

SSOF RESPONSE

This program is audited during the laboratory inspection process. The auditor will be merging the two databases and maintaining them. Additionally, our internal auditor on a regular basis conducts audit of the Chemical Hygiene Plans and Exposure Control Plans.

HOODS

LSC AUDIT COMMENT

The program was found to be in good order. However, as of the date of this audit (May 16, 2007) 370 of 715 chemical hoods and 175 of 350 biological hoods were not compliant in terms of recertification.

SSOF RESPONSE

Following the hood schedule, the data is consistent with where the hood-testing program should have been at the time of the audit. This program is audited during inspections to find hoods that might have fallen off the schedule.

An outside company tests biological safety hoods. DOES only facilitates putting the PI and the company in contact. This program is audited during inspections.

BLOODBORNE PATHOGEN PROGRAM

LSC AUDIT COMMENT

Records were in good order and easily accessible. As of the date of this audit (March 1, 2007), 32 PIs and 418 other personnel were late in meeting the annual retraining requirements.

SSOF RESPONSE

The personnel that were past due in training were contacted and training for most of these individuals was updated by the time of this report. Delinquent personnel receive reminders alerting them that their experiments in specific areas where training is incomplete in the laboratory program must be discontinued until training is updated. Further, no new animal protocols are approved until all involved personnel are up-to-date in all training areas.

INDUSTRIAL HYGIENE AND INDOOR AIR QUALITY PROGRAM

LSC AUDIT COMMENT

The program was found to be operating well, and no suggestions for improvement were made.

SSOF RESPONSE

No response required.

TRAINING

LSC AUDIT COMMENT

All employees, including faculty, are included in the program and it was found to be in good working order. A good system for identifying individuals in need of training is in operation. During the past year 4276 were trained in Laboratory Safety, 246 in Hazard Communication (Right-To-Know), and 1586 in Bloodborne Pathogen training.

SSOF RESPONSE

No response required.

RESPIRATORS

LSC AUDIT COMMENT

The respirator program was found to be a well-run program. Only one deficiency was noted involving a piece of equipment for which calibration was out of date for 2 months.

SSOF RESPONSE

The past due piece of equipment was mailed to the vendor for calibration.

HAZARDOUS MATERIALS SHIPMENT & DOT TRAINING

LSC AUDIT COMMENT

Training and record keeping within DOES are well organized. However, record keeping within individual laboratories is not always up to standard. It is suggested that individual laboratories be required to demonstrate acceptable record keeping before re-certification is granted.

SSOF RESPONSE

The DOT Specialist will concentrate more on the training of these individuals in record keeping for the laboratory safety standard programs.

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

This year, in response to internal audit findings, Safety Services continues to improve its procedures and programs. Internal Audit of the following Radiation Safety Program was conducted during this fiscal year:

TRAINING

Recommendations

- Ensure that all required training is current and accurate
- Ensure that all Radiation, X-Ray, and Laser Safety Personnel on the DOES staff have also attended Laboratory Safety or Hazard Communication Training
- Ensure that all personnel that required a respirator have completed annually a medical questionnaire, respirator training, and respirator fit testing
- Ensure that auxiliary workers (Plant, Custodial, Materials Support, Grounds, Security, are current in required training annually

SSOF Response

This is a multi-step process involving interactive feedback with review of materials on at least a yearly basis by the instructors, and constant updates when regulatory changes are mandated. Additionally, the format of the training is based on the media in which it is presented. For in-person training, handouts, props, and other items exhibit items are used to increase interest and retention of the material being taught. For on-line retraining, voiceovers, movies, clips, and other non-static items are increasingly being employed.

Review and follow-up to ensure up-to-date training of Safety Services personnel in Radiation, X-Ray, and Laser Safety will be carried out on a monthly basis by the SSOF to ensure that all have attended the appropriate training. The DOES Radiation Safety Group trains all users of radioactive materials, radiation producing materials and lasers at the University.

There are now several groupings of respiratory users; Plant Services, DOES, Laboratory, BSL3, and Pandemic Flu. Each of these groups has its own list of individuals that are tracked in the DOES training database.

