

**CASE SAFETY SERVICE
OPERATIONS OF THE DOES**

ANNUAL REPORT

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Departmental Auditor**

FISCAL YEAR 2005-2006

CASE SAFETY SERVICES ANNUAL REPORT FISCAL YEAR 2005-2006

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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, 2005 through June 30, 2006.

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
062106-554-0610	US DOT Research & Special Programs	6/30/2007	Hazardous Waste Transport
18-G-00351	OEPA Generator of Infectious Waste	12/4/2006	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	6/30/2007	Underground Storage Tanks

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

REGISTRATION #	LOCATION	EXPIRATION 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

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- 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 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 and found no violations.

OSHA COMPLAINTS

The following OSHA complaint was administratively addressed in 2005/2006.

4/20/2006 – COMPLAINT # 205-851-850

Notice of safety and health hazards complaint: The complaint alleged Sewer Gas smells. Our investigation into the complaint determined that during remodeling, contractors left open sink drain lines uncapped and buried in the walls. Approximately 12 open drain lines were found. All open drains were found and capped. The search for additional open drain lines will continue if further reports of odors are received. No measurable levels of sewer gas were confirmed in follow-up of complaints from this Facility. The matter was closed on 5/4/2006.

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 Laboratory Safety Committee (LSC) serves as an advisory committee to the Department of Occupational and Environmental Safety (DOES). The LSC is comprised of faculty

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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 designed 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 four subcommittees:

- 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	05/06
Chemical Carcinogen Use in Animals – Supplement B	32
Pathogen Use in Animals – Supplement C	49
TOTAL	81

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 are responsible for monitoring safety during experiments in accordance with these established programs. Laboratories are inspected annually by SSOF for compliance.

LSC MEMBERSHIP

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The 2005-2006 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	Clive Hamlin, PhD. Associate Professor Dept. of Pathology Pathology 204 Term Expires: 9/9/2007 Chairperson: 9/9/2007	David Samols, PhD. Professor & Chairman of CASE Biosafety Committee Dept. of Biochemistry HG Wood 475 Term Expires: 9/9/2007	W. David Sedwick, PhD. Professor & Director of DOES Dept. of Medicine Service Building, 1 st Floor
Yu-Chung Yang, PhD. Professor Dept. of Pharmacology HG Wood 348 Term Expires: 9/9/2007	William Durfee, DVM Asst. Professor & Director Dept. of Veterinary Research Services Animal Resource Center Term Expires: 9/9/2007	Anna-Liisa Nieminen, PhD Professor Dept. of Anatomy Wolstein 3134 Term Expires: 9/1/2007	Christina Hirsch, PhD Asst. Professor Dept. of Infectious Disease BRB 10 Floor Term Expires: 9/1/2007
Thomas Blanchard, PhD. Associate Professor Dept. of Pediatrics Horwitz Tower 8414 Term Expires: 9/1/2007	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	George Cadwallader Director of CASE School of Engineering Office of Administration & Budgets Nord 504	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 1 st Floor	Felice Porter Quality Assurance Specialist DOES Service Building 1 st Floor	Carol Grove Director of UH Safety Dept. UH Lowman Hall 321

SUPPORT STAFF

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

- ◆ Introduction of New Members
- ◆ Assignment of 2006 Audits
- ◆ Review of Audit Activities
- ◆ Overview of Annual Report
- ◆ Introduction of New Safety Department Organization
- ◆ Discussion of Incidents
- ◆ Discussion of new Regulations for Compressed Gases
- ◆ Discussion of Avian Influenza Response Program
- ◆ Campus Injury Reports
- ◆ New Online Chemical Inventory

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- ◆ DOT Training

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AUDITS

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

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

Ten areas were subject to audit during the 2005/2006 fiscal year. These included:

- Clearances
- Hazardous Waste
- Incidents
- Inspection Reports
- Laboratory Waste Facilities
- Licensing Status
- Regulated Chemicals
- Research Protocols
- Select Agents
- Website Accuracy

Major findings are summarized below.

CLEARANCE

LSC AUDIT COMMENT

Clearances include relocation, disposal, and repair of equipment. The required form, with instructions, is available on the DOES web site. This aspect of the Safety Office is well run with good records and timely response. However, the Standard Operating Procedure was last revised January 9, 2002. There is also a need for specific instructions on Freon removal from refrigeration equipment destined for disposal.

SSOF RESPONSE

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The clearance program has been expanded to incorporate both laboratory equipment and e-Waste. As a result, the SOP for this program has been rewritten. The SOP yearly review was delayed to accommodate these changes. Additionally, discussion was held with General Accounting to see if the existing University Disposal Form could be streamlined to incorporate the needs of DOES, Plant, and Faculty.

HAZARDOUS WASTE

LSC AUDIT COMMENT

The Chemical Hazardous Chemical Waste program is a large program that has been in operation for a number of years. The strength of the program is its record keeping and tracking ability. A major limitation is incomplete compliance at the PI level. It is recommended that labs with no recorded hazardous waste pick-ups be closely monitored for reagents needing regulated disposal, during annual lab inspection. Also, it is suggested that reagents that can be safely disposed of through drain system be publicized.

SSOF RESPONSE

The DOES Inspection program involves observation of the chemicals in use and the existence of a hazardous waste satellite accumulation point in each laboratory. If these items are found to be incongruous with either EPA or CASE hazardous waste program requirements, correction is instituted.

Regarding drain disposal, there is a section in the Laboratory Safety Manual that delineates what is appropriate within the confines of EPA regulations for drain disposal. This section is available on the DOES website.

INCIDENTS

LSC AUDIT COMMENT

There were 270 incidents during 2005, none involving injuries. The majority involved odor and mold reporting, and were readily resolved. Overall the program meets present requirements.

INSPECTION REPORTS

LSC AUDIT COMMENT

Inspection reports were found to be complete, with recommended corrective actions for violations or non-compliance activities. When a laboratory has been inspected over several years, records are not always segregated by year, making record evaluation more difficult.

SSOF RESPONSE

The comment was made that inspection records are not sorted by date in separate databases. This is by design. SSOF expects each inspector to examine the issues in laboratories with reference to prior year performance. Segregation of data by date instead of PI makes it more difficult to identify repeat violations that require additional address outside of the inspection program.

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LABORATORY WASTE FACILITIES

LSC AUDIT COMMENT

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

LICENSING STATUS

LSC AUDIT COMMENT

Required licenses were current, except for the Ohio Department of Commerce Transportation license, which was under renewal and paid. Training manuals lacked renewal or expiration dates.

SSOF RESPONSE

All licenses are paid and up to date. Photocopies are displayed in a hanging folder by the front of the DOES office for public inspection. Some licenses are biannual such as the biohazardous waste license. This license comes up for renewal December 2006. Most licenses are annual and are renewed several months in advance of expiration. Additional to licenses is insurance certificates for underground storage tanks. At present, CASE has only one and it is registered and up to date.

All manuals and SOP's have a revision date printed on the front cover of the document. The latest document is then posted to the DOES website. Training documents are under constant revision to meet dynamically changing regulations. All final training documents used by DOES personnel for training are kept on a shared server in the DOES office. Public trainings such as retrains that are available on the website are kept current and reviewed at least annually.

REGULATED CHEMICALS

LSC AUDIT COMMENT

The Standard Operating Procedure is in "first draft". Otherwise, the program is well organized with 344 records, all obtained through voluntary reporting. A more rigorous program would involve copies of purchasing records for regulated chemicals being forwarded to DOES.

SSOF RESPONSE

Unfortunately, no further refinement of this program is possible at the present staffing levels. Formaldehyde use is monitored each year since a large majority of the researchers use this regulated chemical. Additionally, there is a semi-annual review of users and habits. The results of semi-annual questionnaire dictate what monitoring is required.

RESEARCH PROTOCOLS

LSC AUDIT COMMENT

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Thirty protocols were audited and all were in order, excepting one, which lacked the required DOES signature. Three investigators were "past due" for safety training.

SSOF RESPONSE

The carcinogen protocol has been modified to allow DOES to sign off in the absence of Dr. David McCoy, the Director of Environmental Health Sciences. With the appointment of a new chairman in EVHS, more than just one reviewer will be assigned to assist with this process. At times, the DOES holds back signature pending certain training requirements as noted above. If a protocol is received and the investigator or the staff that will be using the carcinogen does not have current training, the protocol is held until training has been completed.

SELECT AGENTS

LSC AUDIT COMMENT

The file of an employee, involved in BSL3 work, was chosen at random and found to be current regarding training, fingerprinting, and facility access. Select agent current-member status, committee guidelines for BSL3 facilities, and monthly inventories were all complete and in good order.

WEBSITE ACCURACY

LSC AUDIT COMMENT

Several programs have revision dates of 2003, two have revision dates of 2004, and one, Safety Clearance Protocol and Request Form, has no revision date. All links on the site are valid and in working order.

SSOF RESPONSE

The entire website is frequently reviewed document by document. As errors are found changes are made.

SUMMARY

LSC AUDIT COMMENT:

Overall, the 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.

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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:

LABORATORY INSPECTIONS

Recommendations

- Ensure that laboratories in each building are consistently inspected annually. The same laboratories were not inspected each year.
- Ensure inspection reports are returned promptly.
- Ensure follow up of violations on inspection reports.
- Ensure that inspection reports are signed and dated by Principal Investigator (PI).
- There is a great fluctuation in the number of laboratories inspected each year. Ensure that the total numbers of laboratories in each building are inspected consistently thereby yielding a more constant total.

SSOF Response

In the past, there has been debate as to whether or not to inspect areas and rooms not designated as laboratories. As a result, some year's inspections contain offices, mechanical spaces, and other non-laboratory areas and other years do not contain these areas. DOES has made a decision to stick with complete building inspection. As a result, the variability of the rooms inspected should be limited in the future to areas that change as a result of construction. This will add consistency to this aspect of the inspection program.

One of the challenges of any inspection program is to obtain a level of awareness and urgency consistent with the need to meet regulatory requirements. Laboratory investigators and staff are involved in completing their work. As a result, extra efforts must be made to make them aware of the need to complete the inspection forms and return them. DOES is always developing ways and means of educating laboratory staff and investigators to increase their level of awareness. The DOES has seen great increases in this aspect of the program over the last 15 years. We expect this issue to wane but never cease.

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CHEMICAL PERSONNEL FILES

Recommendations

- Ensure that exams are graded.
- Ensure that personnel are current in training
- Ensure that follow up correspondence is placed in the personnel file.

SSOF Response

- Step one of correction will be to compare the electronic database to the audit. This will allow us a first pass at determining who is still here. Any issues related to those files identified as active will need immediate action.
- Step two will be conversion of the online tests to a self-grading system.
- Step three will be the formulation of a filing system that streamlines the program so that these issues do not repeat.

CHEMICAL HOODS AUDIT

Recommendations

- Ensure that all standard operating procedures are current. Need to update Fume Hood Certification Testing SOP and ANSI/ASHRAE Fume Hood Testing SOP. The SOP for Fume Hood Face Velocity Testing must be dated.
- Ensure that hoods in each building are certified annually.
- Ensure timely repair of hoods that are used frequently.
- Ensure follow up of incomplete repairs.
- Ensure that hood survey are signed and dated by reviewer.
- Ensure that extra comments are explained.
- Since 776 hoods were certified in 2003 and only 456 hoods in 2005, ensure that all hood certifications are made current for 2006.

SSOF Response

- The chemical hood SOP was updated.
- A button was added to the form so that follow up on incomplete repairs would be documented.

The above listed changes were made prior to the departure of the individual running this program. All chemical hoods on campus have been ASHARE tested once at this point. DOES readjusted its goals and objectives to meet the new environment of the University. The result has been a reduction in the level of service in this program area, which will be reflected in next years audit.