A Construction/Plant Specialist covers the respirator use training needs of the Plant Services group, and a Specialist for the Respirator Program tracks all of the other groups using respirators on the campus. Fit testing is conducted by the Respirator Program Specialists. DOES is striving to move as much of the retraining/fit testing program as possible to a common date. At the present time, each person has a different training. This situation complicates tracking for assurance that all required training is completed within each year.

A new use group, prospective Pandemic influenza responders, has been added to the respiratory program. This involves nearly every person in the Administration. At present, physical evaluations, training, and fit testing is being conducted. The majority of these users will be completed by the end of this fiscal year.

A side benefit of the Pandemic Flu N95 training is that nearly all Administrative personnel will have completed the medical and training portions of the respiratory program. This adds flexibility to the Security and Plant groups in that only a fit test is required to fit them with additional types of respiratory protection such as half and full-face respirators.

The above listed administrative entities will be trained in groups by DOES Specialists during pre-scheduled monthly training schedules. A topic list will be developed and published each year to cover the required training sessions. Training sessions will be held at the Cedar Avenue Service Center.

Additional specialized training with smaller groups will be held on the following topics: Biowaste Handling, Select Agents, Radiological Awareness, Tow Motor, and Lift Truck.

HAZARDOUS WASTE DISPOSAL

<u>Recommendations</u>

Clarify pink sheet waste tracking form entries:

- Ensure that the return date is stamped on the pink sheet
- Ensure the shipped date on pink sheet is the same as on the manifest log.
- Ensure that return date is on manifest log
- Ensure that pink sheets are filed properly

SSOF Response

When hazardous waste is picked up from the laboratories, the pink sheets are returned to the office with all signatures in place. These sheets are given to the DOES administrative staff to be scanned into PDF format for storage on the DOES main server. Prior to scanning, the sheets are date stamped. Once the pink sheets are scanned, the sheets are bundled with the manifests that correspond to the dates of the waste picked up for disposal that is listed on the manifests. The required official records are the manifests, and the waste sheets only serve as tracking and inventory devices to ensure accuracy of the final Manifest form. This method of tracking has worked well with no errors for more than 10 years and is understood by all involved staff.

BIOHOOD PROGRAM (LCS)

Recommendations

- Ensure biohoods are recertified annually
- Ensure that LCS data matches the CASE log

SSOF Response

An outside certification company, LCS, conducts the testing of biohoods. It is the responsibility of the PIs to arrange to have their hoods tested by LCS annually. Test dates are noted during Laboratory Inspections. If test dates beyond one year are noted, the laboratory is notified to recertify the Biohood. The Quality Assurance Specialist reviews the test records sent by LCS on a monthly basis and checks to make sure the hoods tested meet the log of scheduled hoods. Only biohoods used with blood borne pathogens are required to be kept in certification compliance. For hoods requiring certification, an extra effort will be expended over the coming year to ensure that the LCS and DOES logs are coordinated.

LIAISON PROGRAM

Recommendations

- Ensure that the researchers in each building are surveyed for concerns on a quarterly basis
- Ensure that concerns are documented and resolved in a timely manner

SSOF Response

The Liaison program is designed to allow an informal communication mechanism between DOES and the research community. Each DOES staff member is assigned to a building with laboratories. This program was established to ensure that all laboratory workers know a Safety Department member they can call for quick action if any problems arise. The recommendations above define the goals of this program and every effort will be made to make sure these expectations are met in the coming year.
In this context, a formal report of liaison activities is due quarterly from each staff member. Additionally, the liaison acts as the advocate for the investigator to make sure that any issues that arise are addressed in a timely manner. The results of the action are document in the quarterly report.

STANDARD OPERATING PROCEDURES (SOP)

Recommendations

- Ensure that SOPs for each program are updated annually both in paper copy and on the website
- Ensure that a copy of all SOPs is in one location for easy reference
- Ensure that all SOPs have regulatory reference

SSOF Response

These recommendations are currently a focus of concerted effort in DOES. All SOPs are currently being reviewed and converted to a consistent format to facilitate this effort and a consistent cross-referencing index procedure is being implemented to facilitate use of the SOP resources. Each program is assigned a lead staff member. This person is responsible for review and update of the programs assigned to them. They are also responsible to make sure that the SOP's associated with their programs or areas of specialty are updated yearly.

Larger documents such as the Laboratory Safety Manual are updated during special focus meetings of the entire safety group coordinated by the Department Auditor.