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SAFETY SERVICES OFFICE (SSOF)

STAFFING

The SSOF operates with the following staffing:

Director (1)	Associate Director (1)
Engineer (1)	Specialist Positions (3)
2 nd shift Specialist (1)	Student (1)
Department Assistant (1)	Plant Safety Specialist (2)
Part time Position (1)	Loss Prevention Specialist (1)
Quality Assurance Specialist (1)	

Four staff members of the SSOF left CASE this fiscal year. 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. One Specialist position was filled for Safety Services during the past year. This individual has an Environmental & Occupational Health background.

The Technical 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. Marc Rubin who worked under the tutelage of Richard Dell for 15 years has continued to effectively lead Safety Services upon Richard Dell's retirement as Associate Director.

TRAINING AND PROFESSIONAL DEVELOPMENT

All Specialists receive job specific training under the auspices of experienced personnel. Specialists also attend training programs offered by outside experts that provide required certification for a number of 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; thus bringing a different perspective to the Safety Services program.

Training and conferences attended in 2005-2006 included: First Responder Operations Training, Asbestos Building Inspection, Asbestos Management Planner, NFPA Life Code Specialist for General Construction and Health Care Systems, and Institute of Animal Care and Use Committee (IACUC) 100 Training. All staff members received an 8-hour RCRA Hazardous Materials Manager Refresher Certification, 8 hour National Incident Management System & IMS Practical Drills, DOT Hazardous Materials Training, and 16-hour Incident Command Certification.

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.

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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 Towel Services, a private dry cleaning contractor. This service 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, 100 researchers utilize the service monthly, cleaning an average of five pieces each month.

DOES EMAIL

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

DOES WEB SITE

The DOES home web site (<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. Over the past year, through this resource, DOES has provided researchers with the following new 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
- Safety Clearance and Research Laboratory Relocation or Termination Forms
- New Faculty Checklist
- New Employee Exposure Checklist

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:

- E-Waste: What You Need to Know
- Hazardous Materials Shipping--A Growing Concern for Universities
- Controlling Laboratory Ergonomic Risk Factors
- Aging Work force Will Require Adjustments to Workplace Environment
- Inactive Authorized User Status and Absence from the Lab

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- Frantic over Finals? Some Stress-Busting Tips from DOES
- Spring Cleaning for Safety's Sake
- Quiz: Know Your Role
- Inspection Reports: Return Them Promptly
- Construction Safety: A Necessary Precaution
- Ergonomic Safety Program at DOES
- A Few Building Safety Coordinator Training Safety Reminders
- Using Your "Blue Bins" Properly
- Holiday Decorations: Play It Safe
- Laboratory Equipment Repair Service
- Allergic to Latex?
- Laboratory Equipment Repair Service
- Lab Relocation Advice
- Lab Safety Manual, Retraining Slides and Exam--All Now Available at does.case.edu
- Safety Questions? Login to does.case.edu
- Eating Food in the Lab—A Dangerous and Illegal Habit
- Compliance Issues: Reminders
- Safety Plans: Does Your Lab Need a Chemical Hygiene or Exposure Control Plan?
- Reporting Accidents, Near-Misses and Incidents to DOES Immediately
- Proper Disposal of Your Empty Chemical Bottles
- Laboratory Surveys: When Do They Need to Be Performed?
- Where is DOES?
- Volunteer/Minors/International Dependent Policy: Reminders
- Fall Preparations—Is Your Lab Ready for the Fall Semester?
- Lab Safety during Pregnancy
- Chemical Spill Response

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), comprised of representatives from departments responsible for hiring laboratory personnel (Human Resources, Student Employment, Kelley Temporary Services, Health Services, and Medical School), was formed to improve tracking of University employees for training and safety in general. During this fiscal year the University Compliance & Risk Management Committee requested an update from the Employee Compliance Committee of the Compliance Issues that were addressed. Compliance Issues addressed are listed in the table.

YEAR	COMPLIANCE ISSUES
2002	Procedures developed to properly track faculty, staff, and students upon hire for training and screenings Procedures developed to track 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

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	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

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 duty 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	05/06	04/05	03/04	02/03
New Employees	561	750	715	565
New Faculty	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 excellent progress contacting individuals requiring new worker training and annual retraining. Training is offered in the Laboratory Standard and regulated chemicals. This training is Internet and lecture-based using PowerPoint presentations available in the SSOF or at various campus locations. Both initial and retraining classes are offered on a weekly basis. Most retraining was accomplished over the Internet. The following training presentations were completed:

- Pipeline and Hazardous Materials Safety Administration/ Department of Transportation (PHMSA/ DOT) Hazardous Materials Shipping
- International Air Transport Association (IATA) Dangerous Goods and Infectious Substance Shipping
- Avian Flu Preparedness
- Respirator Training

TRAINING	NEW USERS	ONLINE
Hazard Communication	90	28
Laboratory Safety	606	1278
Bloodborne Pathogen	655	675

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Respirator	103	
Vehicle Safety	98	
Fire Extinguisher	75	
Plant	240	
BSL3		38
DOT/IATA Shipping	168	
Contractor	422	
Special Classes	395	
TOTAL	2852	2019

TRAINING	05/06	04/05	03/04	02/03
Hazard Communication	118	276	272	52
Laboratory Safety	1884	1754	753	940
Bloodborne Pathogen	1330	1001	859	910
Respirator	103	73	118	70
Vehicle Safety	98	128	135	
Fire Extinguisher	75	72	60	
Plant	240	280	282	
BSL3	38	39	49	
DOT/IATA Shipping	168	26	15	4
Contractor	422	118	190	80
Special Classes	396	207	195	90
TOTAL	4872	3974	2928	2146

SPECIFIC TRAINING PROGRAMS

HAZARD COMMUNICATION TRAINING (HAZCOM)

The Hazard Communication training, previously called Right-To-Know, addresses specific safety concerns of the target audience. 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, Kelley Temporary Services, trained temporary employees using SSOF training documents in Laboratory Safety and Bloodborne Pathogens.

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.

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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, 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

Training of personnel planning to ship materials is required every 3 years for each specific type of material. Training in non-flammable gases, and aviation-regulated materials has also been conducted.

RESPIRATOR TRAINING

Special training sessions for Facilities Services, Animal Resource Center (ARC), and BSL3 Facility employees were conducted and medical evaluations and respirator fit testing were completed. Contractors that were required to enter the BSL3 and ABSL3 facilities were trained and fit-tested prior to entry.

VEHICLE SAFETY TRAINING

Vehicle Safety Training is presented on an as needed basis.

FIRE EXTINGUISHER TRAINING

Hands-on Fire extinguisher training using a live contained fire was provided for members of the Housing and Residence Life Staff.

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

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- Lockout/ Tag out
- Workplace Cleanliness
- Hot Work Permits
- Powered Industrial Pallet Jacks
- Powered Industrial Lift Truck

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.

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 1200 laboratories. These laboratories are located in four hospitals, the CASE Quad and the Medical, Nursing, and Dental School facilities. All laboratories are equipped to use hazardous material and specialized equipment. Laboratories typically include chemical hoods, meters, analytical detection and measurement equipment, waste receptacles, and decontamination supplies.

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. The Smart Board System augments the in-house training program, which allows our trainers to directly demonstrate the use of the on-line database and training materials and provides direct access to library services and campus maps during staff meetings and emergency responses.

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Chemical Laboratory:

Service Building (1st Floor):

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

HAZARDOUS WASTE FACILITIES:

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

MEDICAL SCHOOL WASTE FACILITY (DOA990)

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

MILLIS WASTE FACILITY

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

WOLSTEIN WASTE FACILITY

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, Bolwell 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 materials. A variety of animals (mice, rats, hamsters, rabbits, ferrets & large animals such as sheep, dogs, pigs) are housed in one facility. The Bolwell and Wolstein Facilities predominantly house mice. Contaminated items are stored in the ARC freezer until disposal. The ARC contains an ABSL-3 laboratory that is used for prion research with Select Agents and the Wolstein Building also contains an ASBL-3 facility. The Med East ARC is currently undergoing major renovation of the facility.

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INSTRUMENT CALIBRATIONS

Properly calibrated instruments are necessary for Industrial Hygiene (IH) and hood certifications. Annual factory calibrations of 21 industrial hygiene, respirator, ventilation, noise, and lighting instruments are maintained.

INSTRUMENT	MODEL	SERIAL #	FREQUENCY	NEXT DUE
High flow impactor pump	10-709	1298-2617	Annually	11/15/2005
Mini-Buck Calibrator	M-30	M-5648B	Annually	11/11/2006
Mercury Vapor Analyzer (Jerome)	431-X	1835	Annually	10/16/2006
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	11/23/2005
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	12/9/2006
Miran Sapphire (UV Analyzer)	205B	205B-79375-398	Annually	4/28/2007
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	3/24/2007
VelociCalc Plus	8360	603016	Annually	4/1/2007
FitTester 3000 Quantitative Respirator Leak Rate Analyzer		0189	Annually	1/14/2006
MultiRae Personal Multigas Monitor	PGM50-5P	095-512273	Annually	1/1/2007
MultiRae Personal Multigas Monitor	PGM50-5P	095-518178	Annually	1/3/2007
MultiRae Personal Multigas Monitor	PGM50-5P	095-518221	Annually	1/9/2007
MultiRae Personal Multigas Monitor	PGM50-5P	095-518218	Annually	1/9/2007
MultiRae Personal Multigas Monitor	PGM50-5P	095-518200	Annually	1/3/2007
Rotameter	MMA-25		Annually	Out of Service

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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	3/24/2006
Quest Technologies Sound Calibrator	QC-10	QID020090	Annually	3/24/2006
Quest Technologies Octave Band Filter	OB-100	HWD020018	Annually	3/24/2006

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SAFETY SERVICES PROGRAMS

GENERAL COMMITMENTS AND SERVICES

The SSOF is meeting its commitments to conduct programs in compliance with local, state, and federal regulatory programs. Regulatory compliance areas managed include DOT and IATA for transport of goods, all EPA RCRA programs for environmental chemical releases and waste disposal, all OSHA programs for employee safety, and NFPA fire code audit, and program development. Program compliance has varying requirements at the local, state, and federal levels. Faculty responsibilities are aided by training in Chemical Hygiene and Exposure Control Plan development for their laboratories.

INSPECTIONS

Inspections are conducted annually 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 715 Principal Investigators (PIs) authorized to use chemical and biological materials in 3653 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.

Inspections were conducted at UH, Metro Health, and Veterans Administration (VA) Hospitals. Squire Valleevue Farm, a University owned property, was also inspected. These outlying sites were inspected because CASE personnel are working in these areas. The Inspection Program for Chemical Safety compliance also investigates and resolves biological safety compliance and hazards. As noted, 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. Repeated issues that are not addressed by the investigator or chairperson are passed on to the Deans or Provost for further action.

BUILDING NAME	ROOMS INSPECTED IN 2005
ART STUDIO	32
AW SMITH	120
BINGHAM	143
BISHOP	20
BOLWELL	18
BIOMEDICAL RESEARCH BLDG.	346
CLEVELAND CLINIC FOUNDATION	
CEDAR AVENUE SERVICE CENTER	
CLAPP	30

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CLARK	
DEGRACE (BIOLOGY)	41
DENTAL	221
GLENNAN	137
HANNA PAVILION	45
HEALTH SERVICES	39
KENT HALE SMITH	16
LOWMAN	1
MACDONALD	42
MATHER GYM	
MATHER MEMORIAL	
METROHEALTH	77
MILLIS	190
MORLEY	39
NURSING	128
OLIN	115
PATHOLOGY	95
RAD WASTE FACILITY	
RBC	33
RESEARCH TOWER	99
ROBBINS (MED EAST)	237
ROCKEFELLER	91
SEARS BLDG.	
SEARS TOWER	70
SERVICE BLDG.	
SQUIRE VALLEYVIEW FARM	
STROSACKER	
VA HOSPITAL	17
WEARN	44
WEST QUAD (MOUNT SINAI)	
WHITE	94
WICKENDEN	141
WOLSTEIN RESERCH BLDG.	587
WOOD	273
UCRC II	36
UNIVERSITY WEST	36
TOTAL	3653

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.