All changes to training programs, SOPs, and manuals must be approved by the Director, Assistant Director, and program lead staff member prior to introduction into use.

All copies of manuals, SOPs, and other written policies are to be stored in a master binder and additionally on the DOES main server. Some special documents such as those under the Select Agents program are only located in a designated locked area for security.

CHEMICAL HYGIENE AND EXPOSURE CONTROL PLANS

Recommendations

- Ensure that CHP/ ECP for each researcher is updated annually
- Ensure that both the CHP/ ECP are complete when filed (template and list of chemicals, personnel, procedures, and precautions)
- Ensure that personnel listed in CHP/ ECP are current in training

- Ensure that researchers with regulated chemicals on chemical list receive a Regulated Chemical Questionnaire

SSOF Response

Each research group is required to update their CHP/ECP yearly. This is verified during laboratory inspections.

The content of CHP/ECP is not reviewed by DOES staff since it depends heavily on individual laboratory expertise, but it is reviewed to make sure that there is an appropriate response in each section.

When a yearly update is received, or at the time of inspection, training records for the members of a research group are verified to make sure they are current with regards to regulatory training obligations.

DOES keeps a list of all investigators. This list is used to generate a mailing list. Yearly, a questionnaire for regulated chemicals and select agents survey form is sent out to the research community. The responses are tabulated. If regulated chemicals or select agents are anticipated for use they are checked against existing databases of users. If new users are identified, they are contacted and instructed in compliance issues for these programs.

INSPECTION REPORTS

There are 45 buildings on the campus that are inspected by the DOES. Typically each building is inspected annually. However, inspections were limited to 24 buildings due to staff reduction. Of the 45 buildings, 24 were inspected either partially or completely during 2006. In 2007 DOES anticipates completion of inspection of all buildings. All areas of the building are inspected to ensure compliance with Federal, State, and Local regulations as well as CASE and the DOES guidelines.

The 24 buildings that were inspected include:
AW Smith, Bingham, Bolwell, BRB, CASC, CCSB, DeGrace Hall, FP Bolton (Nursing), Glennan, HG Wood, Lerner Tower, MacDonald, Med East (Robbins), Millis, Morley, Olin, RBC, Research Tower (RT), Sears Tower, Service Bldg., UCRC II, Univ. West (Bioenterprise), Wearn, White, & Wolstein.

The buildings that were not inspected include:
Art Studio, Bishop, CCF, Clapp, Clark, Dental, Hanna Pavilion, Health Services, Kent Hale Smith, Lowman, Mather Gym, Mather Memorial, MetroHealth, Pathology, Rad Waste Facility, Rockefeller, Sears Building, Squire Valleevue Farm, Strosacker, VA Hospital, West Quad, & Wickenden.

Correspondence is sent via email to each researcher that has not returned the inspection reports as stated in the Safety Services Internal Operating Procedure. Correspondence is sent at least three times then in the fourth correspondence the chairman is copied. In the fifth correspondence the DOES Director personally calls

delinquent researcher. In subsequent correspondence the Dean, Provost, and Vice President will be copied and requested to intervene.

By the end of 2006, the DOES inspectors had completed 2558 inspections that required procedural corrections and follow-up. By early 2007, essentially all of these issues were resolved.

Prepared by Felice Thornton-Porter on 9/21/2007.

APPENDIX

SAFETY SERVICES
ANNUAL REPORT 2006-2007

TABLE 1 - Training and conferences attended in 2006-2007 included:

- Introduction to Certification and Safety Cabinet Technology
- ASHRAE 110 Testing and Celeris (monitor) Workshop
- Level A Industrial Ventilation Design Certificate
- Sapphire and Thermomatch Miran Software Training
- DOT Hazardous Materials Refresher Certification
- First Responder Operations Training
- 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
- Institute of Animal Care and Use Committee (IACUC) 100 Training

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:

- Website was recoded so that key files now validate as HTML 4.01 Strict or XHTML 1.0 Strict
- Bandwidth was reduced about 50% by optimizing key HTML files and PDFs
- Supplemental MSDS page was added
- Chemical Hood Service form was written and automated
- Bloodborne Pathogen retrain was updated
- DOES newsletter PDFs were created, and old newsletters were archived and recoded
- Shipping links were added
- Building photos were redone
- Fixed the permissions (LDAP) issue with website, which has been a problem since 2005