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SPECIFIC SAFETY PROGRAMS

OSHA LABORATORY PERFORMANCE STANDARD

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

MATERIAL SAFETY DATA SHEET (MSDS) PROGRAM

The MSDS program is available through Chemwatch at the DOES Website. Communication methods were evaluated with regards to Right-to-Know issues related to construction. To this end, DOES has developed an electronic posting board on the DOES website for MSDS sheets for each 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.

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 such as monitoring of hoods, calibration of equipment, inspections of workspace, and MSDS information can be provided. No workers completed the Declaration of Pregnancy Form this fiscal year.

REGULATED CHEMICALS

Through assessments the more frequently used regulated chemicals are covered 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. Also the regulated chemical questionnaire was revised and sent to more than 1000 PIs. Of the 1000 questionnaires, 117 new forms were returned. The table below summarizes the questionnaires returned to the department.

REGULATED CHEMICAL	05/06	04/05
1,3 Butadiene	1	0
4-Dimethylaminoazobenzene	2	0
Alpha – Naphthylamine	0	0
Acrylonitrile	1	1
Benzene	6	17
Cadmium	1	5
Ethylene Oxide	1	1
Formaldehyde	55	87
Inorganic Arsenic	1	2

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Lead	2	6
Methylenedianiline	2	0
Methyl Chloromethyl Ether	0	1
Methylene Chloride	12	17
TOTAL	84	137

Completion of sampling for anatomy laboratories and one other project included 48 formaldehyde vapor samples. The samples collected provided analysis of Short Term Exposure Limits (STEL) and Time Weighted Average Permissible Exposure Limits (TWA-PEL). Only one report indicated levels exceeding OSHA permissible exposure limits and corrections were administered. The table below summarizes the dates, types and sample numbers of formaldehyde monitoring events:

DATE	PEL	STEL
11/3/2005	4	14
11/7/2005	4	4
2/8/2006	4	4
3/22/2006	5	5
5/17/2006	2	2
TOTALS	19	29

A new database was designed to evaluate exposure risk and prioritize sampling for regulated chemical users based on frequency, volume, concentration, and condition of use. Findings will be used to develop sampling strategies.

FREQUENCY OF USE	05/06	04/05
FREQUENTLY (Daily – weekly)	77	51
OCCASIONALLY (Monthly)	58	36
RARELY (<12 times/year)	102	66

CHEMICAL HOOD USE	05/06	04/05
ALWAYS	202	134
SOMETIMES	21	11
NEVER	16	11

AMOUNT IN USE/ WEEK	05/06	04/05
0-10 ml	154	102
11-100 ml	48	30
>100 ml	33	21

Completion of a sampling plan for anatomy laboratories included 6 formaldehyde vapor samples. This plan is in place for the medical, dental, biology, and nursing anatomy laboratories. The results of formaldehyde sampling were summarized and distributed to the facility coordinators of the involved departments. This plan reduces the sampling frequency to less than three sessions per semester.

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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 done when necessary and an assessment is carried out through sampling and analysis. Follow-up is executed when the analyses is complete. A report is written assessing the results and given to the complainant and the immediate supervisor.

Four IAQ complaints were investigated in the Adelbert, Thwing, Stone Commons and Sears 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 four IAQ complaints, one was discontinued (Sears) due to no response from the original complainant. One area required further action (Adelbert) that included correction of the HVAC system and mold abatement resulting in IAQ improvement. Two areas (Thwing and Stone Commons) were found to have no significant IAQ issues. All of these measures were coordinated with Plant Services and Customer Services.

ENVIRONMENTAL MONITORING

The environmental sampling protocol ensures dust exposures are addressed in a timely manner.

ASBESTOS MONITORING

Asbestos monitoring is addressed on a per case basis. EA Group sampled 73 asbestos projects and analyzed them. 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 discontinued due to budgetary constraints. Monitoring will now 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 positive for mold growth, 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). For the one project positive for mold growth, arrangements were made by DOES to have the area remediated by an approved contractor.

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.

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IAQ SAMPLING	05/06	04/05	03/04	02/03	01/02	00/01	99/00	98/99	97/98	96/97	95/96	94/95	93/94	92/93	91/92
ASBESTOS	98	61	171				1	2	7	1	5				
FORMALDEHYDE	24	84	98	53	43	16	84	50	20	6	1	5	7	7	1
CHEMICAL			5	4	4	4	20	35			4				
BACTERIA/ FUNGUS	2	17	44	1	18	81	87	73	227	2	2				
LEAD	6		66	2	32										
MERCURY			1									1	9		
METALS			5					7		6	1				
MOLD	2		1					7	5		13				
NITRATE/ NITRITE			72	75		17	20								
NOISE			19						1						
UNKNOWN									4						
TOTAL	132	314	483	135	97	118	212	174	264	16	26	6	16	7	1

RESPIRATOR PROGRAM

The Respiratory Program was reviewed and revised to include slides, tests, and both qualitative and quantitative fit testing. An inventory of respiratory protection equipment was carried out including cartridges, filters, face pieces, wipes, and valves. Approximately six cartridges and four face pieces were used monthly. All response personnel have a face piece that's used at least once per year. There are currently 10 Self-Contained Breathing Apparatuses (SCBAs) in inventory. DOES has also been funding cartridge replacement for the Medical school. The Respirator Protection Plan includes:

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

The OSHA Respiratory Protection Program is designed to protect workers from airborne hazards in the absence of feasible engineering controls. As such, the call for respiratory protection, in CASE laboratories, is limited to biological work involving N95 respirators and chemical protection is a few scattered laboratories. The bulk of the remaining 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 by students on a voluntary basis in anatomy classes and by Animal Resource personnel who attend to animals in the ABSL-3 facility.