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

- Online Chemical Hood Service Request Form
- Memo for No Food and Drink in CASE Laboratories
- Contractor Safety Awareness Training Outline
- Hearing Conservation Program
- Hot Work Program
- Stairways and Ladders Safety Program
- Powered Industrial Trucks Program
- Control of Hazardous Energy Sources (Lockout/ Tagout)
- Motor Vehicle Fleet Policy and Procedure
- Confined Space Entry Program
- Hazard Communication Program
- Picric Acid Hazards
- Safety Clearance and Research Laboratory Relocation or Termination Forms
- New Faculty Checklist
- New Employee Exposure Checklist

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

YEAR	COMPLIANCE ISSUES
2002	Procedures developed to properly track faculty, staff, and students upon hire for training and screenings Procedures developed to tract job status changes
2003	Identified various hiring avenues HIPAA (Social Security Numbers & Identification Numbers Contractor Safety Training Plant/ Custodial Safety Training Laser Safety Program
2004	Temporary Employees Hepatitis B Shots DOT/ IATA Noise/ Light Assessments Select Agents Program Protocol Compliance
2005	Training Volunteer/ Minor/ International Dependent Policy (High School Students) Summer Programs New Hire Exposure Form
2006	New Faculty Arrival Checklist Faculty New Hire Concerns Track University Vehicle Use Track causes of Accidents/ Injuries Track CASE Employees at satellite work sites
2007	Emerging Infections Committee DOT Hazardous Materials Shipment Driver's Training Program/ Commercial Driver's Licenses Laundry Service New Faculty Orientation Pandemic Flu Practice Scenario Faculty Termination Notification Evacuation Plans

TABLE 6 - Historical Training Trends

TRAINING	NEW USERS (class settings)	ONLINE
Hazard Communication	178	19
Laboratory Safety	826	1538
Regulated Chemical	826	894
Bloodborne Pathogen	515	885
Respirator	44	0
Vehicle Safety	156	0
Fire Extinguisher	75	0
Plant	70	0
BSL3	6	23
DOT/IATA Shipping	55	0
Contractor	328	0
Special Classes	395	0
TOTAL	3474	3359

TRAINING	06/07	05/06	04/05	03/04	02/03
Hazard Communication	197	118	276	272	52
Laboratory Safety	2364	1884	1754	753	940
Regulated Chemical	1720				
Bloodborne Pathogen	1400	1330	1001	859	910

Respirator	44	103	73	118	70
Vehicle Safety	156	98	128	135	
Fire Extinguisher	75	75	72	60	
Plant	70	240	280	282	
BSL3	29	38	39	49	
DOT/IATA Shipping	55	168	26	15	4
Contractor	328	422	118	190	80
Special Classes	395	396	207	195	90
TOTAL	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	11/11/2006
Mercury Vapor Analyzer (Jerome)	431-X	1835	Annually	12/17/2007
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	12/11/2005
Accuro (Hand Pump)		ARSE-FO23	Annually	Out of Service
Accuro (Automatic Pump)	2000		Annually	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	4/28/2006
Airchek 2000	210-2002	00503	Annually	4/28/2006
Airchek 2000	210-2002	00868	Annually	Out of Service
Pocket Pump	210-1002	07413	Annually	4/28/2006
Miran Sapphire (ASHRAE)	205B	205B-67068-357	Annually	12/9/2007
Miran Sapphire (UV Analyzer)	205B	205B-79375-398	Annually	4/1/2007
Shortridge Instrument (Velocity Meter)	ADM-870C	M04132	Annually	Out of Service
Extech (Light Meter)	407026	Q102498	Annually	Out of Service
VelociCalc Plus	8360	40110	Annually	Out of Service
VelociCalc Plus	8360	603016	Annually	Out of Service
VelociCalc Plus	8384A	57020273	Annually	2/12/2008
VelociCalc Plus	9535	0720005	Annually	5/1/2008
FitTester 3000 Quantitative Respirator Leak Rate Analyzer		0189	Annually	6/12/2008
MultiRae Personal Multigas Monitor	PGM50-5P	095-512273	Annually	3/1/2008
MultiRae Personal Multigas Monitor	PGM50-5P	095-518178	Annually	3/1/2008
MultiRae Personal Multigas Monitor	PGM50-5P	095-518221	Annually	3/1/2008
MultiRae	PGM50-5P	095-518218	Annually	3/1/2008

Personal Multigas Monitor				
MultiRae Personal Multigas Monitor	PGM50-5P	095-518200	Annually	3/1/2007
Rotameter	MMA-25		Annually	Out of Service
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 Technologies Sound Level Meter	2900	CDD010048	Annually	7/1/2008
Quest Technologies Sound Calibrator	QC-10	QID020090	Annually	7/1/2008
Quest Technologies Octave Band Filter	OB-100	HWD020018	Annually	7/1/2008

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	ROOMS INSPECTED IN 2006/07
ART STUDIO	32
AW SMITH	125
BINGHAM	143
BISHOP	20
BOLWELL	19
BIOMEDICAL RESEARCH BLDG.	876
CLEVELAND CLINIC FOUNDATION	0
CEDAR AVENUE SERVICE CENTER	34
CLAPP	30
CLARK	0
DEGRACE (BIOLOGY)	42
DENTAL	221
GLENNAN	137
HANNA PAVILION	45
HEALTH SERVICES	39
KENT HALE SMITH	193
LOWMAN	1
MACDONALD	42
MATHER GYM	0
MATHER MEMORIAL	0
METROHEALTH	77
MILLIS	190
MORLEY	39
NURSING	131
OLIN	118
PATHOLOGY	143
RAD WASTE FACILITY	2
RBC	68
RESEARCH TOWER	90
ROBBINS (MED EAST)	237
ROCKEFELLER	91
SEARS BLDG.	0
SEARS TOWER	103
SERVICE BLDG.	6
SQUIRE VALLEYVIEW FARM	3
STROSACKER	3
VA HOSPITAL	17
WEARN	44
WEST QUAD (MOUNT SINAI)	34
WHITE	126
WICKENDEN	141
WOLSTEIN RESERCH BLDG.	615
WOOD	273
UCRC II	36
UNIVERSITY WEST	90
TOTAL	4676

TABLE 9 - Inspection Results

INSPECTION FINDINGS:

CORRECTED BY LA BORATORY

Update Chemical Hygiene Plan	398
Update Exposure Control Plan	307
Improper Storage	293
Need Caution sign & Emergency Info	273
Needs Flammable Storage Cabinet	225
Update Manuals	182
Improper Storage of Flammables	145
Cylinders Found	122
Need Personal Protective Equipment (PPE)	115
Biohazards found	111
Regulated Chemicals found	107
Bloodborne Pathogens found	89
Needs Chemical Compatibility	76
Food/ Drink found	50
Sharps found	35
Need cylinder secured	30
Lasers Found	19
UV Found	17
Need cylinder capped	13
Need Respirator	7
X-Rays found	5
Need regulator on cylinder	1

CORRECTED BY DOES

Disposals/ Removals	328
Recertify Chemical Hoods	232
Waste found	192
Recertify Biohoods	119
Asbestos Found	6

CORRECTED BY FACILITIES

Recertify Eyewash	213
Recertify Safety Shower	149
Replacements	66
Replace Light Bulbs	61
Repairs	45
Installations	17

CORRECTED BY SECURITY

Recertify fire extinguisher	126

TABLE 10 - Regulated Chemical Trends

REGULATED CHEMICAL	06/07	05/06	04/05
1,3 Butadiene	1	1	0
4-Dimethylaminoazobenzene	2	2	0
Acrylonitrile	1	1	1
Benzene	25	6	17
Benzidine	7	0	0
Beta-Propiolactone	1	0	0
Cadmium	2	1	5
Ethylene Oxide	4	1	1
Formaldehyde	124	55	87
Inorganic Arsenic	1	1	2
Lead	6	2	6
Methyelendianiline	0	2	0
Methyl Chloromethyl Ether	0	0	1
Methylene Chloride	9	12	17
TOTAL	186	84	137