One hundred six workers were trained of this group only 92 reported for Physical Evaluations. The 14 workers who did not report for physicals are not able to wear respirators and are being actively encouraged to complete their certification. Of the 106 workers trained, only 67 workers were actually fit tested for active use. Twenty-five workers who did not receive a fit test were 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 as follows:

RESPIRATOR USERS	05/06	TYPE
ACTIVE	106 (Note: There is overlap in worker use areas)	
N95 BSL3	30	N95
N95 ABSL3	30	N95
EMERGENCY RESPONSE	15	Full face/ Half face/ SCBA

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PLANT SERVICES	60	PAPR
CHEMICAL LABORATORIES	5	APR
ANATOMY	10	APR

HOOD CERTIFICATION PROGRAM

The new objective of the fume 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 need to re-establish the ASHRAE program within the next 3 years 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.

Hood testing was carried out in a majority of the laboratories that were occupied or used by CASE personnel. .

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

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

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	05/06	04/05
RECERTIFY	274	142
REPAIR	31	16
TOTAL	305	158

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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, departure from CASE, and Safety Clearances. Approximately 715 pieces of equipment were either moved or discarded during the 2005/2006 fiscal year, with 166 research laboratories, representing 62 Primary Investigators (PIs) relocated for such purposes as decommissioning, renovation, termination or relocation. The ARC Reconstruction Project is included in the demolition and relocation totals.

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

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. 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

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were carried out during this fiscal year. Minor violations 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 included all incidents involving Emergency Response, Indoor Air Quality, and other types of non-standard assignments. 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.

INJURY TYPES	05/06
NEEDLESTICK	23
BLOOD SPLATTER	1
CHEMICAL SPILL	10
LACERATION	1
PUNCTURE	2
STRAIN	2
SLIP/ FALL	3
NONE	12
TOTAL	54

DEPARTMENT OF INJURY	05/06
DENTAL	25
MEDICINE	11
CUSTODIAL	1
ARC	4
BIOLOGY	4
CHEMISTRY	2
ENGINEERING	1
OTHER	7
TOTAL	54

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 SSOF responded to one major incident. The complete spectrum of incidents is listed below:

INCIDENTS	05/06	04/05
INDOOR AIR QUALITY	0	2
ODOR	73	107
ASBESTOS	38	15
MOLD/ FUNGUS	19	18
WATER SAMPLING	0	14
NOISE	2	1
SPILLS	38	22
FIRE	3	4
INJURY	54	10
WASTE DISPOSAL	7	12
LEAD	0	2

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FORMALDEHYDE	0	3
GAS	0	25
OTHER	13	49
CLEARANCE	1	0
ALARM	15	0
HOOD	8	0
TOTAL	271	306

INCIDENT/ INQUIRY	05/ 06	04/ 05	03/ 04	02/ 03	01/ 02	00/ 01	99/ 00	98/ 99	97/ 98	96/ 97	95/ 96	94/ 95	93/ 94	92/ 93	91/ 92
TOTAL	271	306	297	204	210	152	201	150	206	192	59	120	139	90	42

WATER LEAK IN LABORATORY – 1/30/2006

The water leak was found by Security and reported to Safety. Custodial Services was cleaning up the water upon arrival. Tygon tubing from Millipore equipment burst resulting in flooding of the 4th laboratories, and leaking in the 3rd, 2nd and Ground Floor laboratories. Water damage was extensive in a 3rd floor resulting in computer damage and loss of experimental specimens. The flood was caused by the lack of permanent plumbing to secure the Millipore equipment (ice machine). Permanent plumbing on the ice machine will be done in the future to prevent future leaks.

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. If the DOES site is compromised, a reciprocal arrangement for housing emergency services has been established with General Electric in Nela Park.

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).

RESPONSE EQUIPMENT

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All emergency response vehicles and response equipment are checked and maintained regularly. An action plan for maintaining proper readiness was developed using equipment as follows:

- ◆ 400-500 pairs of thin Nitrile gloves
- ◆ 35-40pairs of other glove types over 12 mils
- ◆ 70-80 Tyvek suits
- ◆ 10-15 Tyvek QC suits
- ◆ 24 pairs Tyvek polycoated booties
- ◆ 3 lbs. Mercury absorbent and kit
- ◆ 100 lbs. of various other absorbent for solvents, formaldehyde, acids, etc.
- ◆ 40-50 spill filter strips

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. Special equipment on hand includes:

- ◆ North Silvershield glove liners
- ◆ Butyl, Viton, Polyvinyl Acetate (PVA), Kevlar, and Neoprene gloves
- ◆ Saranex suits
- ◆ Hazmat boots
- ◆ Drum leak kit
- ◆ Mercury Vacuum
- ◆ Spill-X Guns

BIOLOGICAL SAFETY

BSL-3 FACILITIES

In the aftermath of September 11, 2001, the Patriot Act was enacted to protect against bioterrorism. 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. Biannual Select Agent Questionnaires were received from 10 PIs that use a select agent in a regulated quantity.

With the introduction of the variant prion (Bovine Spongiform Encephalopathy agent, BSE), 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. In September 2005, the title and duties of the Operational Alternate Responsible Official was transferred to the Assistant Biological Safety Officer. The Biological Safety Officer (DOES director0 also sits on the following committees: Select Agent Committee, ABSL3 Committee, Institutional Biosafety

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Committee (IBC), IACUC Committee, 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 one select agent to be used on campus, BSE, has been registered with the CDC and USDA. Thirty-seven individuals who are involved in this program underwent background checks and fingerprinting carried out by the Federal government. The BSL-3 laboratories, in which BSE will be used, are in the Institute of Pathology and the ARC (BSL-3) facilities. There are three levels of security controlling select agent access in these facilities:

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

BSE material is stored only in the Pathology BSL3 Facility and only small amounts of BSE required for injection of the animals are transported to the ARC Facility when required.