TABLE 11 - Indoor Air Quality Trends

IAQ EVALUATION	06/07	05/06	04/05	03/04	02/03	01/02	00/01	99/00
ASBESTOS	62	98	61	171				1
FORMALDEHYDE	0	24	84	98	53	43	16	84
CHEMICAL	8			5	4	4	4	20
BIOAEROSOL	11	4	17	45	1	18	81	87
LEAD	5	6		66	2	32		
MERCURY	6			1				
METALS	2			5				
NITRATE/ NITRITE	1			72	75		17	20
NOISE	1			19				
ENVIRONMENTAL SAMPLING	4							
ANESTHETIC GAS	10							
TOTAL	110	132	314	483	135	97	118	212

TABLE 12 - Respirator Statistics

RESPIRATOR USERS	06/07	05/06	TYPE
ACTIVE	64	106	
N95 BSL3	4	30	N95
N95 ABSL3	6	30	N95
EMERGENCY RESPONSE	8	15	Full face/ Half face/ SCBA
PLANT SERVICES	20	60	PAPR
CHEMICAL LABORATORIES	6	5	APR
ANATOMY	1	10	APR
TOTAL	109	256	

TABLE 13 - Hood Certification Statistics

ASHRAE TEST	2007	2006	2005	2004	2003	2002	2001
PASS	13	6	90	20	65	58	149
RESTRICTED	0	7	17	3	17	21	54
FAILED	0	0	0	4	16	15	17
N/A	0	0	0	0	0	0	1
TOTAL	13	13	107	27	98	95	221

VELOCITY TEST	2007	2006	2005	2004	2003	2002
SATISFACTORY	527	156	296	121	431	0
RESTRICTED	184	35	106	92	140	0
INOPERATIVE	33	6	55	39	58	1
TOTAL	744	197	457	252	629	1

TABLE 14 - Clearance/ Relocation Trends

CLEARANCES	06/07	05/06	04/05	03/04	02/03	01/02
RELOCATION	177	244	245	934	808	50
REPAIRS	10	61	68	53	44	18
DISPOSAL	190	210	316	230	311	69
DEMOLITION	16	162	8	1	12	1
RENOVATION	20	18	15	29	4	1
RELOCATION TO STORAGE	10	1	1	0	40	0
TERMINATION	17	7	30	3	0	0
CLEAN	0	7	3	0	1	0
RETURN TO VENDOR	2	1	0	0	0	0
DECOMMISSION	16	4	0	1	0	0
TOTAL	458	715	698	1256	1190	147

TABLE 15 - DOT/ IATA Shipping Trends

DOT/IATA SHIPPING	06/07	05/06
Aviation	0	5
Biological	47	40
Corrosive	1	0
DOT	59	91
Dry Ice	46	51
Employee Handling	0	11
Infectious	2	10
IATA	0	0
ICAO	2	1
Radioactive	1	0
Flammable	0	0
TOTAL	158	209

TABLE 16 - Security Check Trends

SECURITY CHECK VIOLATIONS	06/07	05/06
BRB	13	18
Med East	4	2
Wood	7	18
Research Tower	5	12
Hospital Buildings	0	6
Wolstein	23	12
Millis	3	4
AW Smith/ Rockefeller	1	2
KHS	0	0
Wickenden	0	0
TOTAL	56	74

TABLE 17 - Injury Trends

INJURY TYPES	06/07	05/06
NEEDLESTICK	2	23
BLOOD SPLATTER	0	1
CHEMICAL SPILL	11	10
LACERATION	16	1
PUNCTURE	9	2
STRAIN	17	2
SLIP/ FALL	11	3
OTHER	9	12
INHALED	3	0
ANIMAL BITE	3	0
TOTAL	81	54

DEPARTMENT OF INJURY	06/07	05/06
DENTAL	13	25
MEDICINE	8	11
CUSTODIAL	14	1
ARC	3	4
BIOLOGY	0	4
CHEMISTRY	3	2
ENGINEERING	0	1
PLANT	5	0
OTHER	35	7
TOTAL	81	54

TABLE 18 - Incident Trends

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

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

TABLE 19 - 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)

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)

Suits (Boxes)

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

Foot Protection (Pair)

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

Eye Protection (Each)

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

Respirator (Each)

Full face respirator 3000 series (1)
N95 Respirator (80-100)

TABLE 20 - Construction Projects Inspection for 2006/2007

- ARC Project
- Crawford Renovation of Lobby and First Floor
- Crawford Project Renovation of Rooms 13 and 14 (Inamori Center)
- Bingham Structures Laboratory Renovation – Environmental Survey
- Carlton Dorms Interior Renovation
- Carlton Dorms Exterior Renovation
- Wickenden 2nd Floor Renovation Project
- Wickenden 5th Floor Renovation Project
- Glennan 5rth Floor Renovation Project
- Wood Building Floors 1,2 & 3 Renovation Project
- Med East B 04 Chiller Room Demolition
- Pathology Building Floors 1, 2 & 3 Renovation Project
- Bioenterprise (UCRC I) Data Center Renovation Project
- Mandel Center New Construction Project
- Wolstein 6th Floor Build out Project
- S.A.E. House Renovation Project
- New Alumni House Demolition and Renovation Project
- Staley Dorm Renovation Project
- Morley Building Environmental Assessment Project
- Squire Valleevue Lead Base Paint Project @ the Horse Barn
- Squire Valleevue Lead Base Paint Project @ the Dairy Barn
- Ball Field Construction @ the Nobby Park Athletic Complex
- Elevator Replacement Project @ 4 Dorms on North Side of Campus
- House Renovation for Juniper Renovation Project @ 11120 Juniper
- Roof Safety Survey for all University Properties
- Noise Level Monitoring in Wood Ground Floor
- Glennan Renovation 3rd Floor Computer Science Center
- Glennan Renovation 1st Floor

TABLE 21 - DISPOSAL SITE WASTE DISTRIBUTION

WASTE TYPE	ARTS/ SCIENCE	ENGINEERING	DENTAL	MEDICINE	CASC	WOLSTEIN
CONTAINERS, <1 GAL (#)	2065	2058	1181	5221	307	454
CONTAINERS, UNKNOWNS (#)	53	221	11	266	11	0
CONTAINERS (DIRECT INCINERATION) (#)	90	76	42	229	0	9
CYLINDERS (#)	7	1	0	4	0	0
DRUM, OIL (55 GAL)	0	5	0	1	0	0
DRUM, FORMALIN (55 GAL)	0	0	3	34	0	0
DRUM, PHOTO WASTE (55 GAL)	7	1	2	1	0	0
PAILS (5 GAL)	0	1	0	13	27	0
PAILS (2-5 GAL)	191	76	7	135	12	0
PAILS, UNKNOWN (5 GAL)	0	1	0	4	4	0
CYLINDER, PROPANE (20 #)	0	0	0	1	0	0
CYLINDER, NITRIC OXIDE (#)	0	0	0	1	0	0
COMPRESSOR	0	0	0	1	0	0
VIALS	115	73	96	151	0	89
ELECTRONICS	0	0	0	0	6	0
VIALS (UNKNOWN) (#)	0	0	0	14	0	0
MERCURY DEBRIS (10 GAL PAIL)	0	0	0	5	0	0
MERCURY CONTAINERS, SILVER AMALGAM (20 #)	0	0	1	0	0	0
BALLASTS, PCB	0	0	0	0	13138	
BALLASTS, NON PCB	0	0	0	0	2351	0
ELECTRICAL DEVICES	0	0	0	0	6	0
DRUM, LEAD PAINT CHIPS (55 GAL)	0	0	0	0	1	0
BATTERIES (#)	0	0	0	0	1560	0
PAIL, PCB CONTAMINATED DEBRIS (5 GAL)	0	2	0	0	0	0
THERMOMETER	0	0	0	34	0	0
LECTURE BOTTLE, SULFUR DIOXIDE	0	0	0	1	0	0

TABLE 22 - RECYCLING

WASTE TYPE	CASC	CARLTON DORM	ARC RENOVATION PROJECT
BALLASTS (PCB)	0	0	0
BALLASTS (NON-PCB) (#)	35	0	0
LAMP 4 FT (TUBES)	23950	1311	974
LAMP 8 FT (TUBES)	456	0	0
LAMP U (TUBES)	3515	0	0
LAMP HID (#)	1120	0	0
LAMP INCANDESCENT (#)	435	0	0
LAMP OTHER (TUBES)	159	0	0
UV LAMPS (#)	17	0	0
CRUSHED FLOURESCENT LAMPS	88	0	0
COMPUTER (#)	418	0	0
FIXTURES HID LIGHT	4	0	0