SELECT AGENT	USERS
Tetrodotoxin	4
Staphylococcal Enterotoxin B	3
Conotoxin	2
Botulinum Toxin	1
Trichothecene Mycotoxin (T-2 Toxin)	1

SELECT AGENT COMMITTEE

The Select Agent Committee is comprised of Select Agent Users, the CASE Biological safety Officer, the Operational Assistant RO from the DOES, the Director of Animal Facilities, and the ARC Veterinarian. This Committee is charged with the responsibility of 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 September 2005 and correction of programmatic defects were completed in December 2005. The SSOF was on track for execution and approval of initial experiments for the Select Agent Samples of BSE and BASE in July 2004. Conversations with APHIS were initiated concerning clarification of program procedures. These programmatic issues were resolved, and the program was approved.

SSOF Staff designed the procedures. Required procedural support included forms for registration, forms for inventory of select agents, guidelines for provision of necessary equipment and supplies, and procedures for decontamination/ destruction and security in handling of select agents. The general BSL3 safety-training program was designed and implemented as a Powerpoint presentation and as an online training document. Manuals for both facilities were completed with final edits performed by the SSOF.

DOES is in the process of updating the Select Agent Security Plan which will be completed by the end of 2006. A DOES representative handles Security for the Select Agent Program.

PHYSICAL SAFETY

PHYSICAL SAFETY MANUAL

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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 is overseeing the enforcement of Emergency Evacuation Plans update and placement on the DOES Website.

Adelbert Hall	Allen Memorial Medical Library
School of Dentistry	CASE Quad West/Center/East
Dively Building	Mather Quad
MSASS Building	School of Medicine
Physical Education and Athletics	Peter B. Lewis Building
Thwing Center	School of Nursing
School of Law	Bookstores/Barnes & Noble (Located in Thwing Center)
University Health Services	University West
Veale Recreation Center	Wolstein Building Underground

Inspections of University owned buildings, residence halls, houses, and areas that need fire extinguisher installation or recertification are documented and the security is notified. The building monitor reports were sent quarterly to the facility managers of each building.

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 on the West Quad (formerly Mt. Sinai) was completed in October 2005 and the issue was closed as an environmental problem. One UST is housed in 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.

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ERGONOMIC EVALUATIONS

Ergonomic assessments are only conducted upon an employee's request. Six individual office assessments were completed. Suggestions were made on how individuals could improve their areas through implementation of good ergonomic work practices and through information to help them understand these practices. Most suggestions have been accomplished with very little or no impact to the 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. It is estimated that approximately 150 employees will be included in this annual testing program.

This full-scale Noise Management Program includes training, managing 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 was conducted during one of the CASE Band Rehearsals at Denison Hall on April 17, 2006. The Band Director and a percussionist wore the noise dosimeters. The OSHA Hearing Conservation (OSHA HC) limit of 85 dB for an 8-hour Time Weighted Average (TWA) was not exceeded. 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 not exceeded. The permissible sound level of 102 dB for a period of 1.5 hours (actual dosimeter run time) was not exceeded. Based on all the data gathered, it was suggested that earplugs be used during band rehearsals to reduce the risk of hearing loss to band members.

Noise monitoring was conducted in the office space that is partitioned from another part of the room in Clarke Basement on April 4, 2006 and May 17, 2006. The OSHA Hearing Conservation (OSHA HC) limit of 85 dB for an 8-hour Time Weighted Average (TWA) was not exceeded. 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 not exceeded. The permissible sound level of 102 dB for a period of 1.5 hours (actual dosimeter run time) was not exceeded. Based on all the data gathered and that the employee wears a hearing aid, it was suggested that the employee have his audiologist adjust the hearing aid to the frequencies found in the room and recommended the employee consider a hearing aid for the other ear.

LIGHTING PROGRAM

The Safety department, on an as needed basis, is able to conduct primary lighting measurements to evaluate adequate lighting quantity in work environments. 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

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

Both Plant Safety Specialists are fully accessible 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 has also enhanced 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. This manual will also be available on-line.

PROGRAMS

The Job Safety Checklist allows the Plant skilled tradesmen to be more efficient and safety oriented. DOES is currently developing Standard Operating Procedures for 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 an accident and proper reporting procedures are followed.

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 occurred after work hours on a quarterly basis. No regulatory exposure levels were exceeded.

CONFINED SPACE PROGRAM

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

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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 along with training. One hundred and seventy three 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 following projects:

- ARC Project
- Crawford Renovation of Lobby and First Floor
- Crawford Project Renovation of Rooms 13 and 14
- Bingham Structures Lab Renovation
- Carlton Dorms Interior Renovation, Carlton Dorms Exterior Renovation
- Wickenden 2nd Floor Renovation Project
- Glennan 3rd Floor Renovation Project
- Wood Building Floors 1,2 & 3 Renovation Project
- Fribley Cafeteria Renovation Project
- Pathology Building Floors 1, 2 & 3 Renovation Project
- Bioenterprise (UCRC I) Data Center Renovation Project
- Mandel Center New Construction Project
- Wood Building 2nd Floor Renovation
- Med East BO4 Chiller Room Demolition

CONTRACTOR OVERSIGHT

Both Plant Safety Specialists 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 contractors and personnel that carry out construction on CASE property. Four hundred and twenty-two contractors were trained in this program. This amount of training will decrease due to the decrease in subcontractor training and construction.

EPA AND WASTE DISPOSAL PROGRAM

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ENVIRONMENTAL RELEASES

The Northeast Ohio Regional Sewer District (NEORS) requires semi-annual reports as part of Best Management Practices (BMP) for minimization of mercury discharge from dental offices to the Cleveland sewer system to a regulatory level of 25 parts per trillion. CASE's sewer releases were in compliance with both federal and state regulations. In the past fiscal year, the report for January through December 2005 was filed on February 2006.

Water testing for nitrates and nitrites were performed in the dormitories on the southern half of the campus during the month of December 2005. The assessment included collection of 56 samples, summary of results, and distribution of reports to the facility coordinator for the dormitories. No regulatory exposure levels were exceeded. In the future the water sampling will be conducted on an annual basis.

Overall, waste collection at CASE continued to increase during the 2005-2006 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 757 Hazardous Waste Forms from 2005-2006 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

Stericycle (formerly BFI), the waste disposer, incinerated all Regulated Medical Waste through Regulated Medical Waste Treatment Disposal Shipping. This waste included dead animals, syringes, needles, and potentially infectious materials. The number of pounds of regulated medical waste treated approximately totaled 103,266 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 involve running a test pack through the autoclave. The samples are then incubated for 24 hours, 48 hours, and one week. Growth in any of the samples indicates failure of the decontamination process. In such cases, the autoclave is taken out of service for diagnosis and repair. 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. There were 12 Autoclave Quality Assurance Tests and 5 Validation Tests done this fiscal year. Validation is also carried out to verify that certified out of service units have been repaired. Validation testing is also being carried out at any time upon request of the Ohio EPA. Autoclaves that do not apply an approved testing program are not considered sterilizers under state law. All materials treated in an uncertified autoclave are still considered to be infectious materials for disposal purposes.

In the past year, Safety compliance and equipment inspections were carried out and resolved for the University's bio-hazardous waste autoclaves. All infectious waste treated in the SaniPak

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Autoclave was transported by Waste Management Industries (WMI) to the American Landfill. The number of pounds equaled 31,250. The volume of this waste is greater than 30% of the total hazardous waste generated at CASE. 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)
- Computer
- Equipment (Electronic)
- Fluorescent Bulbs

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

WASTE TYPE	DOA 990	MILLIS	ART STUDIO	WOL-STEIN	BIOENTER-PRISE (UCRC I)	CASC	ARC RENOVATION PROJECT
CONTAINERS <1 gal (gal)	5578	1804		329	36	285	484

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CONTAINERS (UNKNOWN) (#)	182	30		18			33
CONTAINERS (DIRECT INCINERATION) (#)	264	121		18	1		5
CYLINDERS (#)	8	1					8
55-GAL DRUM (#)	26		3				
OXIDIZERS (#)						250	
PAIS (5 GAL)	75	161		3		10	12
ASBESTOS (BAGS)	6						
FLAMMABLE LIQUIDS (GAL)						1	
DEREGULATED SCINTILLATION FLUID (GAL)	38						
VIALS	484						51
VIALS (DIRECT INCINERATION) (#)	20			7			
VIALS (UNKNOWN) (#)	48	1		2			26
MERCURY DEBRIS (10 GAL PAIL)	1						
MERCURY CONTAINERS	3						
BALLASTS (PCB)	2275					1197	
X-RAY FILMS (#)	241						
NON-HAZARDOUS SOLID (15 GAL DRUM)		1					
SHARPS CONTAINER (5 GAL)	1						
PAIL (UNKNOWN) (5 GAL)		1					
PAIL (PCB CONTAMINATED DEBRIS) (5 GAL)		1					

RECYCLING

WASTE TYPE	DOA 990	BIOENTERPRISE (UCRC I)	CASC	CARLTON DORM	ARC RENOVATION PROJECT
BALLASTS (PCB)			295		
BALLASTS (NON-PCB) (#)			1025		
MERCURY VAPOR (#)	3				

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LAMP 4 FT (TUBES)			600	3300	1200
LAMP 8 FT (TUBES)			150		
LAMP U (TUBES)	2				
LAMP OTHER (TUBES)	2		750		
FLUORESCENT BULBS (#)			70		
ELECTRICAL DEVICE (#)	1				3
BATTERIES (#)		38	856		

MANAGEMENT CENTER WASTE DISTRIBUTION

MANAGEMENT CENTER	Arts/ Science	Engineering	Dental School	Medical School
WASTE COST	\$47,250	\$28,485	\$4,735	\$547,094

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

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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 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 2005-2006

Notable new accomplishments included:

- After retirement of two senior staff members and departure of a technical staff member from Safety Services, DOES successfully reorganized the Department to meet the challenge of operating with smaller technical staff.
- DOES developed and carried out more comprehensive internal audit of all programs.
- The DOES maintained its liaison program to provide a service connection to the safety programs for all Faculty, Staff and students.
- For Plant Safety
 - Wrote new SOP and programs for Tow Motor Safety, Confined Space, Vehicle Safety, and Ladder Safety
 - Developed and implemented new procedures for hot work permitting for the entire campus and all contractors.
 - Participated with Plant Services in review of safety requirements for all projects and developed efficient procedure for providing Contractor Safety Awareness training for all contractors.
- For Laboratory Safety
 - With Faculty Committee, developed improved security for the Select Agent Program and met with Select Agent staff leadership and Faculty throughout year to maintain compliance in these programs.
 - Completed ASHRAE testing of all campus hoods to establish performance criteria that can be correlated with velocity testing of these primary safety enclosures.
 - Developed a new narrated program for Department of Transportation training.
 - Successfully completed a large number of laboratory decommissionings in collaboration with Radiation Safety staff and involved faculty to expedite laboratory moves and renovations.

GOALS FOR 2006-2007

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Alignment with the educational and research goals of the University through training and training development continues to be the SSOF primary goal. Educational and programmatic interaction with local emergency responders continues to increase the SSOF impact in the community. Specific efforts will strive:

- To continue to provide comprehensive Safety Monitoring and new program initiation for the CASE Campus in the face of significantly reduced staffing. Accomplishment of this goal will require continuous rebalancing of the Departments safety programs to ensure that no critical safety areas are left unaddressed during the coming year.
- To continue to foster our excellent relationships with Cleveland Fire and our Community emergency response providers.
- To provide the training materials required for the campus Avian Flu pandemic plan and to ensure, with Protective Services, that the emergency response scenario to test our readiness in this area, is completed and successful.
- To continue our mutual development of campus Emergency response with Protective Services.
- To maintain a service oriented relationship with the campus community that promotes regulatory compliance.

Prepared by Felice Thornton-Porter on 9/20/2006.

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APPENDIX